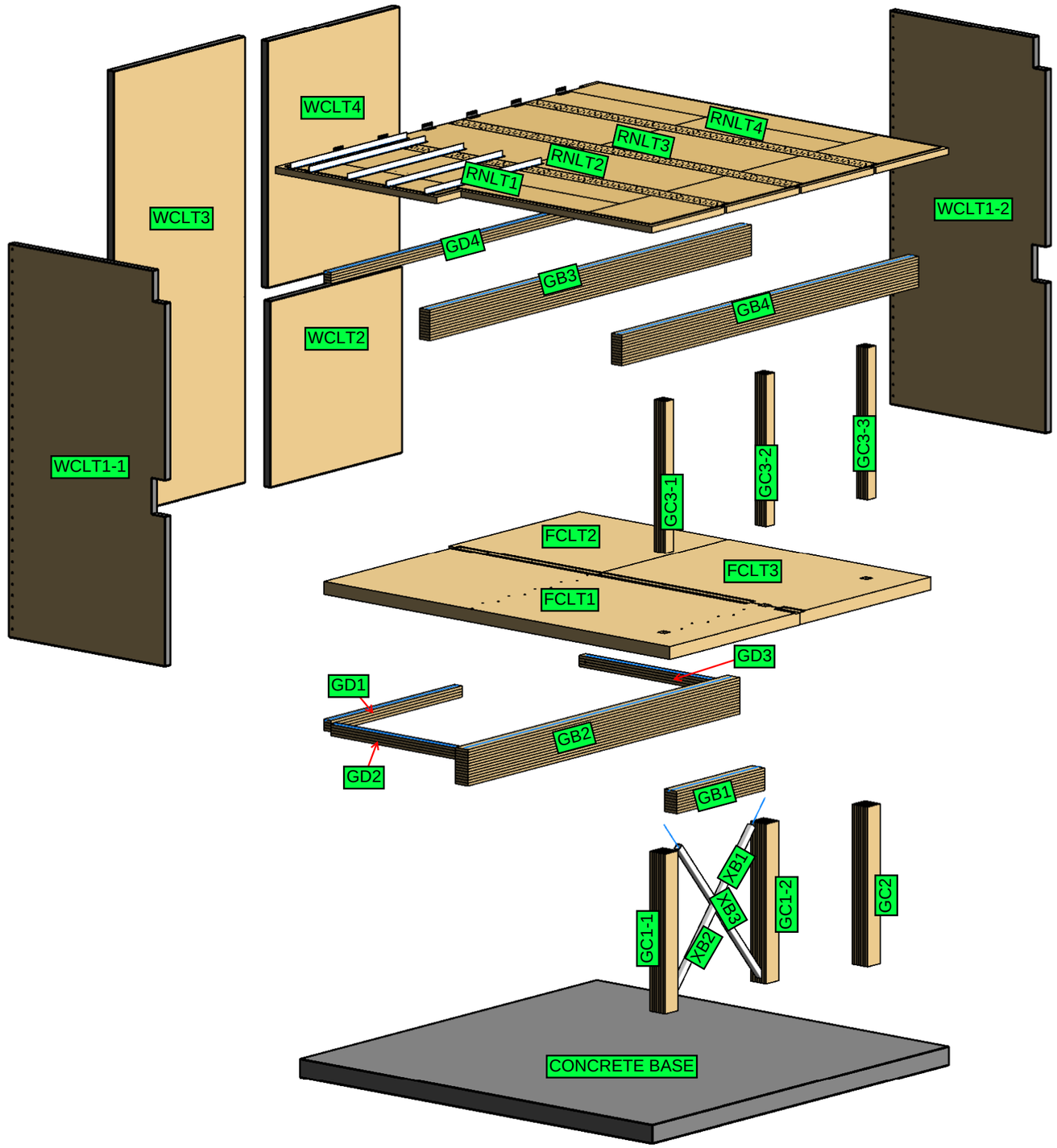


NOTE: SEE SEQUECING PLANS FOR INSTALLATION SEQUENCE OF ELEMENTS LABELED.

1 DS098 3D - Displaced Model

SAMPLE STRUCTURAL ENGINEERING COMPANY INC.

123 SAMPLE ST.
TEL: 123-456-7890
sample@sampleeng.com

PRELIMINARY

Project:
BCIT MASS TIMBER MODULE

BURNABY, BC

Project No:
20.192

Date: NOVEMBER 05, 2020
Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

Rev	Date	Note

Sample Structural Engineering Inc.
Disclosure statement.

