DRAWINGS ISSUE SHEET RECORD

SITE ADDRESS
-30 Old London Road Badgers Mount
Sevenoaks TN14 7AE

DESCRIPTION
-Rear Extension & Loft Conversion &
New Outbuilding

ALPHA
STRUCTURAL ENGINEERS

33 Station Road N22 6UX
Mobile: 07900060358

www.alphaengineers.co.uk
info@alphaengineers.co.uk
office@alphaengineers.co.uk

Project No.
25727

Date
01/2024

DWG NO:	DESCRIPTION	ISSUE DATE																		
		01/2024																		
		REVISIONS																		
		A	B	C	D															
A99	IMPORTANT NOTES	X																		
A100-A1	PROPOSED FOUNDATION (OUTBUILDING) PLAN	X																		
A100-A3	PROPOSED ROOF STRUCTURAL (OUTBUILDING) PLAN	X																		
A100	PROPOSED FOUNDATION PLAN	X																		
A100-B	PROPOSED FIRST FLOOR STRUCTURAL PLAN	X																		
A100-D	PROPOSED LOFT FLOOR STRUCTURAL PLAN	X																		
A100-F	PROPOSED ROOF STRUCTURAL PLAN	X																		
A100-G	PROPOSED TOPVIEW	X																		
A101-A	PROPOSED FOUNDATION & RETAINING WALL PLAN	X																		
A103'S	DETAIL AND NOTES	X																		
		X																		

DISTRIBUTION		NO. OF COPIES
CLIENT		X
BC INSPECTOR		
ARCHITECT		
CONTRACTOR		

IMPORTANT NOTE: THE CONTRACTOR MUST READ THIS PAGE BEFORE THE CONSTRUCTION STAGE. IF THE CONTRACTOR HAS ANY QUESTIONS REGARDS TO NOTES IN THIS PAGE PLEASE CONTACT WITH THE STRUCTURAL ENGINEER. THESE DRAWINGS FOR BUILDING CONTROL APPROVAL. ALPHA ENGINEERS DO NOT RECOMMEND TO START TO CONSTRUCTION BEFORE THE PLANS APPROVAL BY BUILDING CONTROL

*****SOME OF NOTES MAY NOT BE RELATED WITH THE PROJECT. PLEASE E-MAIL US IF YOU HAVE ANY QUESTIONS REGARDING THE POINTS BELOW**

- All dimensions are in millimeters.
- Dimensions should not be scaled directly from drawings.
- All dimensions must be checked on-site, and any discrepancies must be reported to the architect/structural engineer before construction begins.
- All references to drawings refer to the current revision of that drawing.
- The copyright of this drawing belongs to ALPHA ENGINEERS LTD.
- Depth of foundations to be agreed upon with the Building Control Surveyor; allow a minimum of 1 meter. Assumed allowable bearing pressure = 100 kPa.
- Existing foundations must be checked on-site. ALPHA ENGINEERS must be notified regarding the existing foundation size before the construction stage.
- All concrete for foundations must be sulfate-resisting concrete.
- Any trees within 20 meters of the new foundations must be identified by the contractor/building control inspector, and the impact on the depth and type of foundations should be considered before commencing any work.
- All new foundations and ground floors must be placed at a depth that is not influenced by any existing or proposed trees and on suitable natural subsoil.
- All temporary work required for existing structures is the responsibility of the main contractor and must be designed, installed, and executed in accordance with BS 5975-2008.
- All assumptions made on the drawings must be inspected and validated by the main contractor before commencing any construction work. If any discrepancies are detected, the structural engineer must be informed.
- If there is any excavation next to the existing building/wall, the structural engineer should be informed, and the hit-and-miss method should be used for the new foundation after the structural engineer's review.
- The CONTRACTOR is advised to verify the actual position of the joists before commencing any work. In case the actual position does not align with the assumptions, the structural engineer must be notified promptly.
- All steel members must be S355 grade.
- Connections must be provided by the manufacturer and are subject to SE approval. Connections in these drawings are typical and must be specified by the contractor/manufacturer.

- The CONTRACTOR must provide a method statement and temporary work plan (if its necessary)

A99- Important Notes

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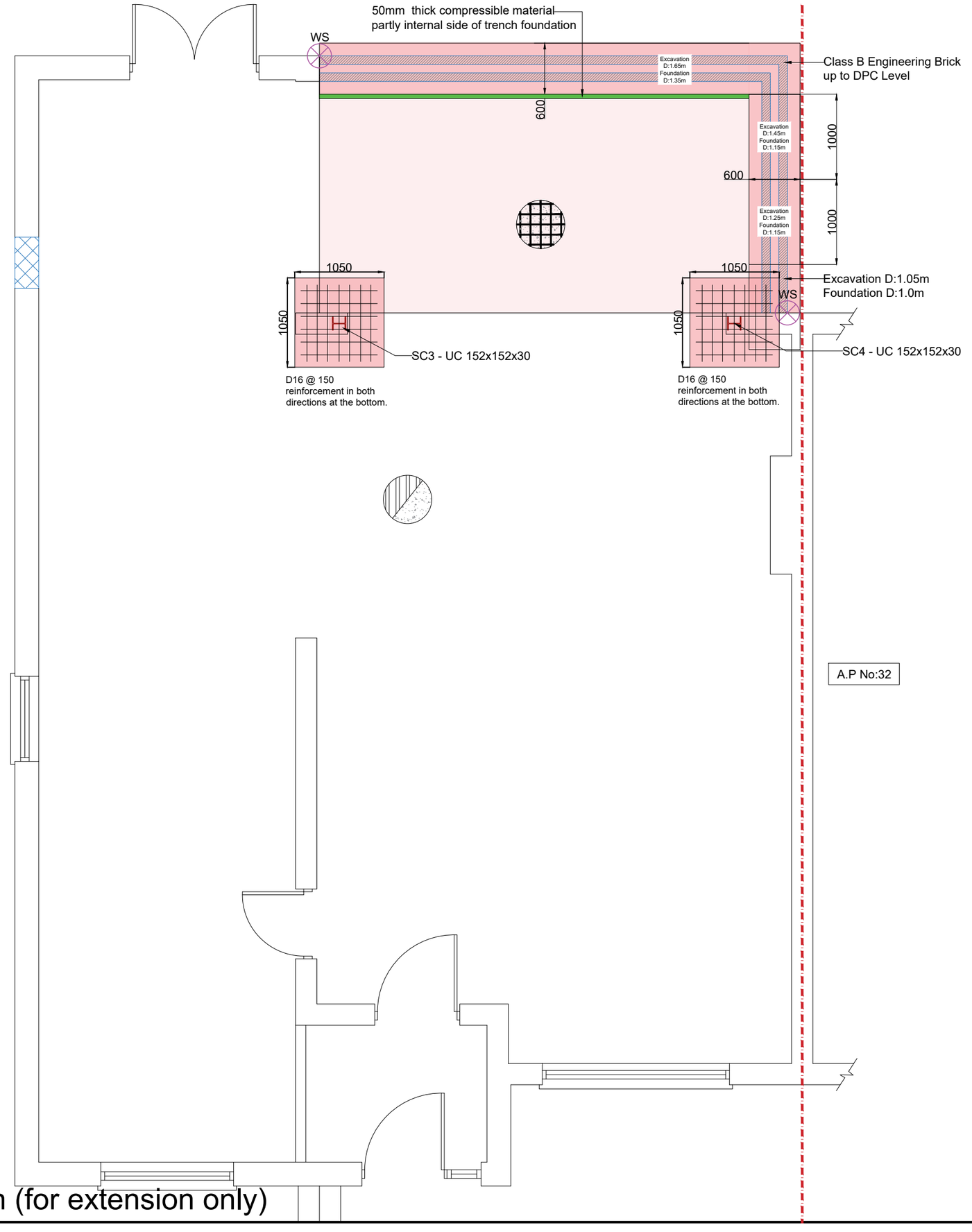
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SITE ADDRESS
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DESCRIPTION
-Rear Extension & Loft Conversion & New Outbuilding

NOT FOR CONSTRUCTION
FOR BUILDUNG CONTROL REVIEW

	CAVITY WALL CONSTRUCTION: EXTERNAL LEAF: 102mm CLAY BRICK INTERNAL LEAF: 100mm 7.3N/mm² LIGHTWEIGHT BLOCKWORK ALL IN MORTAR DESIGNATION (iii). **NOTE :** IF THE EXTERNAL FINISH IS RENDERING THEN THE OUTER LEAF CAN BE REPLACED WITH BLOCKWORK
	Proposed C30/C40 MASS SULPHATE RESISTING CONCRETE Foundation Min.1000 mm Depth & the final depth to be agreed with Building Control Inspector
	150mm thick C30 Concrete Ground Bearing Slab with A393 mesh top &bottom
	Existing Floor to be checked (Suspended or Ground Bearing)
	Existing opening to be infill with the same wall structure to match the existing wall.
	Proposed 100 mm non-load bearing Timber Wall
WS	Wall Starter As In The Detail
	Vertical And Horizontal Straps As In The Details
AEJ	Assumed Existing Joists
150	150x50mm (6"x2") @400 C/C - C24
175	175x50mm (7"x2") @400 C/C - C24
Double Trimmer	ALL Double Trimmer to bolted together with M16 10.9 Bolts @400 C/C Staggered Bolts 100mm min. bearing length
Triple Trimmer	ALL Triple Trimmer to bolted together with M16 10.9 Bolts @400 C/C Staggered Bolts 100mm min. bearing length
ST001	450x100x215 mm tk C30 Padstone or 450x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
ST002	700x100x215 mm tk C30 Padstone or 700x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
ST003	900x100x215 mm tk C30 Padstone or 900x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
ST004	1250x100x215 mm tk C30 Padstone or 1250x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
E.L.	Existing Support to be checked and SE informed before the construction stage



0 1 2 3m

scale 1:50

A100- Proposed Foundation Plan (for extension only)

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Project No. 25727

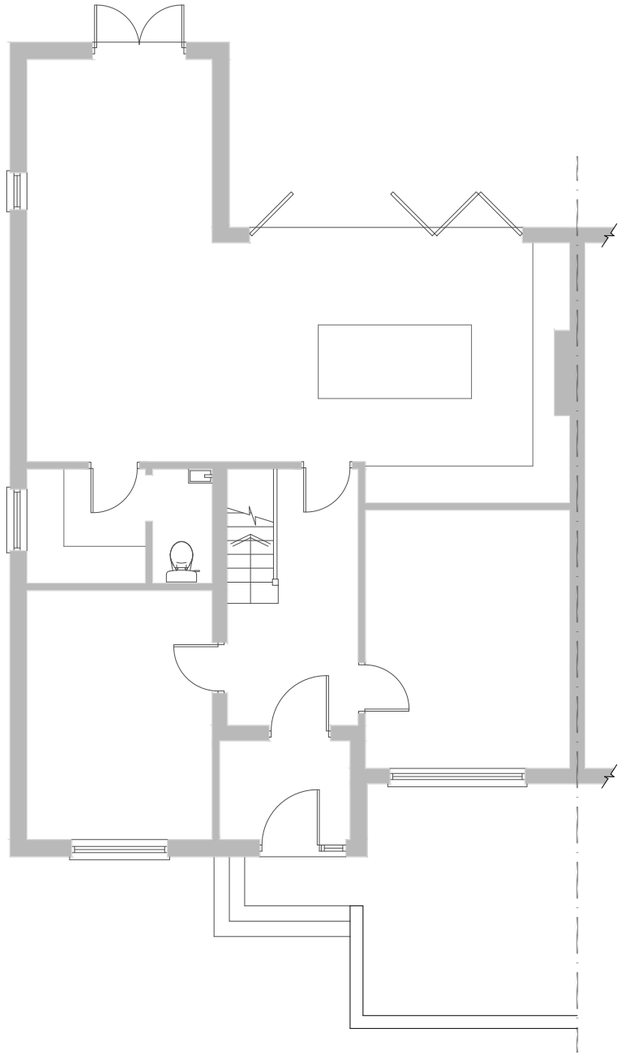
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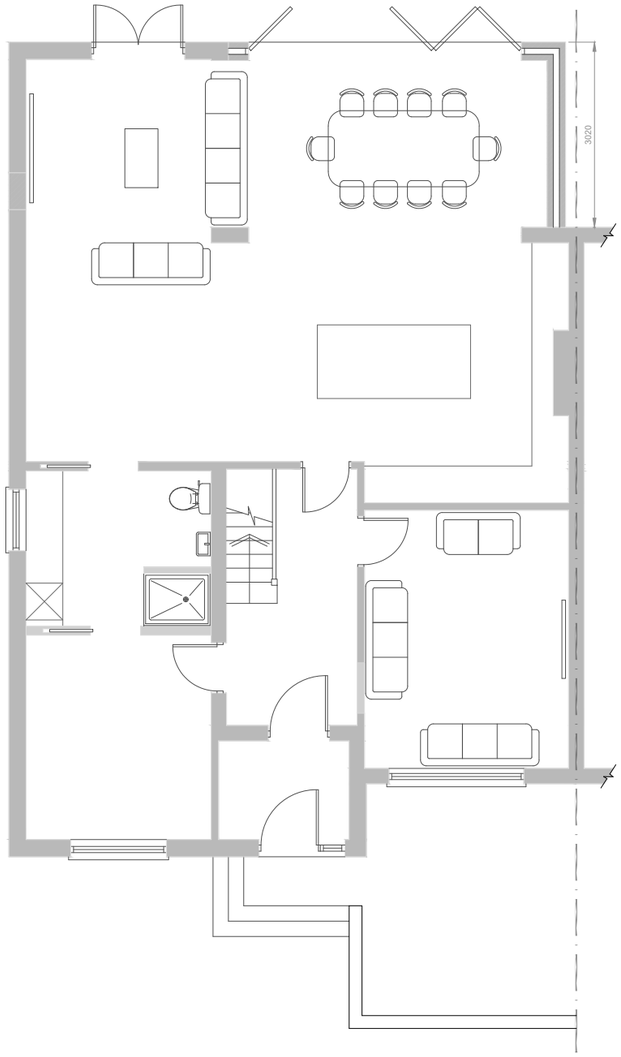
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0 1 2 3 4 6m