Drawing Title:
ELEMENT LABELS FOR SEQUENCING

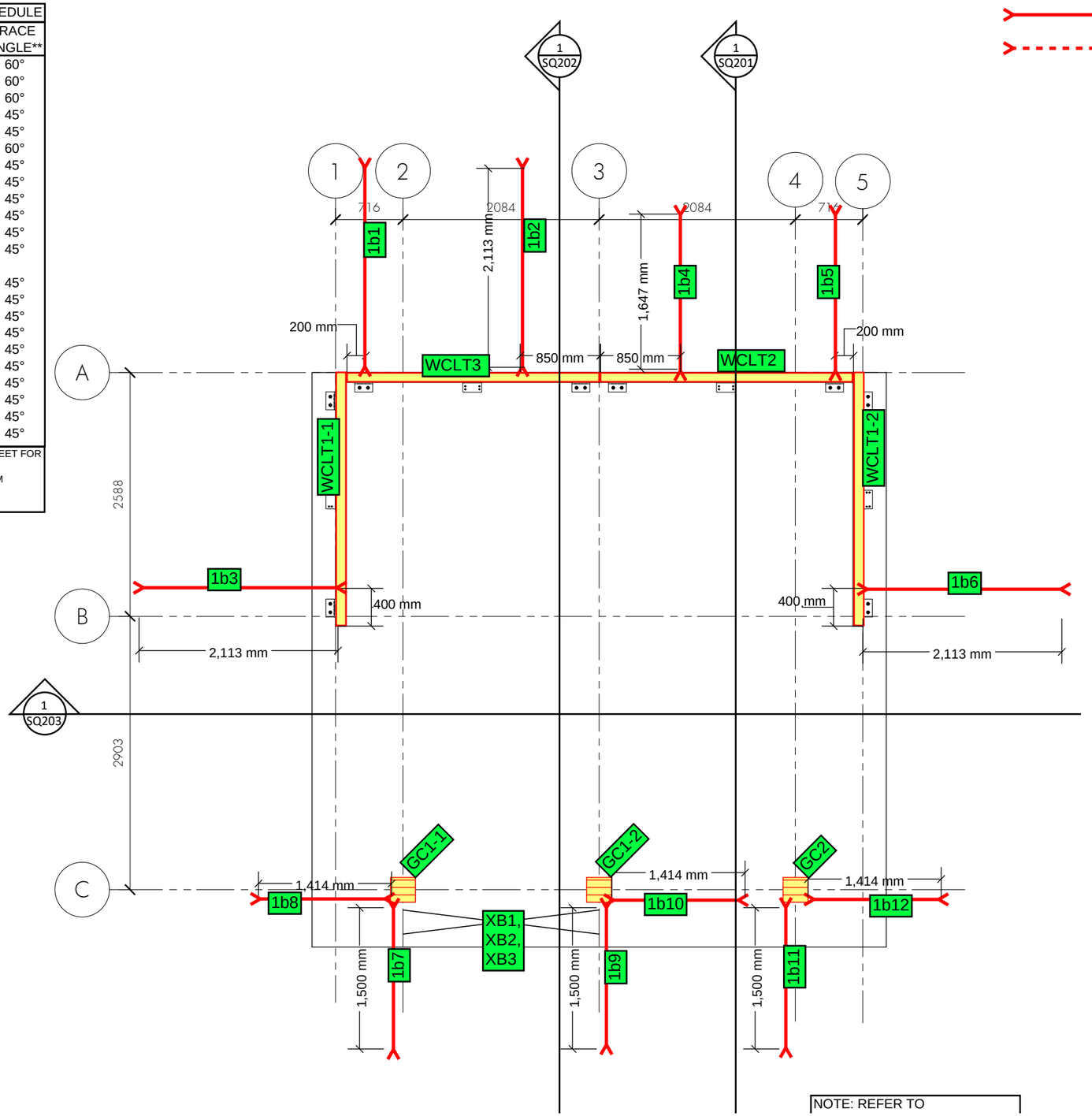
Drawing No:
SQ001

1 cm in

2/4/2022 12:01:32 PM

TEMPORARY BRACE SCHEDULE		
BRACE ID	BRACE MODEL*	BRACE ANGLE**
1b1	GIR6000	60°
1b2	GIR6000	60°
1b3	GIR6000	60°
1b4	GIR3000	45°
1b5	GIR3000	45°
1b6	GIR6000	60°
1b7	GIR2200	45°
1b8	GIR2200	45°
1b9	GIR2200	45°
1b10	GIR2200	45°
1b11	GIR2200	45°
1b12	GIR2200	45°
2b1	GIR3000	45°
2b2	GIR3000	45°
2b3	GIR3000	45°
2b4	GIR3000	45°
2b5	GIR2200	45°
2b6	GIR2200	45°
2b7	GIR2200	45°
2b8	GIR2200	45°
2b9	GIR2200	45°
2b10	GIR2200	45°