scale 1:100

A100-A- Ground Floor Plans

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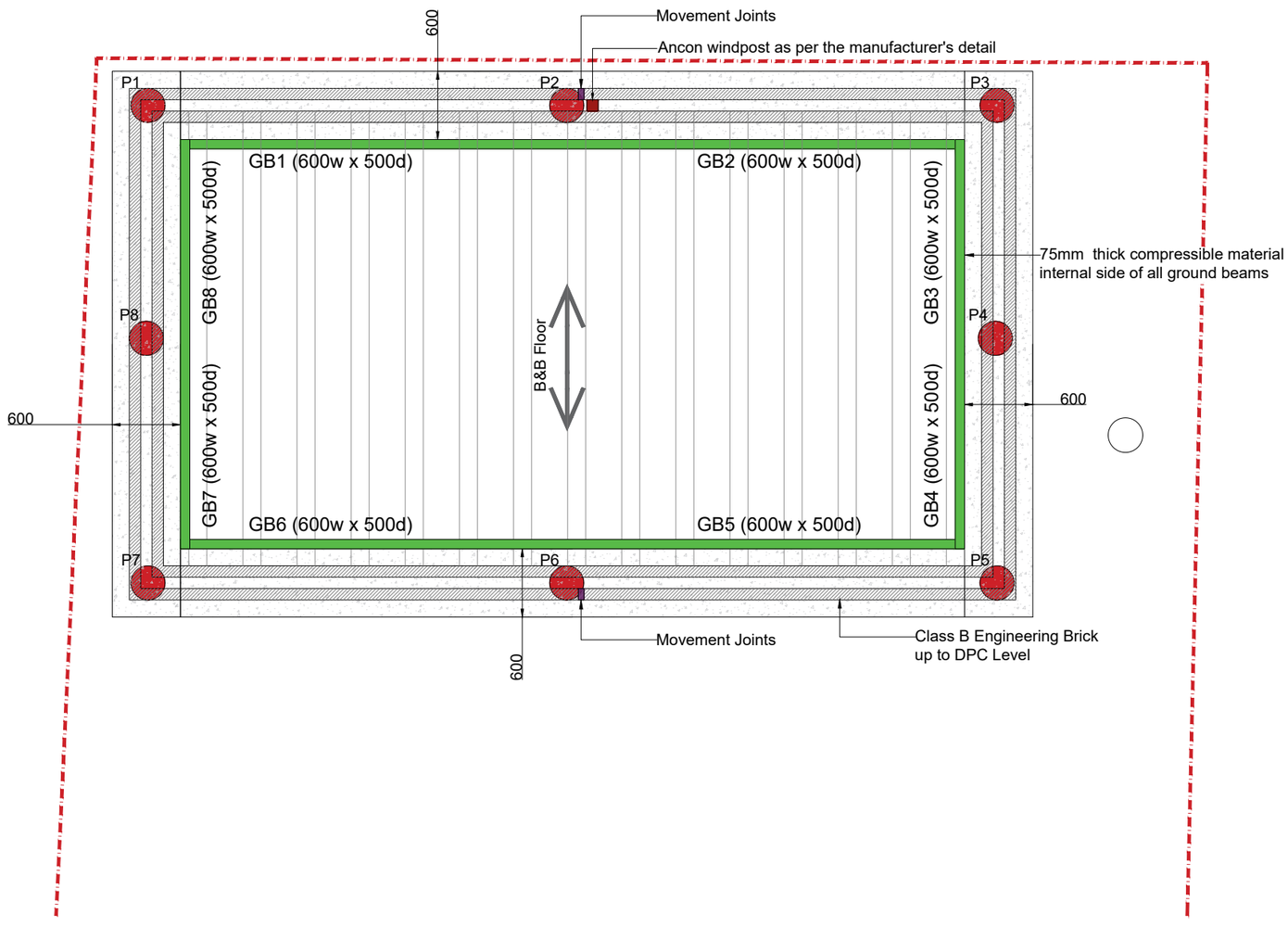
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B&B Floor	BEAM AND BLOCK TO BE DESIGNED BY THE MANUFACTURER	**ST001**	300x100x150 mm tk C30 Padstone or 300x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
CAVITY WALL CONSTRUCTION: EXTERNAL LEAF: 102mm CLAY BRICK INTERNAL LEAF: 100mm 7.3N/mm² LIGHTWEIGHT BLOCKWORK ALL IN MORTAR DESIGNATION (iii). **NOTE :** IF THE EXTERNAL FINISH IS RENDERING THEN THE OUTER LEAF CAN BE REPLACED WITH BLOCKWORK		Vertical And Horizontal Straps As In The Details	
		Proposed 100 mm non-load bearing Timber Wall	
200	200x50mm (8"x2") @400 C/C - C24		



0 1 2 3m

scale 1:50

A100-A1 Proposed Foundation Plan (for outbuilding only)

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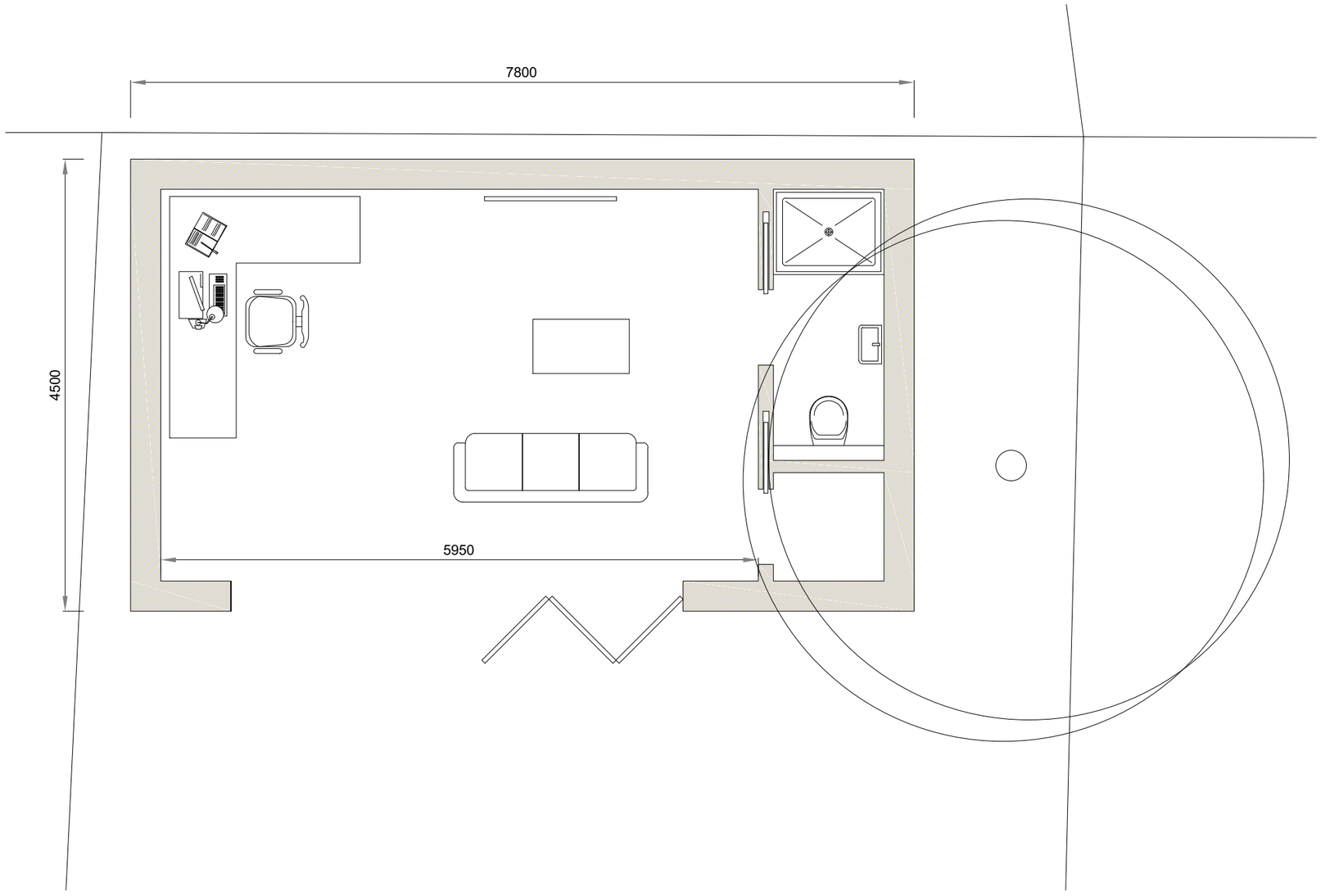
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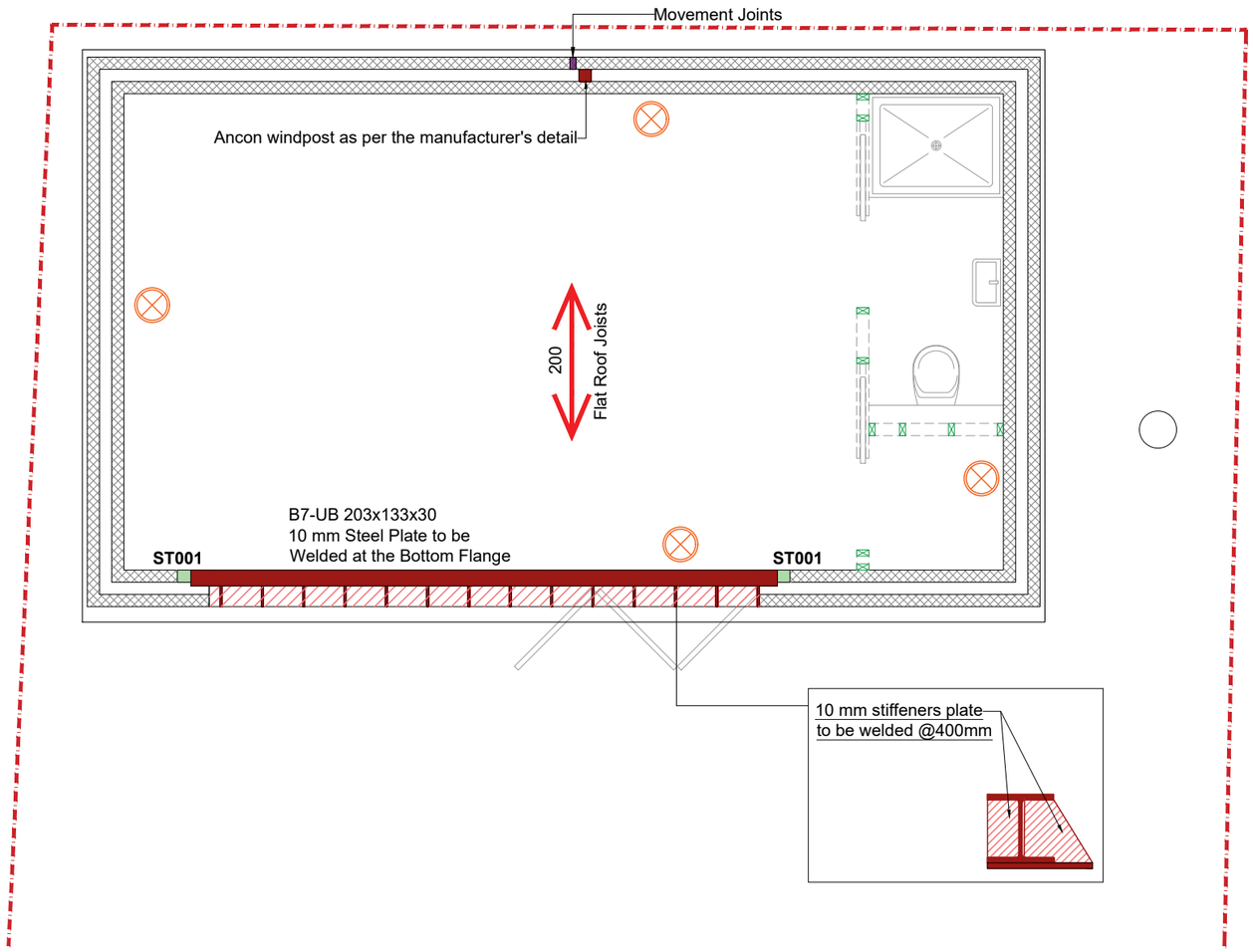


0 1 2 3m

scale 1:50

A100-A2 Proposed Outbuilding Plan

B&B Floor	BEAM AND BLOCK TO BE DESIGNED BY THE MANUFACTURER	**ST001**	300x100x150 mm tk C30 Padstone or 300x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
CAVITY WALL CONSTRUCTION: EXTERNAL LEAF: 102mm CLAY BRICK INTERNAL LEAF: 100mm 7.3N/mm² LIGHTWEIGHT BLOCKWORK ALL IN MORTAR DESIGNATION (iii). **NOTE :** IF THE EXTERNAL FINISH IS RENDERING THEN THE OUTER LEAF CAN BE REPLACED WITH BLOCKWORK		Vertical And Horizontal Straps As In The Details	
		Proposed 100 mm non-load bearing Timber Wall	
200	200x50mm (8"x2") @400 C/C - C24		



0 1 2 3m

scale 1:50

A100-A3 Proposed Roof Plan

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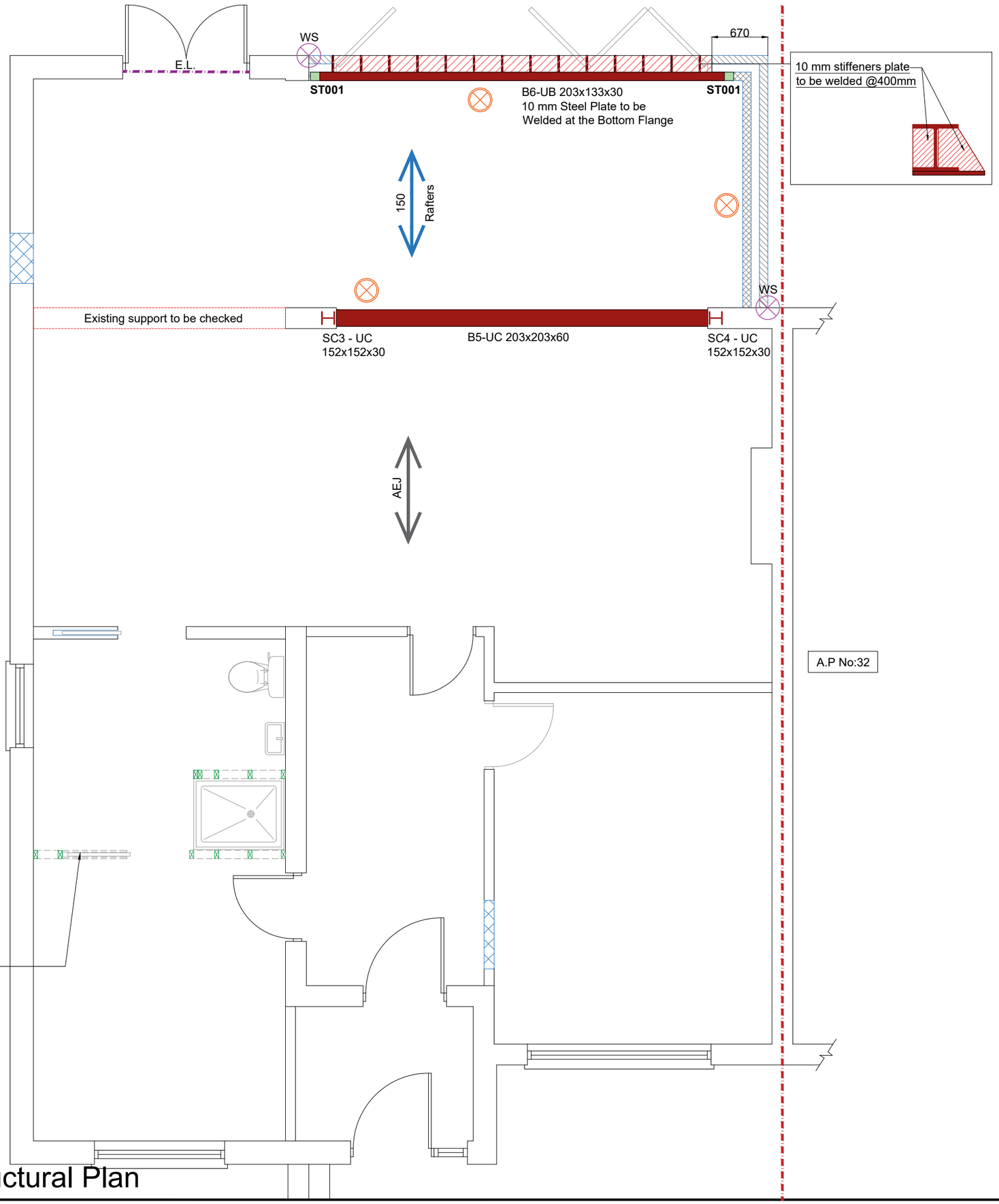
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	Vertical And Horizontal Straps As In The Details
AEJ	Assumed Existing Joists
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ST003	900x100x215 mm tk C30 Padstone or 900x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
ST004	1250x100x215 mm tk C30 Padstone or 1250x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
E.L.	Existing Support to be checked and SE informed before the construction stage



The wall to be removed is assumed to be non-load-bearing. The contractor is required to confirm this assumption and notify the structural engineer accordingly. If the wall is determined to be load-bearing, an additional steel beam must be installed to provide adequate support.