*REFER TO ROTHOBLAAS CUT SHEET FOR GIRAFFE BRACES
**BRACE ANGLE MEASURED FROM HORIZONTAL SURFACE AT BASE CONNECTION



NOTE: REFER TO

TEMPORARY BRACE
SEE BRACING SCHEDULE

TEMPORARY BRACE BELOW

FIRST FLOOR BRACING SEQUENCE:

1) ERECT WCLT3 AND INSTALL BRACES 1b1 AND 1b2 TO WALL PANEL AND BASE.
2) CONNECT WCLT3 TO BASE PER STRUCTURAL DRAWINGS.
3) ERECT WCLT1-1 AND INSTALL BRACE 1b3 TO WALL PANEL AND BASE.
4) CONNECT WCLT1-1 TO BASE PER STRUCTURAL DRAWINGS.
5) CONNECT WCLT1-1 TO WCLT3 PER STRUCTURAL DRAWINGS. BRACE 1b1 CAN BE REMOVED AFTER THE WALL PANELS HAVE BEEN CONNECTED. BRACE 1b2 TO REMAIN.
6) ERECT WCLT2 AND INSTALL BRACES 1b4 AND 1b5 TO WCLT2 AND BASE.
7) CONNECT WCLT2 TO BASE PER STRUCTURAL DRAWINGS.
8) CONNECT WCLT3 TO WCLT2 PER STRUCTURAL DRAWINGS.
9) ERECT WCLT1-2 AND INSTALL BRACE 1b6 TO WALL PANEL AND BASE.
10) ANCHOR WCLT1-2 TO BASE PER STRUCTURAL DRAWINGS.
11) CONNECT WCLT2 TO WCLT1-2 PER STRUCTURAL DRAWINGS. BRACE 1b5 CAN BE
12) REMOVED AFTER THE WALL PANELS HAVE BEEN CONNECTED. BRACE 1b4 TO REMAIN.
13) ERECT GC1-1 AND INSTALL BRACES 1b7 AND 1b8 TO COLUMN AND BASE.
14) ANCHOR GC-1 TO BASE PER STURCTURAL DRAWINGS.
15) ERECT GC1-2 AND INSTALL BRACES 1b9 AND 1b10 TO COLUMN AND BASE.
16) ANCHOR GC1-2 TO BASE PER STURCTURAL DRAWINGS.
17) ERECT GC2 AND FASTEN BRACES 1b11 AND 1b12 TO COLUMN AND BASE.
18) ANCHOR GC2 TO BASE PER STURCTURAL DRAWINGS.

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PRELIMINARY

Project:
BCIT MASS TIMBER MODULE

BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

Rev	Date	Note

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Drawing Title:
FIRST FLOOR BRACING PLAN