0 1 2 3m

scale 1:50

A100-B-Proposed First Floor Structural Plan

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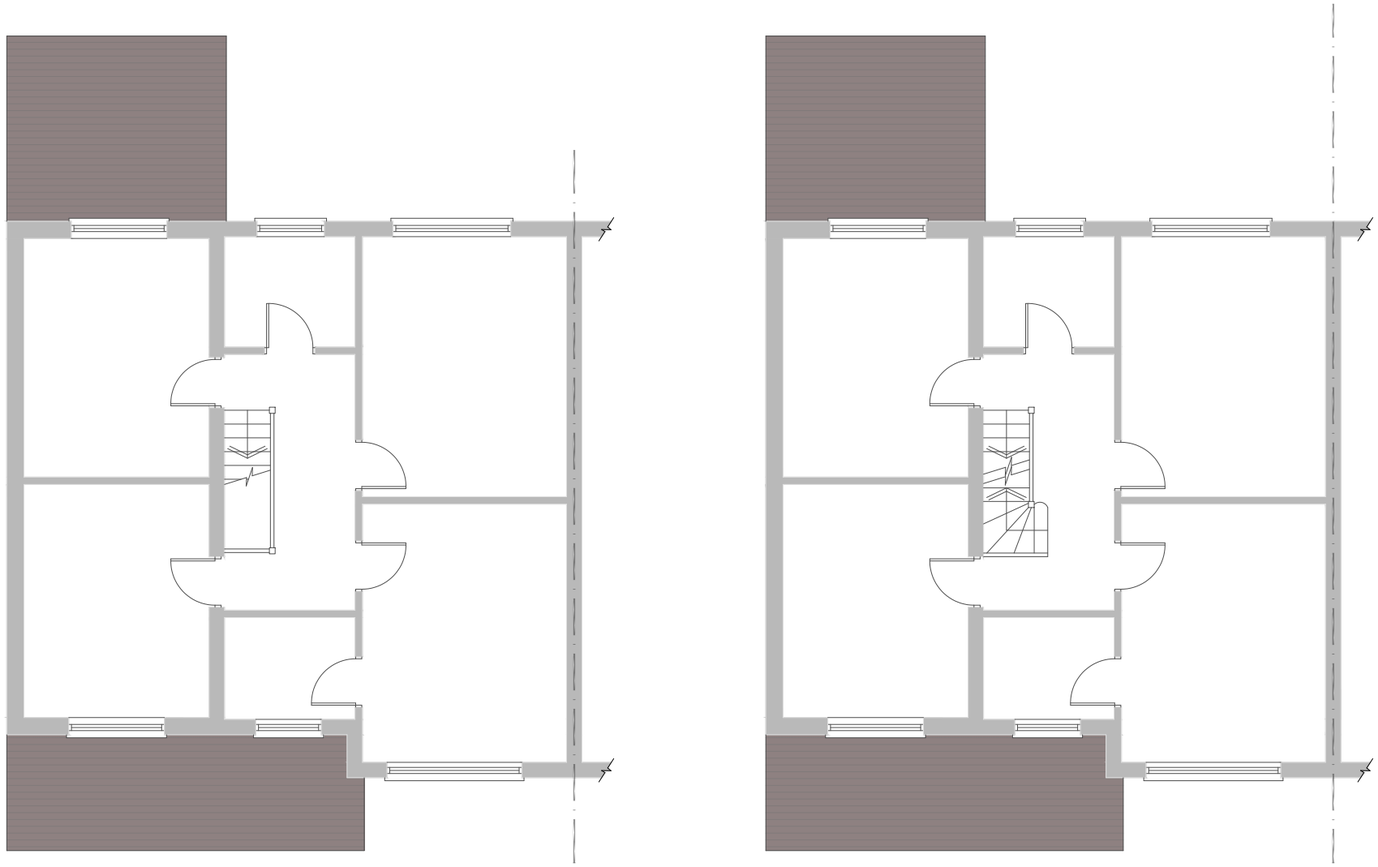
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0 1 2 3 4 6m

scale 1:100

A100-C- First Floor Plans

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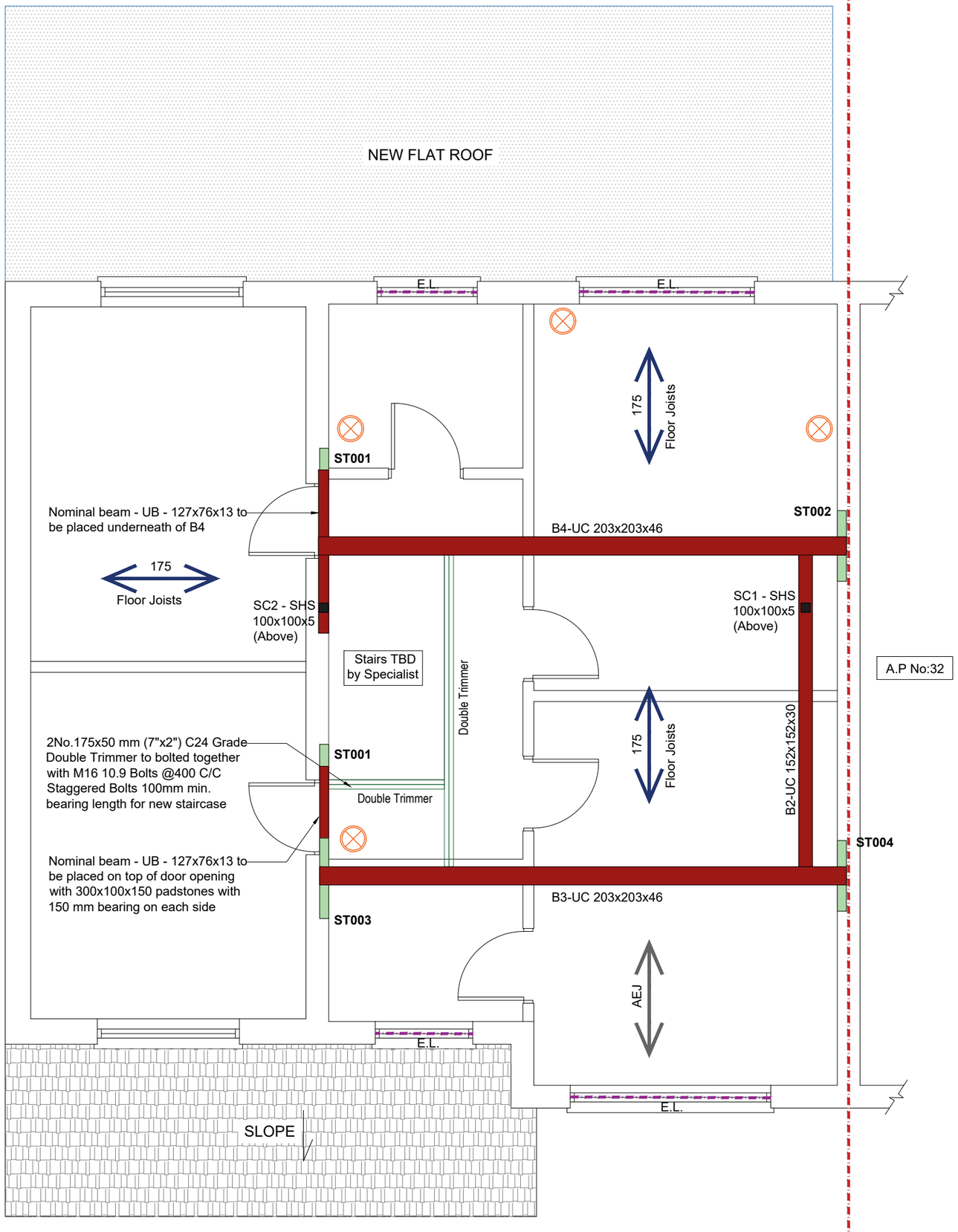
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E.L.	Existing Support to be checked and SE informed before the construction stage



0 1 2 3m

scale 1:50

A100-D-Proposed Loft Floor Structural Plan

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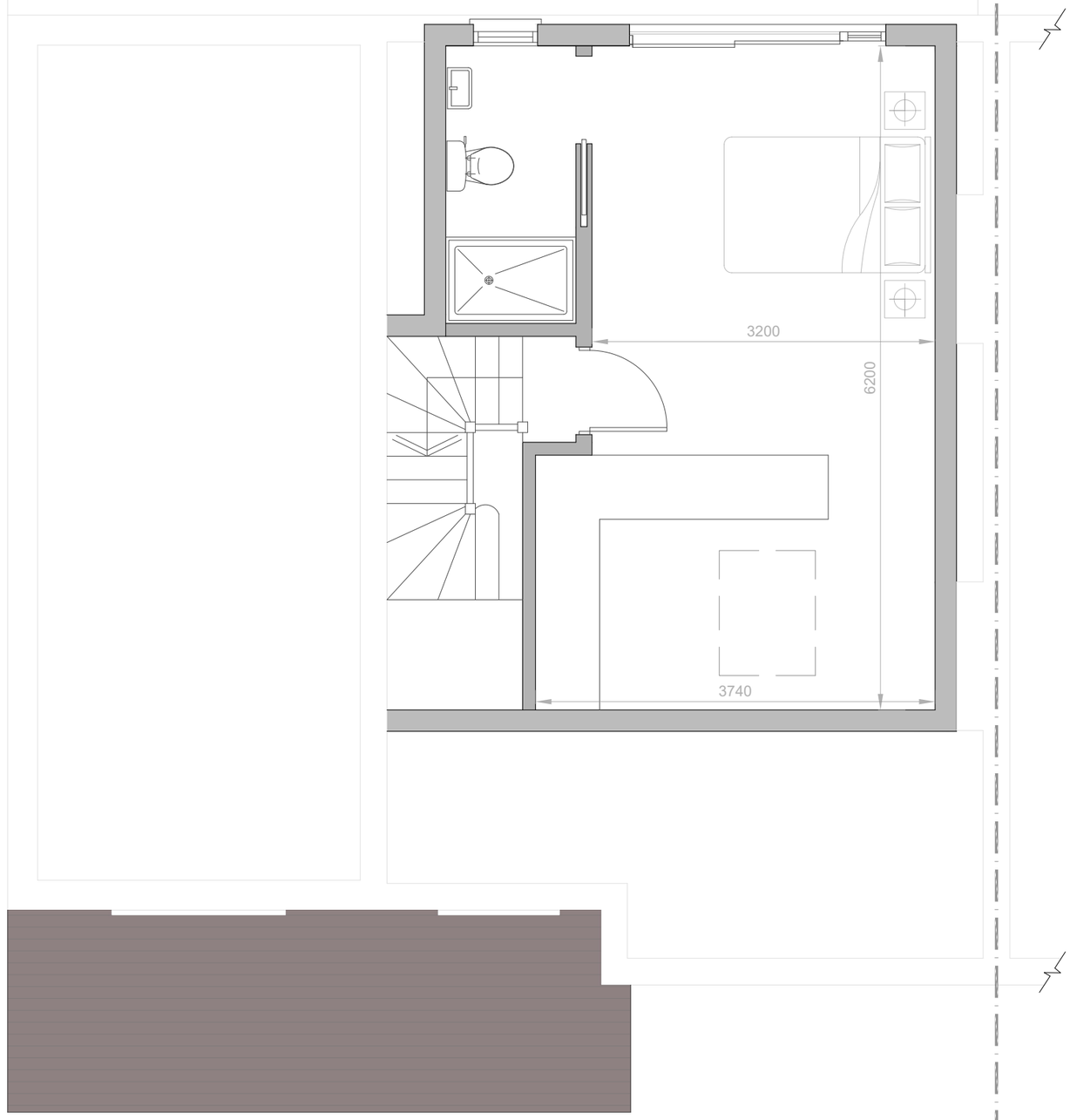
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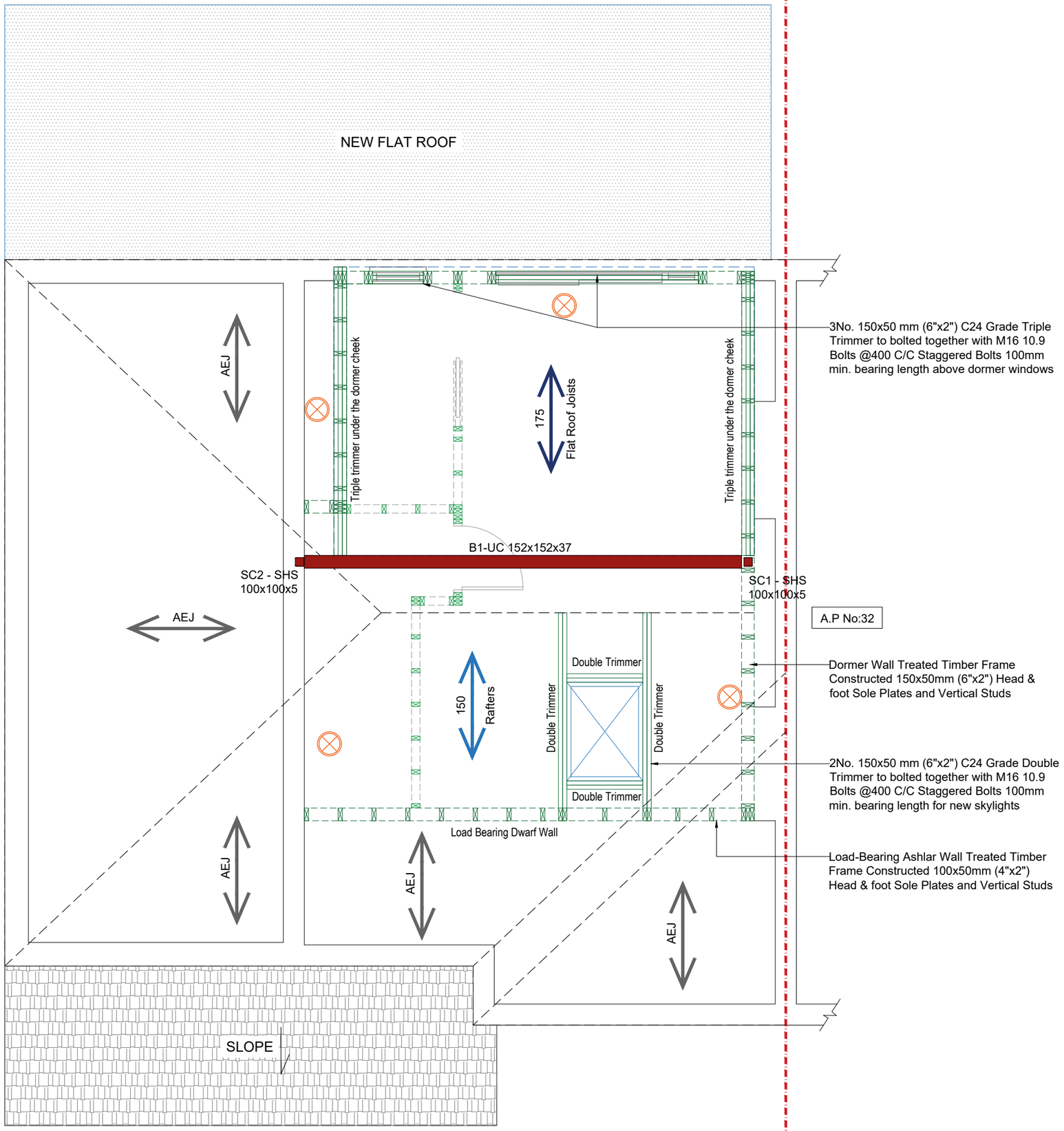
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0 1 2 3m
scale 1:50

A100-E- Proposed Loft Floor Plan

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ST003	900x100x215 mm tk C30 Padstone or 900x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
ST004	1250x100x215 mm tk C30 Padstone or 1250x100x10 mm S355 Steel Plate with 3 courses of class B engineering brick underneath
E.L.	Existing Support to be checked and SE informed before the construction stage



0 1 2 3m

scale 1:50

A100-F-Proposed Roof Structural Plan

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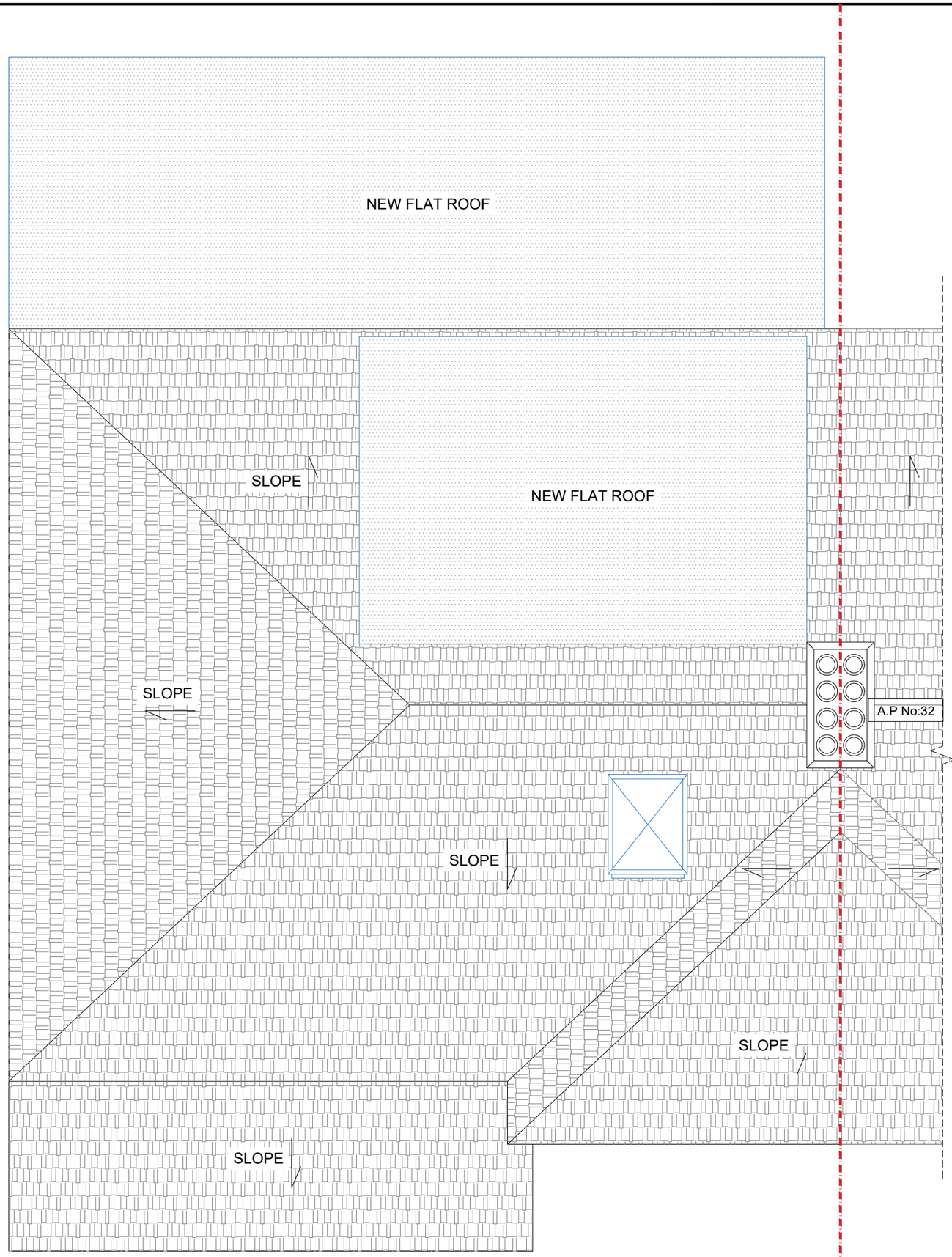
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A100-G- Proposed Topview

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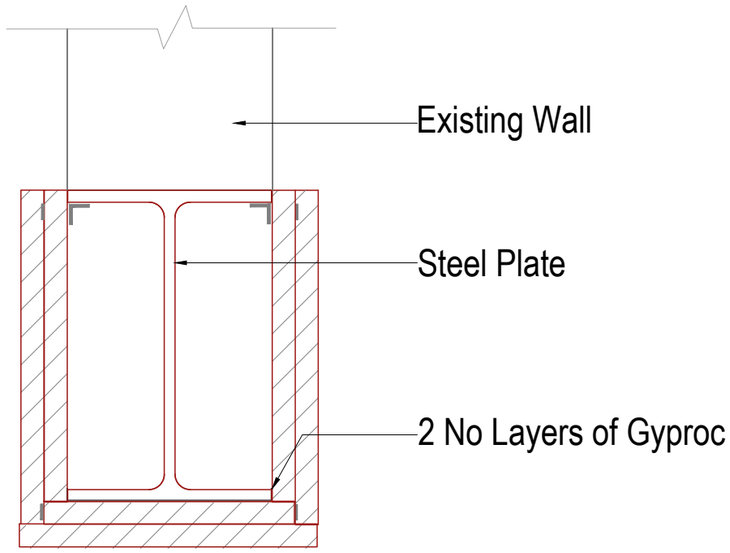
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-All structural steelwork to be installed in accordance with SE details. All Exposed surfaces of steelwork to be treated with Nullfire S60 intumescent coating to provide minimum 60 minutes fire protection.
OR!
-Exposed faced to be covered with 2 no layers of fire plasterboard (pink) where steelwork is to be clad with boarding (in accordance with BS476)

Steel Beam Fire Protection Detail

100-DET1

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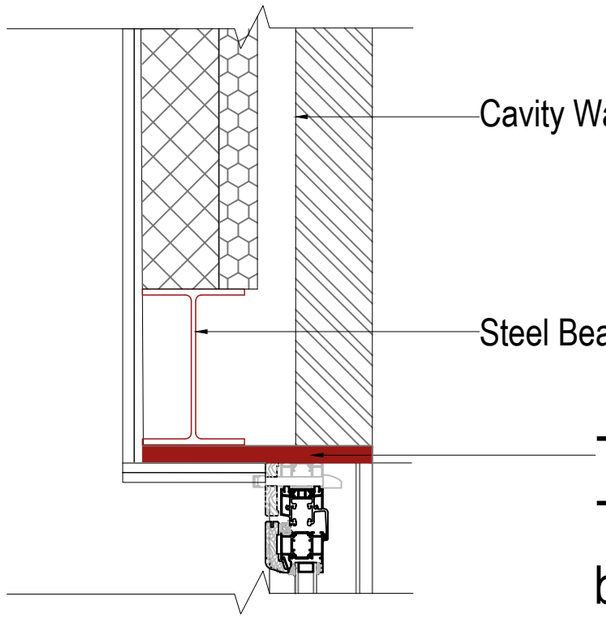
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The thickness of the plate should be a minimum of **10 mm.**
The plate should be welded to the bottom flange of the steel beam with a 6mm fillet weld all around.

Steel Beam with plate below an external cavity wall

100-DET2

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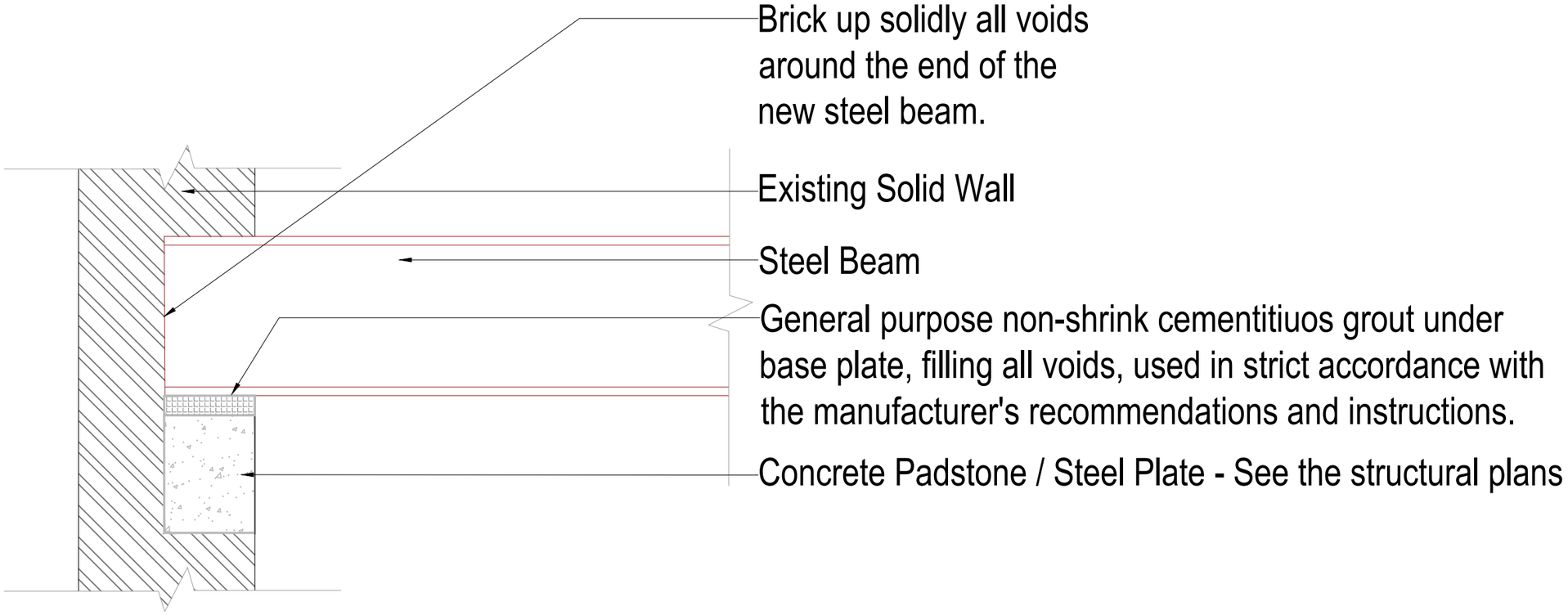
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Steel Beam - Padstone Detail

101-DET3

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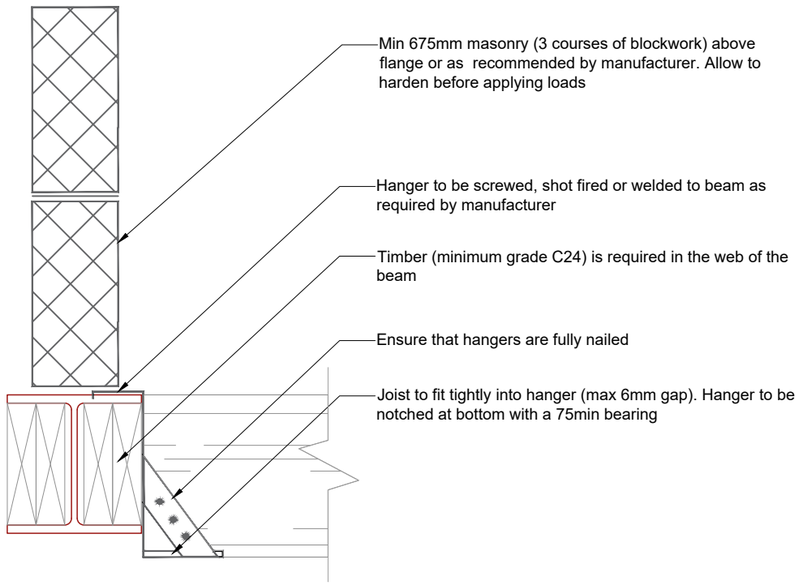
Date
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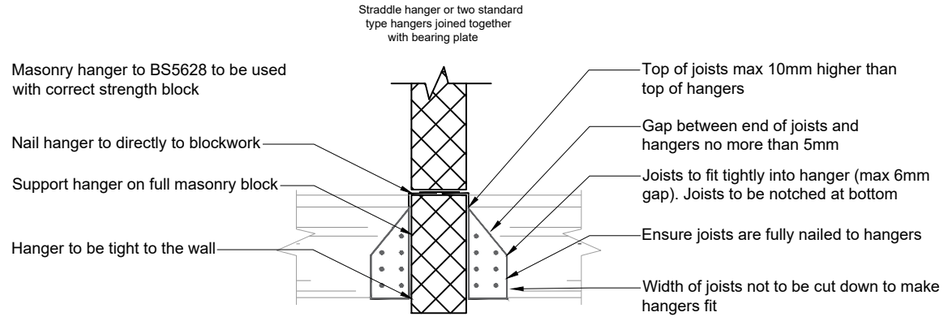
DESCRIPTION
-Rear Extension & Loft Conversion & New Outbuilding