Drawing No:
SQ100

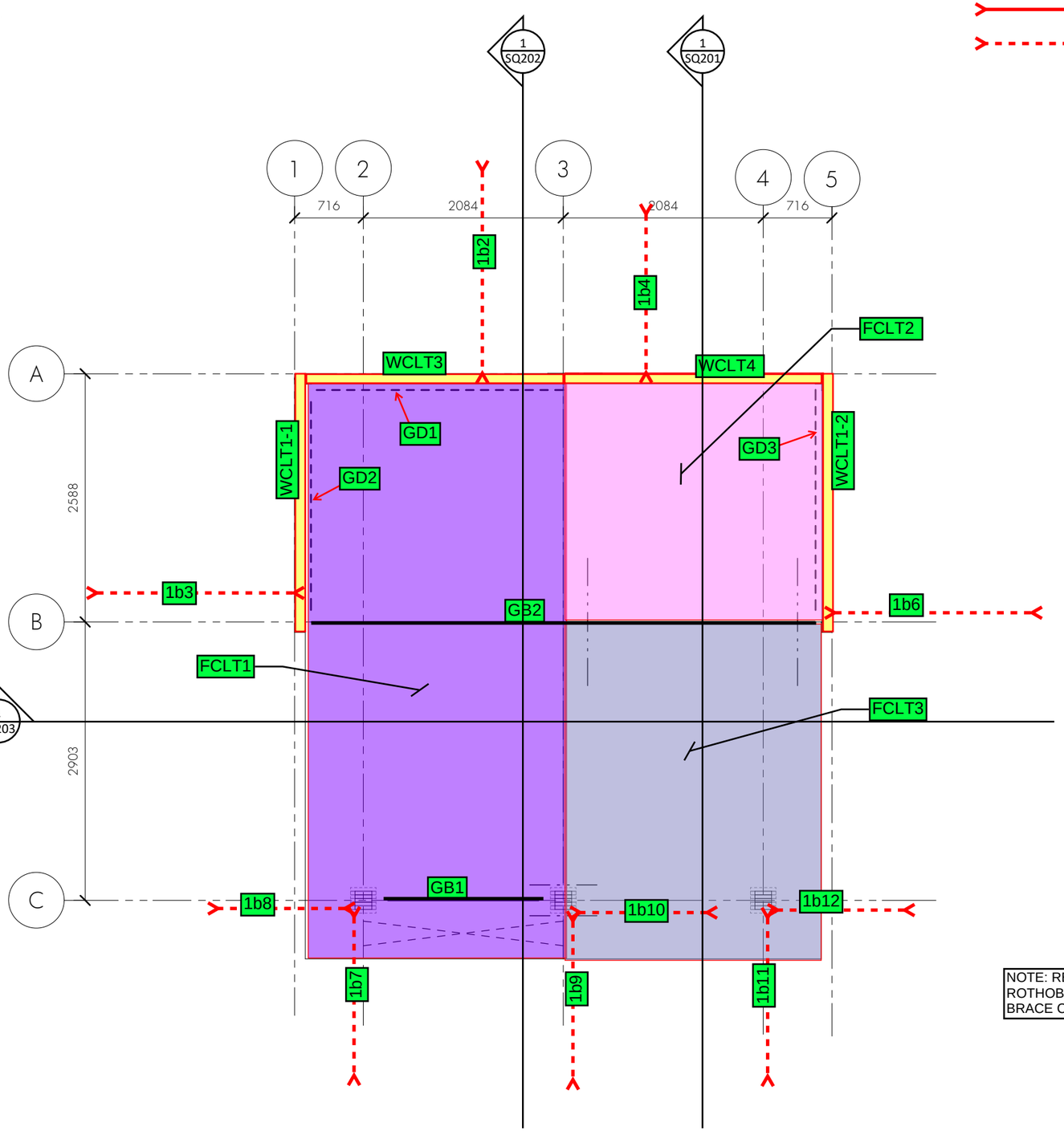
1 cm in

1 S103 FIRST FLOOR PLAN
1 : 50

2/11/2022 9:25:52 AM

TEMPORARY BRACE SCHEDULE		
BRACE ID	BRACE MODEL*	BRACE ANGLE**
1b1	GIR6000	60°
1b2	GIR6000	60°
1b3	GIR6000	60°
1b4	GIR3000	45°
1b5	GIR3000	45°
1b6	GIR6000	60°
1b7	GIR2200	45°
1b8	GIR2200	45°
1b9	GIR2200	45°
1b10	GIR2200	45°
1b11	GIR2200	45°
1b12	GIR2200	45°
2b1	GIR3000	45°
2b2	GIR3000	45°
2b3	GIR3000	45°
2b4	GIR3000	45°
2b5	GIR2200	45°
2b6	GIR2200	45°
2b7	GIR2200	45°
2b8	GIR2200	45°
2b9	GIR2200	45°
2b10	GIR2200	45°

*REFER TO ROTHOBLAAS CUT SHEET FOR GIRAFFE BRACES
**BRACE ANGLE MEASURED FROM HORIZONTAL SURFACE AT BASE CONNECTION



TEMPORARY BRACE
SEE BRACING SCHEDULE

TEMPORARY BRACE BELOW

SECOND FLOOR LEVEL INSTALLATION SEQUENCE:

1) INSTALL GB2 TO BEAR ON CLT WALL NOTCHES PER STRUCTURAL DRAWINGS.
2) ONCE GLULAM BEAM HAS BEEN SECURELY INSTALLED, REMOVE BRACES 1b3 AND 1b6.
3) INSTALL GB1 TO BEAR ON BEAM-COLUMN HANGERS PER STRUCTURAL DRAWINGS.
4) REMOVE BRACES 1b8 AND 1b10.
5) INSTALL STEEL CROSS-BRACE XB1, XB2, XB3 PER STRUCTURAL DRAWINGS.
6) INSTALL LEDGERS GD1, GD2, AND 2GD TO CLT WALL PANELS PER STRUCTURAL DRAWINGS.
7) INSTALL FCLT2 TO BEAR ON WCLT2 (BELOW), GD3 AND GB2 PER STRUCTURAL DRAWINGS. BRACE 1b4 CAN BE REMOVED ONCE THE CLT FLOOR PANEL HAS BEEN INSTALLED.
8) INSTALL FCLT3 TO BEAR ON GB2, GC1-2 AND GC2 PER STRUCTURAL DRAWINGS. BRACES 1b11 AND 1b12 CAN BE REMOVED AFTER THE CLT FLOOR PANEL HAS BEEN INSTALLED.
9) ONCE FCLT2 AND FCLT3 HAVE BEEN INSTALLED, REMOVE BRACE 1b2.
10) INSTALL FCLT1 TO BEAR ON LEDGERS, BEAMS AND COLUMNS PER STRUCTURAL DRAWINGS. BRACES 1b7, 1b8, 1b9 AND 1b10 CAN BE REMOVED AFTER THE CLT FLOOR PANEL HAS BEEN INSTALLED.

NOTE: REFER TO ROTHOBLAAS CUT SHEET FOR BRACE CONNECTIONS

1 / S104 SECOND FLOOR PLAN
1 : 50

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PRELIMINARY

Project:
BCIT MASS TIMBER MODULE
BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

Rev	Date	Note

Sample Structural Engineering Inc. Disclosure statement.