NOT FOR CONSTRUCTION
FOR BUILDUNG CONTROL REVIEW

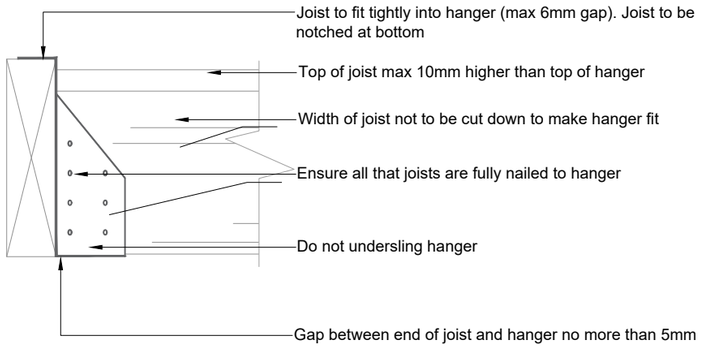
HANGER FIXED ONTO STEEL BEAM



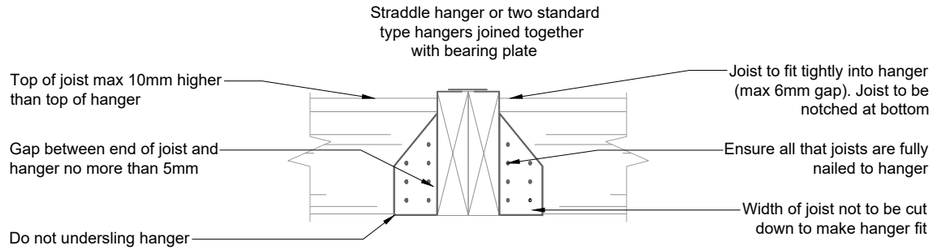
STRADDLE MASONRY HANGER



STANDARD TIMBER HANGER



STRADDLE TIMBER HANGER



Joist Hanger Details

101-DET4

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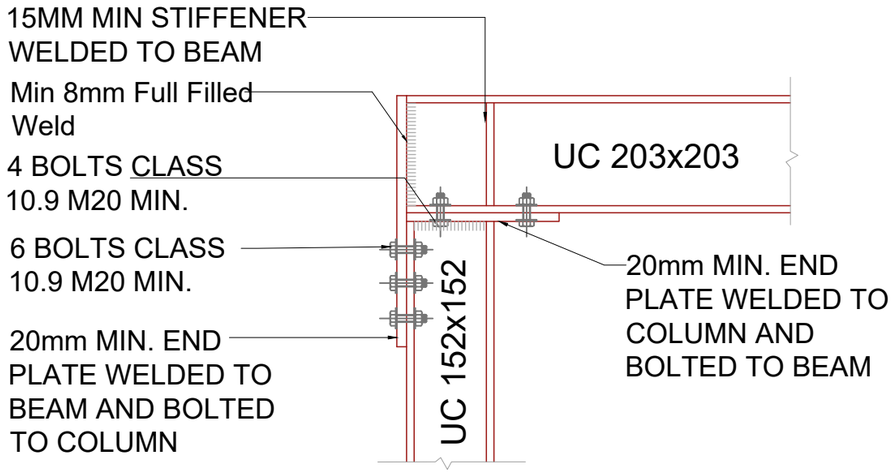
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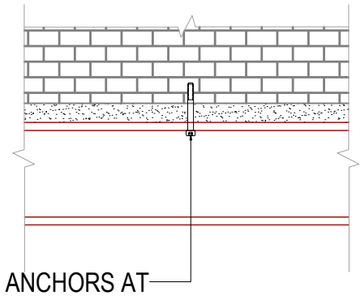
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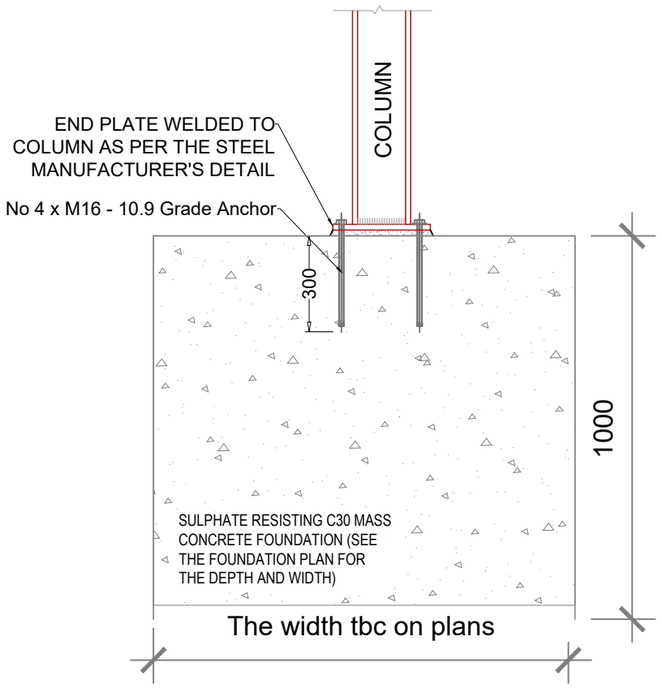
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Moment Connection

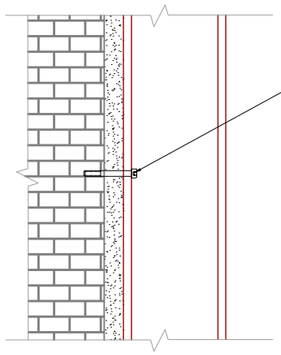


Connection between wall and beam



Column - Pad Foundaion Connection

101-DET5



Connection between wall and column

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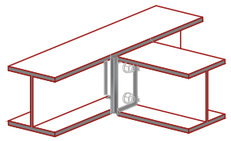
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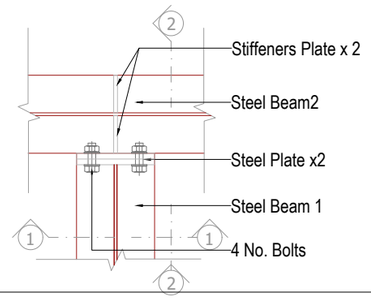
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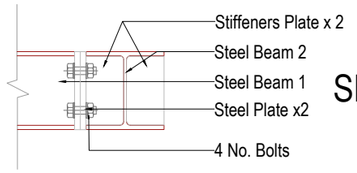
SITE ADDRESS
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DESCRIPTION
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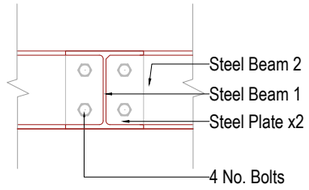
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SECTION 2-2



SECTION 1-1

Choose the size based on SE plans - All Numbers are in mm			
Steel Beam 1	Steel Beam 2	Steel Plate x 2	Bolt Size (10.9)
UC 152x152	UC 152x152	150x150x15 tk	M16
UC 152x152	UC 203x203	150x200x20 tk	M16
UC 203x203	UC 203x203	200x200x20 tk	M20

Steel Beam to Steel Beam Connection Detail

101-DET6

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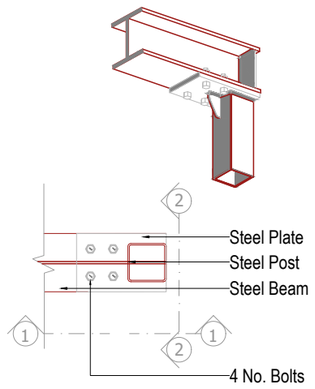
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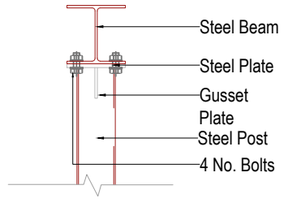
Date
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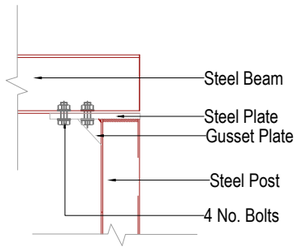
DESCRIPTION
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New Outbuilding

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FOR BUILDUNG CONTROL REVIEW





SECTION 2-2



SECTION 1-1

Choose the size based on SE plans - All Numbers are in mm			
Steel Post	Steel Beam	Steel Plate Size (S355)	Bolt Size (10.9)
SHS 100x100	UC 152x152	250x150x15 tk Gusset Plate 100x100x15	M16
SHS 100x100	UB 203x102	250x100x15 tk Gusset Plate 100x100x15	M16
SHS 100x100	UC 203x203	250x200x20 tk Gusset Plate 100x100x15	M20

Steel Post - Steel Beam Connection Detail

101-DET7

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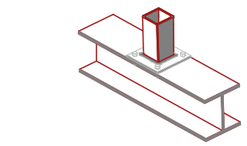
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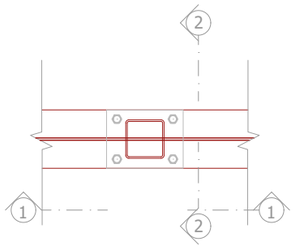
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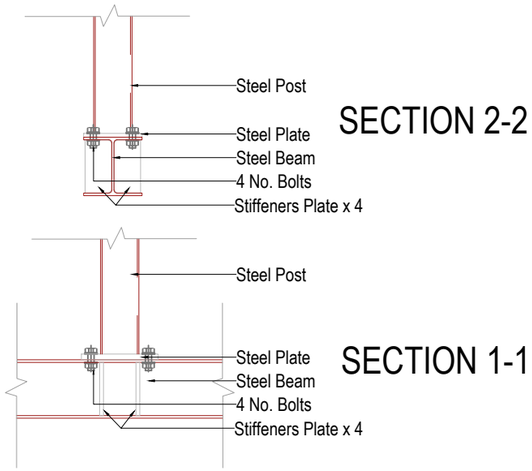
SITE ADDRESS
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DESCRIPTION
-Rear Extension & Loft Conversion &
New Outbuilding

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FOR BUILDUNG CONTROL REVIEW







SECTION 2-2

SECTION 1-1

Choose the size based on SE plans - All Numbers are in mm			
Steel Post	Steel Beam	Steel Plate Size (S355)	Bolt Size (10.9)
SHS 100x100	UC 152x152	250x150x15 Stiffeners Plate 10mm	M16
SHS 100x100	UB 203x102	250x100x15 Stiffeners Plate 10mm	M16
SHS 100x100	UC 203x203	250x200x15 Stiffeners Plate 10mm	M16

Steel Post - Steel Beam Connection Detail

100-DET8

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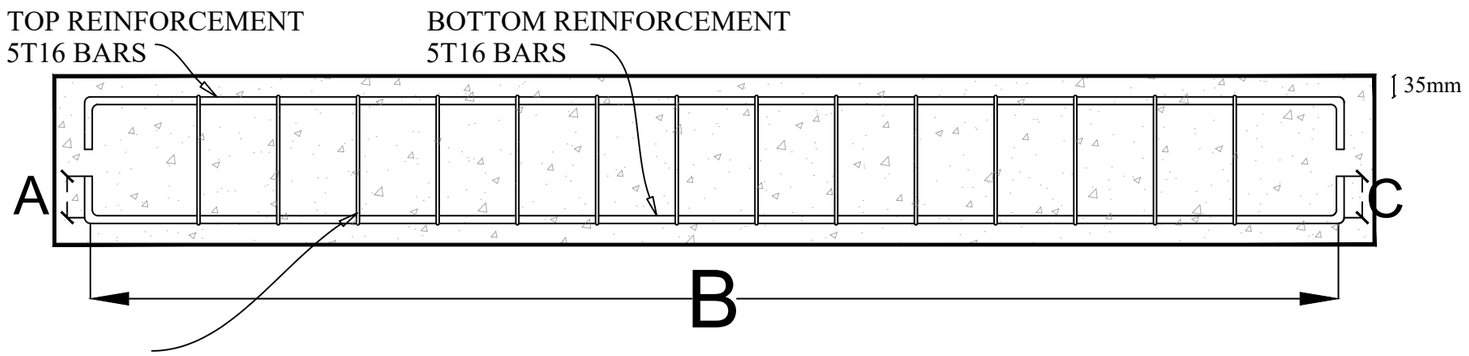
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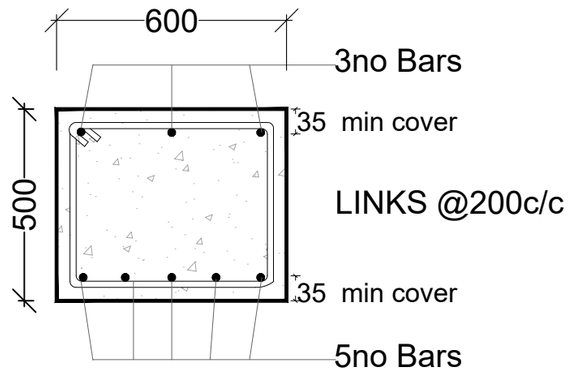
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DESCRIPTION
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COMPRESSIBLE MATERIAL TO BE PROVIDED UNDER AND INTERNAL SIDE OF THE RING BEAM AS A HEAVE PRECAUTION AS PER NHBC. PILE SLEEVE IS ALSO RECOMMENDED

CONNECTION BETWEEN THE PILES AND GROUND BEAM TO BE PROVIDED BY THE PILING CONTRACTOR!!!

101-DET9

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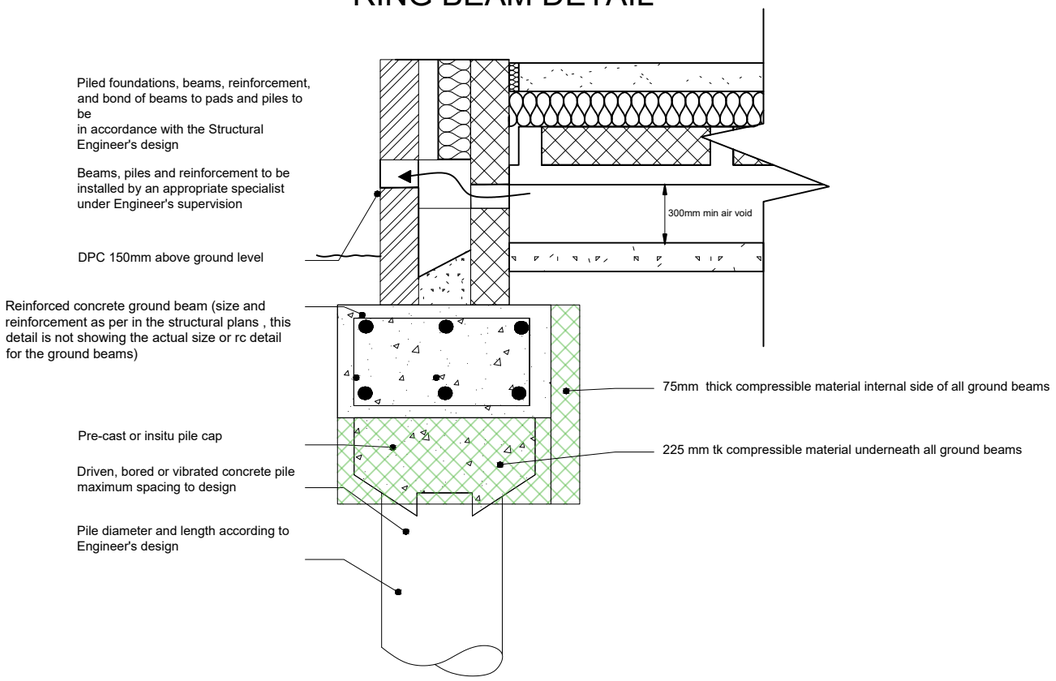
Date
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SITE ADDRESS
-30 Old London Road Badgers Mount Sevenoaks TN14 7AE

DESCRIPTION
-Rear Extension & Loft Conversion & New Outbuilding

NOT FOR CONSTRUCTION
FOR BUILDUNG CONTROL REVIEW

RING BEAM DETAIL



COMPRESSIBLE MATERIAL TO BE PROVIDED UNDER AND INTERNAL SIDE OF THE RING BEAM AS A HEAVE PRECAUTION AS PER NHBC. PILE SLEEVE IS ALSO RECOMMENDED

100-DET10

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DESCRIPTION
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BENDING SCHEDULE FOR GROUND BEAMS

NAME	Size (mm)	R1- UNFACTORED REACTION (KN)	R2- UNFACTORED REACTION (KN)	DIAMETER(MM)	QUANTITY	NO	A	B	C	D	BRITISH RCSHAPE CODE
GB1	600 width x 500 depth	62.9	62.9	16	1	6	250	3500	250	-	21
GB2	600 width x 500 depth	64.5	64.5	16	1	6	250	3600	250	-	21
GB3	600 width x 500 depth	21.5	21.5	16	1	6	250	1900	250	-	21
GB4	600 width x 500 depth	22.4	22.4	16	1	6	250	2000	250	-	21
GB5	600 width x 500 depth	64.5	64.5	16	1	6	250	3600	250	-	21
GB6	600 width x 500 depth	62.9	62.9	16	1	6	250	3500	250	-	21
GB7	600 width x 500 depth	22.4	22.4	16	1	6	250	2000	250	-	21
GB8	600 width x 500 depth	21.5	21.5	16	1	6	250	1900	250	-	21
LINK BARS				**8**	**1**	**110**	**530**	**430**	**Minumum**	**Minumum**	**51**

"B" LENGTH NEEDS TO BE CHECKED AND APPROVED BY THE CONTRACTOR BEFORE THE ORDER.

PILE LOADING SCHEDULE

NAME	NO	UNFACTORED (KN)	FACTORED (KN)
P1	1	84.4	115.628
P2	1	127.4	174.538
P3	1	86	117.82
P4	1	43.9	60.143
P5	1	86.9	119.053
P6	1	127.4	174.538
P7	1	85.3	116.861
P8	1	43.9	60.143

100-DET11

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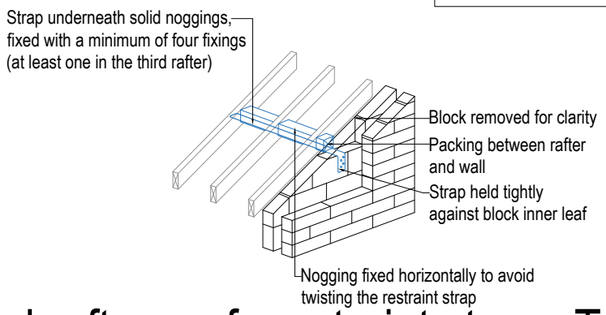
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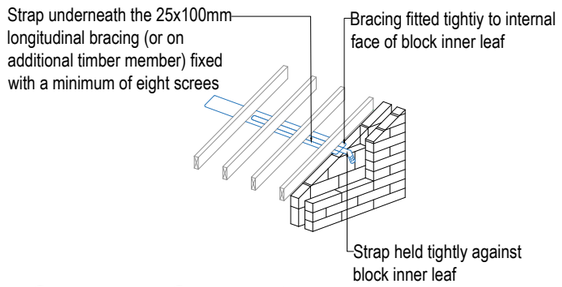
Typical Strap Details

DETAIL 1



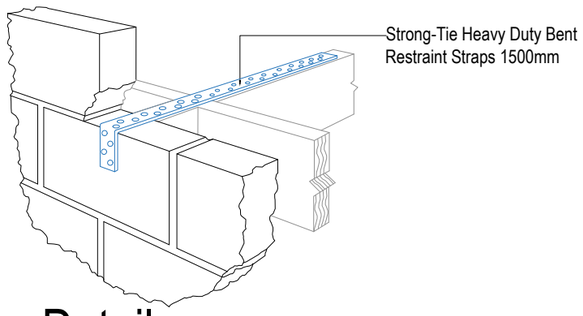
Trussed rafter roofs restraint straps Type 1

DETAIL 2



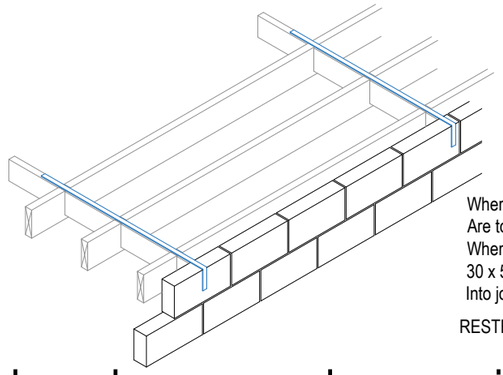
Trussed rafter roofs restraint straps Type 2

DETAIL 3



Wall-Floor Strap Detail

DETAIL 4

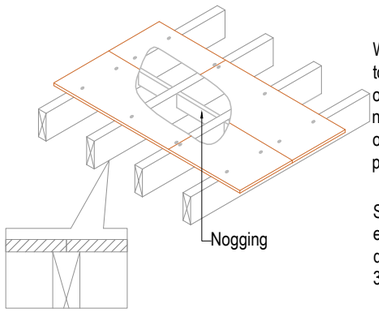


Where joists are notched and drilled no cuts
Are to be within 100mm of each other
Where joists are parrallel to wall provide straps
30 x 5 x 1500 mm over 3 joists 2 m apart and notched
Into joists with supporting noggins 150mm deep

RESTRAINT STRAPPING - NHBC 6.4 - S10

Timber above new dormer windows

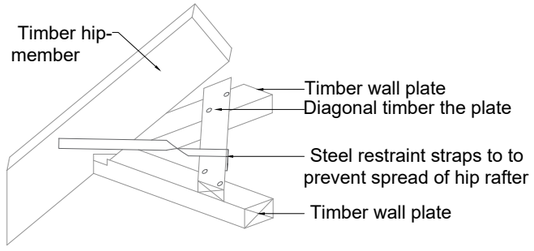
DETAIL 5



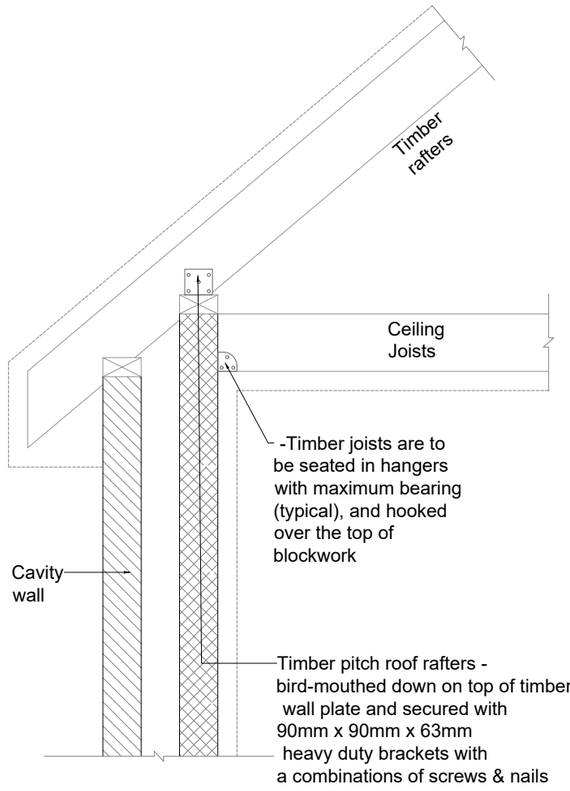
Where the joists span over 2.5m, strutting is required to prevent joists twisting when loaded. For spans of between 2.5 and 4.5 m one row of strutting is needed, at the mid span position. For spans in excess of 4.5 m two rows of strutting will be required, positioned at the one third and two third span positions.

Solid strutting should be at least 38 mm thick timber extending to at least three quarters the joist depth e.g. 200 x 50mm joists would need at least 150 x 38mm timber used as strutting.

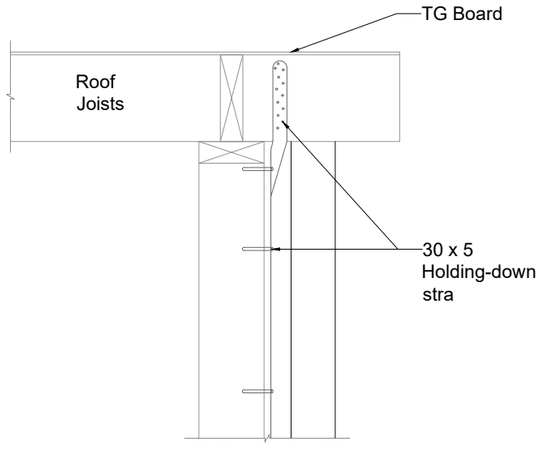
DETAIL 7



100-DET12



DETAIL 6



DL-91 30 x 5 Holding-down strap detail
Eaves - flat roof

Detail notes:Typical structural solution for a holding down strap at the eaves detail and flat roof joists. All structural solutions to be designed and approved by a structural engineer.

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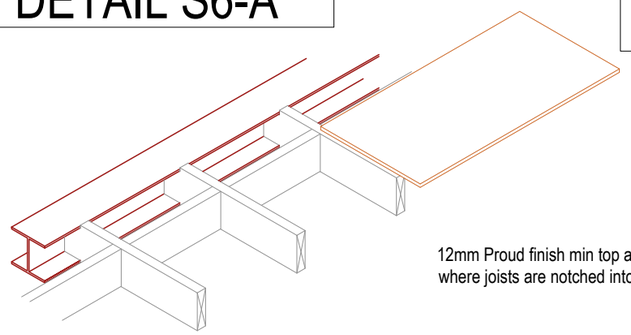
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Typical Timber Details

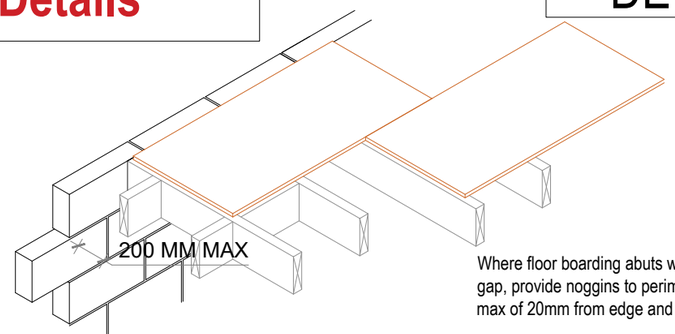
DETAIL S6-A



12mm Proud finish min top and bottom where joists are notched into steel provide

Steelwork - NHBC 6.4 - S8

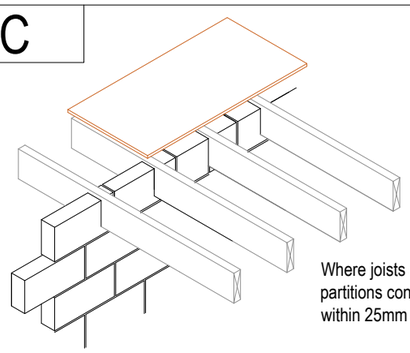
DETAIL S6-B



Where floor boarding abuts wall provide 10mm expansion gap, provide noggins to perimeter of floor boarding at a max of 20mm from edge and at all square edge joists

Chipboard Flooring NHBC 6.14 S18

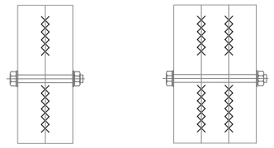
DETAIL S6-C



Where joists continue over block/brick partitions continue ground floor partition to within 25mm of underside of decking

Partition Walls and Floor Abutments

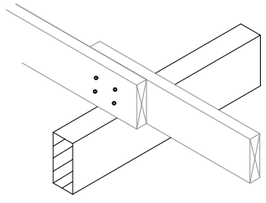
DETAIL S6-D



50mm double sided galvanized toothed plate connector.
12mm diameter bolt,nut & washers M.S. galvanized washers to both head & nut to be 38mm diameter or square x 3 mm thick
-only where bolts are visible in the stairwell area are to be recessed into the joists

Double or Trible Joist Connection

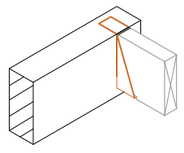
DETAIL S6-E



Where joists are overlapped on load-bearing walls provide 100mm max overhang on both sides and nailed

Overlapping Joists NHBS 6.4 - S13

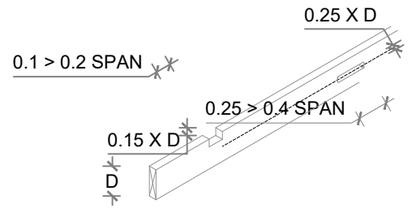
DETAIL S6-F



Where joists are supported on joists hangers provide minimum 75mm bearings on masonry and hanger

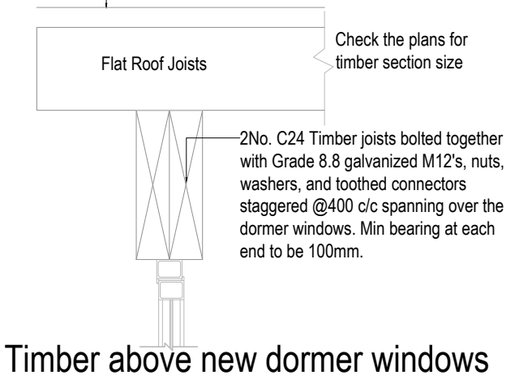
Joist to Joist Bearing NHBC 6.4 - D7

DETAIL S6-G



Notching and Drilling NHBC 6.4 - S9

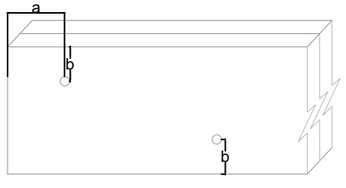
DETAIL S6-H



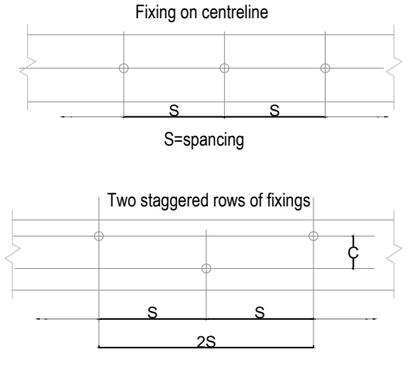
Timber above new dormer windows

DETAIL S6-I

- M12 bolts (min. 3mm x 38mm M12 washers under head and nut) for 38mm,44mm, 47mm and 63mm wide sections
- M16 bolts (min. 4mm x 48mm M16 washers under head and nut) for 72mm and 89mm wide sections
- It may be possible to use other types of fasteners for which capacities have been obtained experimentally and declared by manufacturers with third party certification e.g. dog tooth connectors.
- Fixing can be either along the centerline or staggered. If staggered, nails must be at least 5 times the diameter of the nail apart (at least 25mm) and bolts 4 times the bolt diameter apart (M12 = 48mm, M16 = 64mm)
- Nails must be started 15 times the diameter from the joist end and at least five times the diameter from the top and bottom.
- Bolts must be closer than seven times the diameter or 80mm from the joist end and four times the diameter from the top and bottom.
- For example, if two 47mm x 195mm are bolted together, then M12 bolts should be used and positioned 48mm from the top and bottom and at least 48mm apart vertically if staggered fixings are used. The first bolt should be positioned between 80mm and 84mm (7x12) from the joist ends.
- Each trimmer should be fixed in line with a minimum of two nails or two bolts at 1/3 span positions and as a minimum the fixing centers (S) for double member trimmer and trimming joists should be at centers of no more than twice the joist spacing (a maximum of 1200mm). However required fixing centers vary according to the total length and weight on the joist.



Fixing type	Minimum dimension (mm)		
	a	b	c
Nail (without pre-drilled hole)	15d	5d	5d
Bolt	Maximum of 7d or 80mm	4d	4d
d – diameter of nail or bolt			



100-DET13

The minumum bolt specification to be used

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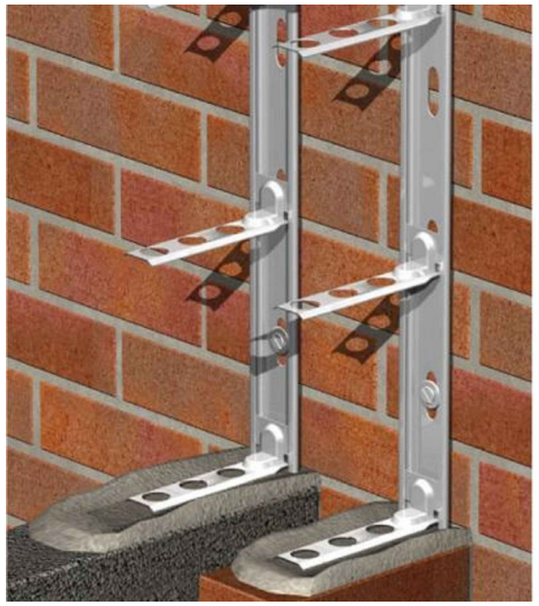
Project No. 25727

Date 01/2024

SITE ADDRESS
-30 Old London Road Badgers Mount Sevenoaks TN14 7AE

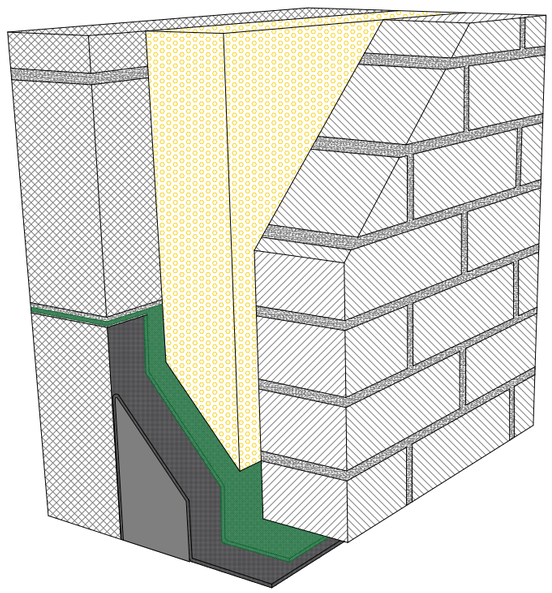
DESCRIPTION
-Rear Extension & Loft Conversion & New Outbuilding

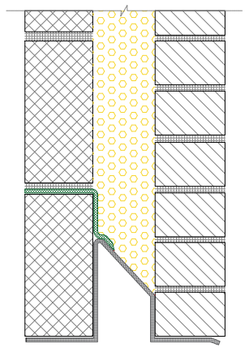
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Staifix Universal Wall Starter System Suitable to be used between ALL the existing and proposed walls connection. It is suitable for wall widths of 350mm. Can be used in brickwork or blockwork up to 3 stories or 8m in height and meets the technical requirements of the NHBC.

Cavity Wall Starter





DL-104

Cougar cavity wall lintel
typical installation location

Detail notes:Typical Cougar cavity wall lintel detail shown. More robust options available for heavier loadings or alternative layouts. Contact manufacturer for further options. All structural solutions to be designed, specified and approved by a structural engineer.

Catnic Lintel

100-DET14

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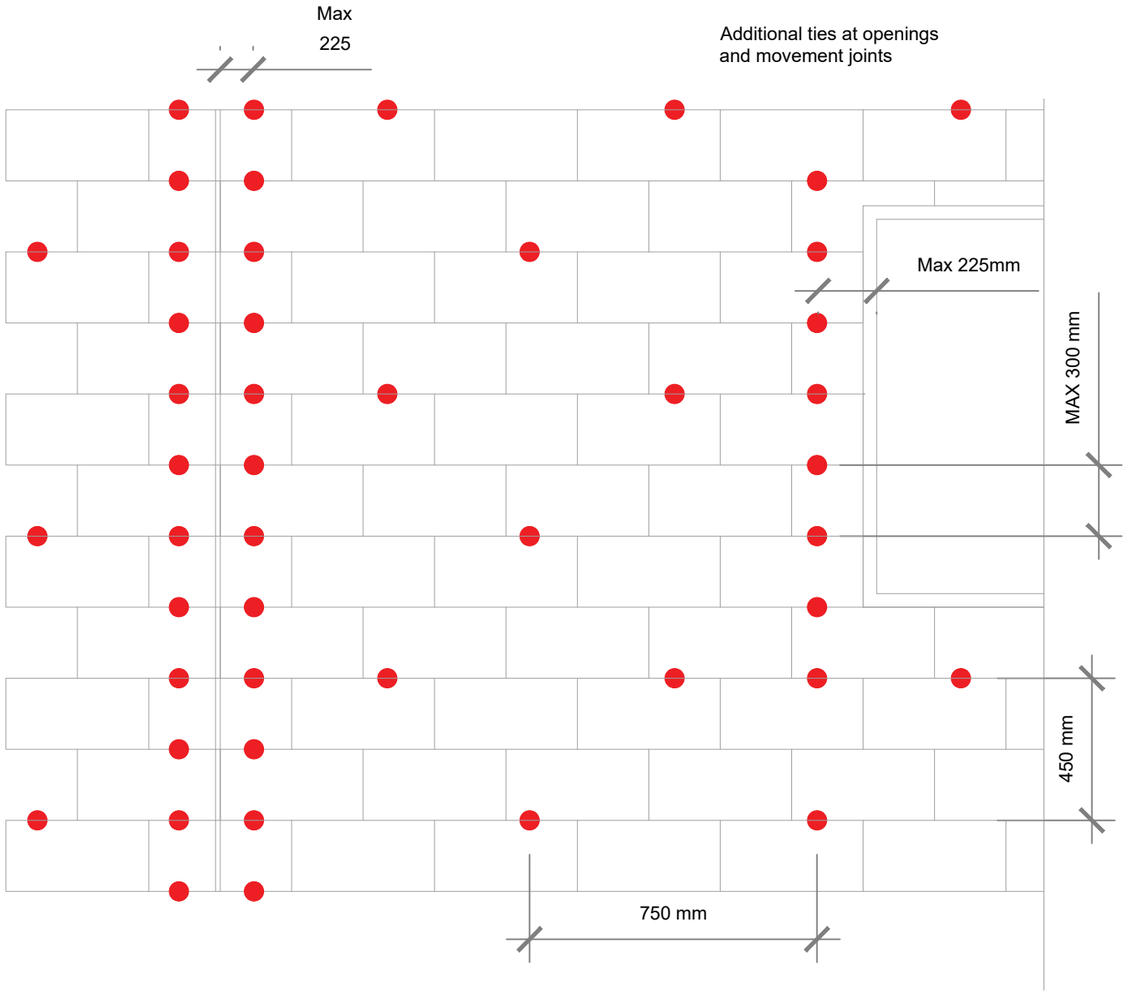
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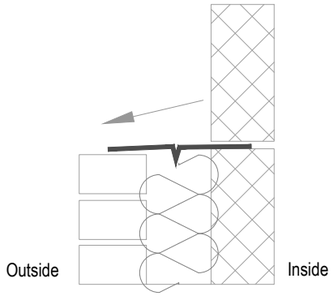
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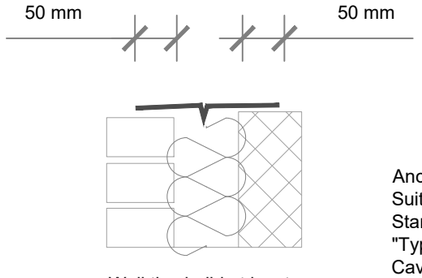
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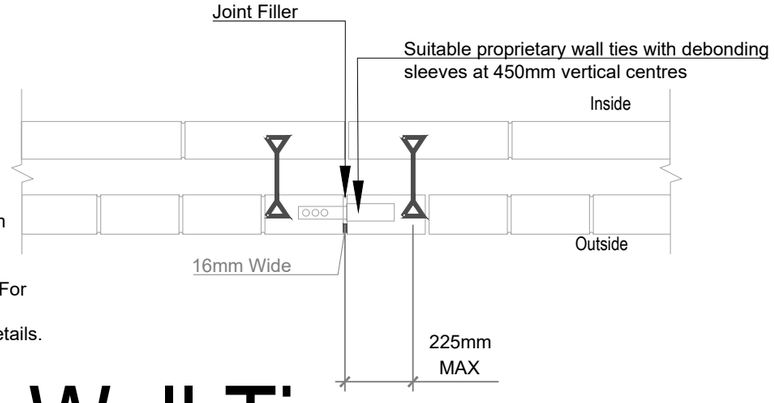
Wall ties should be level
or sloping to the outside



Wall ties build at least
500 mm into each leaf



Ancon Staifix RT2 Wall Tie - 275mm
Suitable for cavities of 126mm - 150mm
Standard Tie Length = 275mm
"Type 2" Stainless Steel Wall Ties For
Cavity by 'Ancon' or Similar Approved. For
Spacing of Wall Ties Refer to ALPHA
Engineers Structural Specification or details.



Movement Joint & Cavity Wall Ties

100-DET15

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General

PARTY WALL etc.Act 1996: Written notice must be given to adjoining owners prior to start of work on site, two month`s notice for works to party wall or party structure, one months`s notice for all other works.

HEALTH AND SAFETY GENERALLY: All works to be carried out in accordance with the Health and Safety ACT and Dam Regulations 2007 and prevailing Health & Safety requirements in force at the time of the works

THIS DRAWING TO BE READ IN CONJUNCTION WITH APPROVED PLANNING PLANS.

The Party Wall etc. act 1996

Where building near or working on the party walls or party fence walls it may be necessary to serve notice on the adjoining owners under The Party Wall etc. Act 1996. Professional advice should be sought before commencing building works to determine whether the act would apply and if so the correct action to be taken.

THE BUILDING REGULATION PART A: Party Wall act 1996
Written consent is required from adjoining owners where:
Underpinning existing party wall.
Build up wall on top of party wall.
Excavating to enlarge existing basement.
where new beams are to be inserted 100mm into party wall.
And existing party wall needs to be cut for inserting new flashing

Demolition

Isolate all services affected by new works. Provide temporary supports to existing structure as necessary. Where existing services run through or under foundations provisions should be made for suitable ducts or lintels.

Existing Structure

Existing foundations and structure to be exposed in order to determine adequacy to take additional loadings. Exposed structure to be inspected by either Structural Engineer or Building Control to satisfy that existing structure is suitable. If found to be unsuitable Structural Engineer to design appropriate solution

Notes
All work is to comply with the relevant Building Regulations and all statutory notices are to be given to the Building Control department at the local authority at the appropriate stages. All contractors are to visit site to acquaint themselves with the layout and access to the site prior to tendering. If an approved inspector is used then the AI must notify the local authority that the building regulations will be carried out under the initial notice procedure. AI to be given notice of statutory inspections to allow inspection at appropriate stages.

Materials, goods and workmanship
Goods, materials and workmanship are to be of the best quality of their respective kinds and those for which there are a British Standard or Code of Practice are to conform thereto unless otherwise stated. Descriptions of goods, materials and workmanship given in any one trade are to apply throughout this Specification unless otherwise stated. All workmanship shall be carried out in accordance with current Building Regulations. All materials shall be used and fixed strictly in accordance with manufacturer's instructions, unless specified otherwise. All commodities to be new and left in perfect condition on completion and when incorporated into the works.

Discrepancies
Any discrepancy, discovered by the Contractor, between the structural drawings and specification or between the drawings/specification and the site, must be brought to the notice of the Architect for clarification and instruction immediately any such discrepancy becomes apparent.

Defects in existing work
Any defect not already identified in the existing work or structure to remain must be reported immediately to the Architect by the Contractor for instruction before proceeding with any work which may:
-cover up or otherwise hinder access to the defective construction,
-or be rendered abortive by the carrying out of remedial works.

Generally
Please note that these construction notes are to be read in conjunction with the detailed drawings that accompany the works, including those of the Structural Engineer. These notes and drawings are solely for the purposes of Building Regulation approval and do not set out the minimum standards of good practice to be complied with by the contractor. It is assumed that the minimum standards and manufactures installation guidance are known and will be complied with by a competent contractor. Finishes and materials to be in accordance with planning conditions.

Health & Safety
The Contractor shall ensure that all safety, health and welfare measures required under or by virtue of the provision of any enactment or regulations or the working rules of any industry are complied with. In carrying out the works the contractor shall at all times comply with the requirements of the Construction (Design and Management) Regulations 2015, this will include taking on Clients duties, unless Client appoints separate Principal Designer. Where necessary notifications to be served to HSE and appropriate Construction manuals produced.

Preparation
You must ensure that any ground covered by the building is reasonably free from any material that might damage the building or affect its stability, including vegetable matter, topsoil and preexisting foundations.

Reasonable precautions must also be taken to avoid danger to health and safety caused by contaminants on or in the ground covered, or to be covered by the building and ANY LAND ASSOCIATED WITH THE BUILDING. (A major change to the regulations, which previously only applied to the ground covered by the building).

Precautions must be taken against ground gases e.g. landfill gases, radon, vapours etc

Remedial measures for dealing with land affected by contaminants have been expanded to include biological, chemical and physical treatment processes.

Guidance on protection from radon is expanded to include buildings other than dwellings.

Requirements to protect persons occupying premises from contaminants, are now included to 'Material Changes of Use', and apply to residential use or sleeping accommodation e.g. dwellings/ flats / hotels /institutions and changes of use of previous exempt structures.

Timber Treatment
All softwood timbers to be adequately treated to prevent infestation by the house longhorn beetle in accordance with current Building Regulations. All structural timbers, external frames, window & softwood cladding shall be treated against fungal attack. All structural timber to be marked DRY or KD and to have stress grade mark.

Scaffolding
The Contractor shall erect, move and maintain in a safe condition suitable for its purpose and strike and clear away on completion all necessary scaffolding.

All scaffolds must be designed, supplied, erected, maintained and dismantled in strict accordance with all relevant Health & Safety Executive (HSE) Guidelines, information sheets and other publications, TG20:13, BS EN 12811:1, BS1139, BS5974, BS EN 280:2001 + A2:2009 and BSEN1298 and all local bylaws.

Contractor is to obtain all permits from the relevant authorities before erecting scaffolds and shall ensure the permits are valid and authorised throughout the duration of the works. All watching, lighting, public safety signs and hazard warning signs to be in strict accordance with HSE and local authority requirements.

All scaffolds shall have debris/safety netting sufficiently sealed and tied to avoid loosening. Scaffolds must be designed to resist all applied wind loadings and suitable kentledge used if necessary (located so as not to disrupt the works).

Propping and Shoring
The Contractor is to be responsible for the design, erection, maintenance and dismantling of all horizontal and vertical temporary propping and shoring.
All spreaders are to be chosen dependent upon the nature of the substrate being propped to or from. Sensitive finishes will require a resilient layer between spreaders and finish. Account should be taken of any surface mounted services which may require bridging of spreaders.
Propping shall take account of all loadings from the self weight of the structure and any imposed load left in place or envisaged during the works.
Spreaders shall be so located at ground level so as not to load the edge or influence the ground conditions to existing or proposed foundation/drainage/services trenches that will be employed during the time temporary propping is required.
Where propping and spreaders influence such trenches as noted in 4 above, the trenches must be propped horizontally to take due account of all loads.
All services that are redundant are to be disconnected and removed. Services requiring rerouting or amending shall be disconnected and temporarily removed if necessary and replaced upon completion of the works

Protection of Services
Check positions of all existing services prior to commencement of work. Protect, maintain and prevent damage during the course of the works.

If any damage results from execution of the works, the Contractor shall notify the appropriate service authority and the Contractor shall make arrangements for the damage to be made good without delay at his own cost and to the satisfaction of the service authority and/or private owner as appropriate.

Keep approaches to the site clear of mud and debris.

Asbestos
The client/contractor is to carry out an intrusive survey for asbestos and/or asbestos based products if this has not already been done. After the survey has been carried out and known asbestos related items removed, the Main Contractor is to be aware that the building may contain asbestos related products and should take all due care and diligence during the execution of the works. If it is suspected that during the demolition and stripping out operations further asbestos or asbestos based products are present then a specialist subcontractor licensed by the Health and Safety Executive to survey/report/advise should be appointed to offer advice and recommendations regarding removal and safe disposal off site.

Surplus Material
Unless described as refixed, set aside for reuse or similar expressions, all materials arising from the works shall remain the property of the Employer unless otherwise instructed by the Architect.

Moisture & Frost
The Contractor shall prevent the work from becoming wet or damp where this may cause damage and shall allow for all necessary heating and covering up to protect against damage by frost. Drying times and the provision of heaters, etc., to facilitate drying out must be allowed for in the Contractor's pricing where necessary.

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DESCRIPTION
-Rear Extension & Loft Conversion & New Outbuilding

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General Notes

Steel Work

(To as per structural Engineer`s calculations/notes)
All steelwork to be grade S355 unless stated otherwise.
All bolts to be grade 8.8 black bolts in holes with 2mm clearance.

All steel work to be cleaned and painted with red oxide paint prior to installation.

All steelwork to be painted with NULLIFIRE intumescent paint (applied in accordance with manufacturer`s instructions)or encased with 2layers of 12.5mm Fire Lined plasterboard to give 60min. Fire protection.

Steelwork to be installed and fixed by contractors experienced in the use of steelwork. Where joists are bearing on steels,timber strutting is to be fixed between joist ends Padstone /bearing plate sizes are as detailed in Structural Engineers calculations.

All internal steel work shall be wire brushed to remove rust and mile scale, then painted with two coats of zinc rich premier prior to erection. Any areas damaged during erection shall be repainted with another coat of zinc rich premier.

ALL STRUCTURAL STEEL MEMBERS AND ELEMENTS (i.e. STEEL BEAMS, COLUMNS, PLATES. BOLTS) THAT ARE EXTERNAL OR WITHIN CAVITY WALL ARE TO BE GALVANIZED (TYPICAL)

ALL CONNECTIONS TO BE DESIGNED REFERRING TO DESIGN TYING FORCES IN ATTACHED CALCULATIONS AND SUBMITTED FOR APPROVAL OF ENGINEER OR BCO PRIOR TO FABRICATION OR CONSTRUCTION

MINIMUM STEEL BEAM END BEARING LENGTH IS 100mm WHEN BEARING ON A PARTY WALL AND 150mm ANYWHERE ELSE

CONTRACTOR RESPONSIBLE TO MEASURE CONSTRUCTION LENGTHS FOR STEEL WORK FROM SITE

CONTRACTOR TO ENSURE ALL STEEL WORKS ARE WRAPPED WITH FIRELINE GYPROC TO ACHIEVE MINIMUM 30min FIRE RATING

Attention to Contractor

LEVELS AND HEIGHT OF EXISTING ROOF SPACE HAS TO BE MEASURED BEFORE WORK COMMENCE, PLEASE WORK OUT THE FORMATION OF NEW FLOOR AND ROOF AND DEDUCT THIS FROM EXISTING HEIGHT. PLEASE CHECK IF REMAINING CEILING HEIGHT IS NOT LESS THAN 2.0M IF LESS PLEASE INFORM THE ENGINEER TO RECOMMEND ALTERNATIVE DESIGN

CONTRACTOR NEEDS TO CHECK CONDITION OF ALL EXISTING WALLS AND REPORT TO THE ENGINEER FOR ANY SERIOUS DEFECT IMMEDIATELY

ALL DIMENSIONS MUST BE VERIFIED ON SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL NECESSARY SITE DIMENSIONS AND LEVELS AND FOR ALL EXPLETORY WORKS TO VERIFY ANY EXISTING STRUCTURE BEFORE COMMENCEMENT OF WORKS.

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CORRECT SETTING OUT OF THE WORK ON SITE.ANY GIVEN DIMENSION IS FOR THE CONTRACTOR`S GUIDANCE ONLY AND SHOULD BE VERIFIED ON SITE.

NO LIABILITY OF ANY KIND IS ACCEPTED BY THE ENGINEER FOR ANY ERROR OR OMISSION.WHERE NEW WORK IS NEAR OR ON BOUNDARY LINE/PARTY WALL THE PROPERTY OWNER IS TO SERVE PARTY WALL NOTICE TO THE ADJOINING PROPERTY/LAND OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF THE "PARTY WALL ETC" ACT 1996.

ALL DETAILS TO COMPLY WITH CURRENT BUILDING REGULATIONS AND LOCAL AUTHORITY APPROVALS.WORK NOT TO COMMENCE BEFORE FINAL APPROVAL OF PLANS BY LOCAL AUTHORITY.

DRAWINGS PREPARED FROM PLANS & INFORMATION SUPPLIED BY ARCHITECT -NO SITE SURVEY CARRIED OUT BY THE ENGINEER.

THE STEEL WORK SUB CONTRACTOR IS TO CHECK ALL DIMENSIONS ON SITE PRIOR TO FABRICATION OF STEEL WORK

All temporary works required to any structures is the responsibility of the contractor & to be designed, installed & executed in accordance with BS 5975-2008. All temporary work proposals to be issued to EKA comments prior to commencement any demolition works

Timber Work

All double up joists bolted together using 12 mm diameter bolts with washers at 600 mm centers.
-Solid blocking is also to be installed where joists are notched into steel beams or are supported on joist hangers.
-Notching and drilling of joists to be in accordance with NHBC standard clauses 6.4 - s9.
-All timber to be grade C24 to EUROCODE unless otherwise noted and to be double vacuum treated.
-Sawn ends are to be treated with a compatible preservative.
-All joist hangers are to be galvanized mild steel with a minimum thickness of 2.5 mm.
-All joists are to be doubled up under partitions and baths etc. for joists spans greater than 2.5m solid blocking is to be installed in accordance with the building regulations.
-Provide solid strutting under all partitions running at right angles to joists under..
-22mm T&G. floor boarding on joists as specified on the plan, on joist hangers, above DPC. Joist ends to be treated with preservatives. Joists to have minimum 50mm bearing in cavity walls and must be on joist hangers on solid walls.
-PROVIDE 1 ROW OF NOGGINS TO CENTRE OF JOIST SPANS OF 2.5 M OR GREATER,AND GENERALLY AT MAX. 1.2 CENTRES FOR LARGER SPANS.

OPENING IN PARTITIONS
Form opening in brick and block partitions with RC lintels 100mm deep with 2 No. 12mm diameter m.s. bars. Form opening in load-bearing stud partitions with 100mm x 100mm post on each side and 2 No. 150mm x 50mm s.w. beams over.
WHERE TIMBER FLOORS ARE TO RECEIVE TILED FLOOR FINISHES, JOISTS ARE TO BE DOUBLED UP AND BOLTED TOGETHER USING M12 GRADE 10.9 @600c/c AND SOLID NOGGINS ARE TO BE PROVIDED @300mm CENTERS, POSITIONED TO ENSURE THAT THE FREE ENDS OF ALL PLYWOOD CAN BE SECURED AT APPROPRIATE CENTERS. PROVIDE TWO LAYERS OF EXTERNAL GRADE WBP PLYWOOD, A MINIMUM 12.5mm THICK SCREWED AT RIGHT ANGLES TO EACH OTHER TO THE JOISTS @300c/c ALONG INTERMEDIATE SUPPORTS AND 150mm CENTERS ALONG THE EDGES USING N12x50mm LONG STAINLESS STEEL SCREWS ENSURING THAT THERE ARE NO VERTICAL JOINTS THROUGH THIS PLY COVERING

-UNDER NEW PARTITIONS RUNNING PARALLEL TO SPAN EXISTING TIMBER FLOOR JOISTS TO BE DOUBLED UP OR NEW DOUBLED UP C24 TIMBER FLOOR JOISTS TO BE PROVIDED. TIMBERS ARE TO BE BOLTED TOGETHER WITH M12 GRADE 10.9 BOLTS @400c/c (TYPICAL)
-PROVIDE 50mm WIDE C24 TIMBER SOLID NOGGINGS UNDER NEW PARTITIONS RUNNING PERPENDICULAR TO JOISTS SPAN, ALONG SUPPORTS AND FOR SPANS LESS THAN 4.5m AT MID-SPAN. FOR SPANS OVER 4.5m AT ⅓ AND ⅔ SPAN POSITIONS (TYPICAL)
STUD PARTITIONS
STUD PARTITIONS TO BE 75 X 50MM REGULARIZED STUDS @ 400 C/C WITH 75 X 50MM HEAD AND SOLE PLATES WITH 75 X 50MM NOGGINS AND CROSS BRACING WHERE NECESSARY AND PARTICULARLY AT FIXING POSITIONS FOR SANITARY WARE AND PLUMBING ITEMS.
PROVIDE 75MM INSULATION QUILT TO PARTITIONS BETWEEN BATHROOM AND HABITABLE ROOMS.
WALLS TO BE LINED WITH 12.5MM PLASTERBOARD AND MIN 5MM PLASTER TO EACH FACE.
WALLS TO BEAR ON MULTIPLE JOISTS WHERE RUNNING PARALLEL TO SPAN AND ON NOGGINS WHERE RUNNING AT RIGHT ANGLES TO SPAN.
ANY GLAZING SEPARATING THE STAIR ENCLOSURE FROM ANY KITCHEN OR HABITABLE AREAS TO PROVIDE 30 MINUTES FIRE RESISTANCE.

RESTRAINT STRAPS
PROVIDE 30 X 5MM GALVANISED MILD STEEL STRAPS @ MAX 2000MM C/C FIXED ACROSS THE FIRST THREE JOISTS WHERE PARALLEL TO WALLS & HOOKED OVER INNER LEAF OF BLOCKWORK AND INTO CAVITY OF EXTERNAL WALL.

100-DET17

Structural Notes

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Masonry Work

-Bricks are to have the following characteristics :
-Frost Resistance Class F to BS3921;
-Soluble salt content Class L to BS3921
-Brickwork above DPC level is to have a minimum compressive strength of 20 N/mm2
-Brickwork below DPC level have to be in class B Engineering Bricks;
-Blocks are to be 3.5N/mm2 compressive strength;
-Party Walls Block Density to be sufficient to achieve an as-built mass of at least 415kg PER m2 of Elevation;
-Non-load bearing partition blocks to have a maximum density of 750kg/m3;
-Inner leaf of external wall density to be specified below to suit flanking sound requirements;
-Bricks and blocks are to be manufactured at least 28 days prior to use in the works;
-Mortar in Masonry walls is to be 1:1:6 CEMENT:LIME:SAND Mix above DPC and 1:3 cement:sand mix below DPC;
-Mortar for capping's, copings, and cills is to be a 1:$\frac{1}{4}$:3 Cement:Lime:sand mix; All cavity wall ties in External walls are to be stainless steel Double-Triangular type with 4mm Wire diameter to BS1243;
-Spacing is to be 900mm Centers horizontally and 450mm centers vertically staggered at reveals and expansion joints ; also at 225mm Vertical centers and 225mm away from the reveal or joint;
-ALL NEW BRICKWORK BELOW DPC LEVEL TO BE 'CLASS B' ENGINEERING BRICK IN MORTAR DESIGNATION (ii) (TYPICAL)

CAVITY WALLS

-100mm thermalite turbo or celcon solar blockwork innerleaf and 102mm facing brickwork outer leaf with 100mm cavity . DPC to all bonded reveals.
-Catnic lintels to be used over doors and windows to manufacturers instructions. Wall ties to BS 1243, placed at 900mm horizontally and 450mm vertically. Provide cavity tray (DPC) all over openings. Close cavity at top with 100mm block. Cavity to be filled to within 225mm of DPC.
At locations where ceiling parallel to wall; the wall is to be restrained by 30x5x1200mm m/s straps @ 1200mm c/c.

Foundation Work

EXCAVATION FOR FOUNDATION

Basic workmanship for excavating shall comply with Eurocode 7: Geotechnical Design. Before beginning general excavation or filling excavate top soil from required area to full depth and keep separate from excavated subsoil.The temporary support of trenches should be provided where necessary.

FOUNDATIONS

Use concrete strip (1:3:6 mix) GN3 nominal, use sulphate resistance cement if ground condition dictate. Foundations to below invert level of any adjacent drains and no foundations to be built over any drains. The depth of the foundations are to be dependant on site conditions and constructed to Local Authority approval. Foundations to be constructed in accordance with current Eurocodes EN1992/1997. Foundations also to comply with Approved Document A and BRE Digest 298 and NHBC practice Note 3 guidelines. Where any roots present, continue foundations down to 800mm below the roots.
Foundations should not be made on made ground or wide variation in type of subsoil within the loaded area.Note there are trees within 30M of the proposed works.
The following design provisions relate to foundations:

a. Foundations should be centrally situated under the walls;
b. Strip foundations should have a minimum width of 800mm;
c. The soil is firm sandy clay, can be moulded by substantial pressure with the fingers and can be excavated with graft or spade and the loading (D.L. + I.L.) is less than 60kN/m2 run.
d. Concrete should be composed of cement to BS12:1978 and fine and coarse agregate confirming to BS882:1983:
e. The minimum thickness of foundation to be 750mm;
f. Foundations of piers, butresses, and chimneys etc., should project as indicated on the drawings.

Concrete Work

1. USE CONCRETE GRADE C32/40 EVERYWHERE
2. PROVIDE 30mm NOMINAL CONCRETE COVER AND 50mm WHERE IN CONTACT WITH SOIL
3. ALLOW 47 HOURS FOR PAD STONES TO CURE BEFORE STRIKING TEMPORARY SUPPORT TO STEEL BEAMS BEARING ON THE PAD STONES
4. FOUNDATION TO BE CONSTRUCTED IN MINIMUM 100 kN/m2 SOIL AND DEPTH OF FOUNDATION TO BUILDING CONTROL RECOMMENDATIONS
5. WITH ADJACENCY TO TREES FOUNDATIONS TO BE CONSTRUCTED AT A MINIMUM DEPTH OF 1.7m TO BCO RECOMMENDATIONS
6. PROVIDE MINIMUM 100mm TO STEEL FRAME CONSTRUCTED IN FOUNDATIONS AND WHERE IT COMES IN CONTACT WITH SOIL.
7. CONTRACTOR TO PRODUCE FULL REBAR SCHEDULE AND REINFORCEMENT DETAILS AND SUBMIT TO THE APPROVAL OF THE SE OR BCO PRIOR TO CONSTRUCTION
8. ALL BASEMENT WORKS AND ASSOCIATED DAMP PROOFING IS CONTRACTOR DESIGNED AND TO BE UNDERTAKEN BY AN APPROPRIATE SPECIALIST

Under Pinning

NOTES:

1. This drawing must be read in conjunction with all relevant Architect`s and Engineering drawings.

2. Concrete mix must have a minimum crushing strength of 21N/mm2 AT 28 days. Maximum aggregate size 20mm

3. All proprietary items must be used strictly in accordance with the manufacturer`s recommendations.

4. The builder must be responsible for maintainning the stability of building through out the construction of the works, and must provide all necessary needles,struts,props,falsework etc.

5. All concrete must be fully compacted.

6. Semi-dry packing concrete to be 1:1(O-P-C sharp sand) weec rammed into positions to be sure no voids.

7. Max. Length of individual pins. must not exceed 1200mm.

8. Underwide of all underpinning must be horizontal.

9.Pins to be excavated etc. in the following order.ADBEC (see plan sequence of operations.)

10. Underside of all exposed brick corbelling existing concrete foundations must be carefully cleanedoff priar to pouring mass concrete underpinnig.

11. Any services passing through mass concrete to be sleeved through same and any drainage to incorporate flexible joints each side of foundations.

12. when calculating the foundation widths the ground has been assumed to have a safe bearing capacity of 107KN/m2.

13. When the first pin opened up the Local Authority & the Engineer are to be contacted to inspect the ground conditions to ensure that the assumtions in note 12 are valid .

14. The times stated in the "sequence of operations" are assume reasonable air temperatures.Should cold weather working be anticipated, then the times stated must be adjusted following consulation with the engineer.

15. The building Inspector to inspect all foundation bottoms priar to casting each pin.

16. All bases to be concentrise unde the wall over.

17. Excavations mus be dug.inspected and concreted the same day.

18. This drawing must be read in conjunction with Hovard Covanna &Associates Spesification.

19.Underside of underpinning concrete must be taken down to depths shown in this drawing & 600 below lowest tree roots encountered wichever is lower.

SEQUENCE OF OPERATONS FOR UNDERPINNING (Please also refer to general notes particularly notes 9&14)
1. Excavate for pin 1, carefully clean off concrete clicker(if found to be necessary) pour underpinning concrete to within 75mm (approx.) of underside of existing foundation/wall corbell.

2. Leave for a min of 24 hrs. then semi-dry pack pin1.

3. repeat operation 1 for pin 3.
4. Repeat operation 2 for pin3.

5. repeat operation 1&2 consequently for all odd pin numbers.

7. after completing the odd numbers then start the operations 1&2 for the even numbers consequently.(e.g2,4,6.8....)

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Project No.
25727

Date
01/2024

SITE ADDRESS
-30 Old London Road Badgers Mount Sevenoaks TN14 7AE

DESCRIPTION
-Rear Extension & Loft Conversion & New Outbuilding

NOT FOR CONSTRUCTION
FOR BUILDUNG CONTROL REVIEW

100-DET18

Structural Notes