Drawing Title:
SECOND FLOOR SEQUENCING PLAN

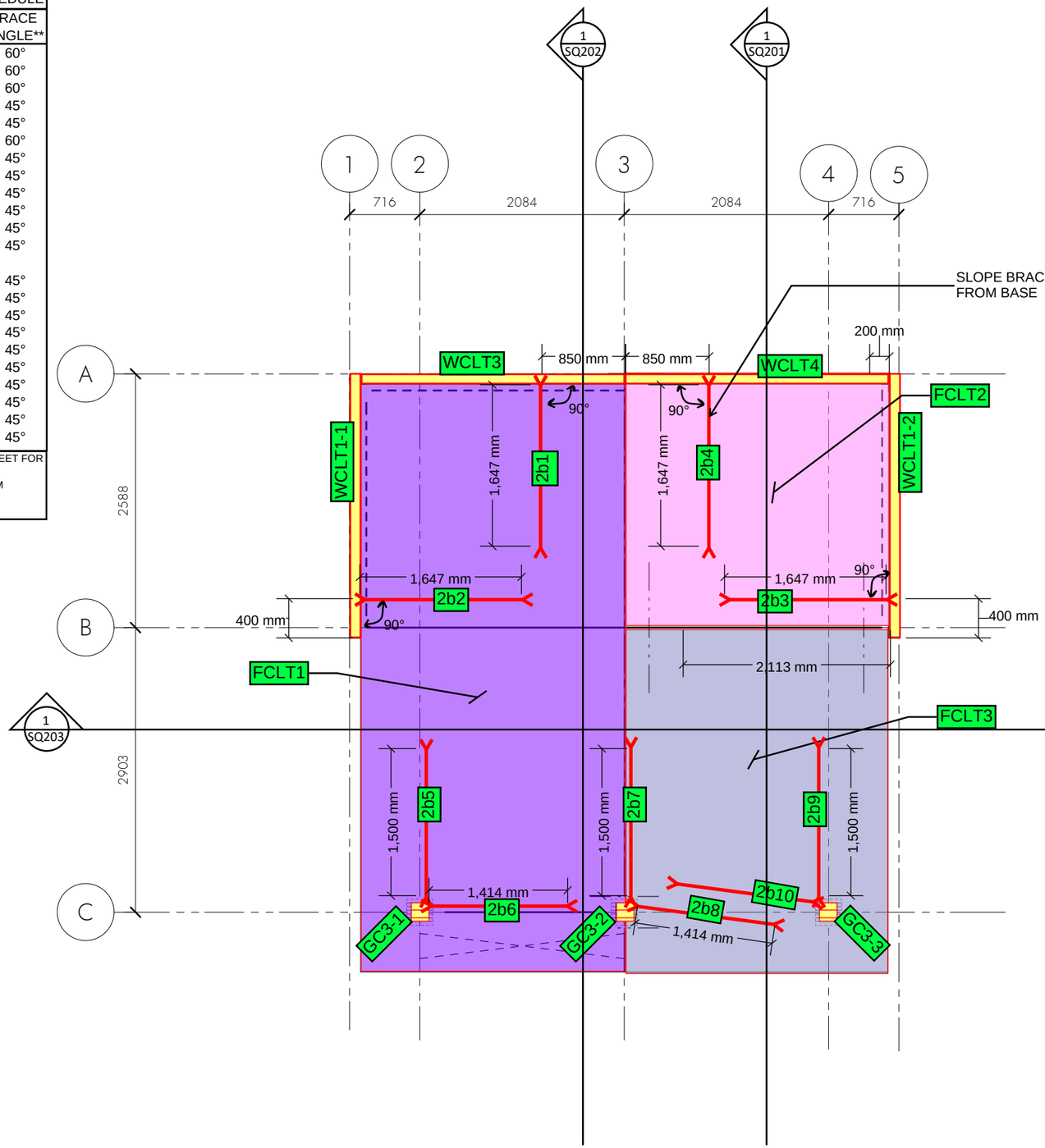
Drawing No:
SQ101

1
cm in

2/11/2022 9:25:53 AM

TEMPORARY BRACE SCHEDULE		
BRACE ID	BRACE MODEL*	BRACE ANGLE**
1b1	GIR6000	60°
1b2	GIR6000	60°
1b3	GIR6000	60°
1b4	GIR3000	45°
1b5	GIR3000	45°
1b6	GIR6000	60°
1b7	GIR2200	45°
1b8	GIR2200	45°
1b9	GIR2200	45°
1b10	GIR2200	45°
1b11	GIR2200	45°
1b12	GIR2200	45°
2b1	GIR3000	45°
2b2	GIR3000	45°
2b3	GIR3000	45°
2b4	GIR3000	45°
2b5	GIR2200	45°
2b6	GIR2200	45°
2b7	GIR2200	45°
2b8	GIR2200	45°
2b9	GIR2200	45°
2b10	GIR2200	45°

*REFER TO ROTHOBLAAS CUT SHEET FOR GIRAFFE BRACES
**BRACE ANGLE MEASURED FROM HORIZONTAL SURFACE AT BASE CONNECTION



SECOND FLOOR BRACING SEQUENCE:

1) INSTALL BRACE 2b1 TO CLT WALL AND CLT FLOOR.
2) INSTALL BRACE 2b2 TO CLT WALL AND CLT FLOOR.
3) INSTALL BRACE 2b3 TO CLT WALL AND CLT FLOOR.
4) ERECT WCLT4 AND CONNECT TO CLT-W4 AND CLT-F1 PER STRUCTURAL DRAWINGS.
5) INSTALL BRACE 2b4 TO CLT WALL AND CLT FLOOR.
6) ERECT GC3-1 AND CONNECT TO COLUMN BELOW PER STRUCTURAL DRAWINGS.
7) INSTALL BRACES 2b5 AND 2b6 TO GLULAM COLUMN AND CLT FLOOR PANEL.
8) ERECT GC3-2 AND CONNECT TO COLUMN BELOW PER STRUCTURAL DRAWINGS.
9) INSTALL BRACES 2b7 AND 2b8 TO GLULAM COLUMN AND CLT FLOOR PANEL.
10) ERECT GC3-3 AND CONNECT TO COLUMN BELOW PER STRUCTURAL DRAWINGS.
11) INSTALL BRACES 2b9 AND 2b10 TO GLULAM COLUMN AND CLT FLOOR PANEL.

NOTE: REFER TO ROTHOBLAAS CUT SHEET FOR BRACE CONNECTIONS

1 S104 SECOND FLOOR PLAN
1 : 50

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PRELIMINARY

Project:
BCIT MASS TIMBER MODULE
BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

Rev	Date	Note

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Drawing Title:
SECOND FLOOR BRACING PLAN

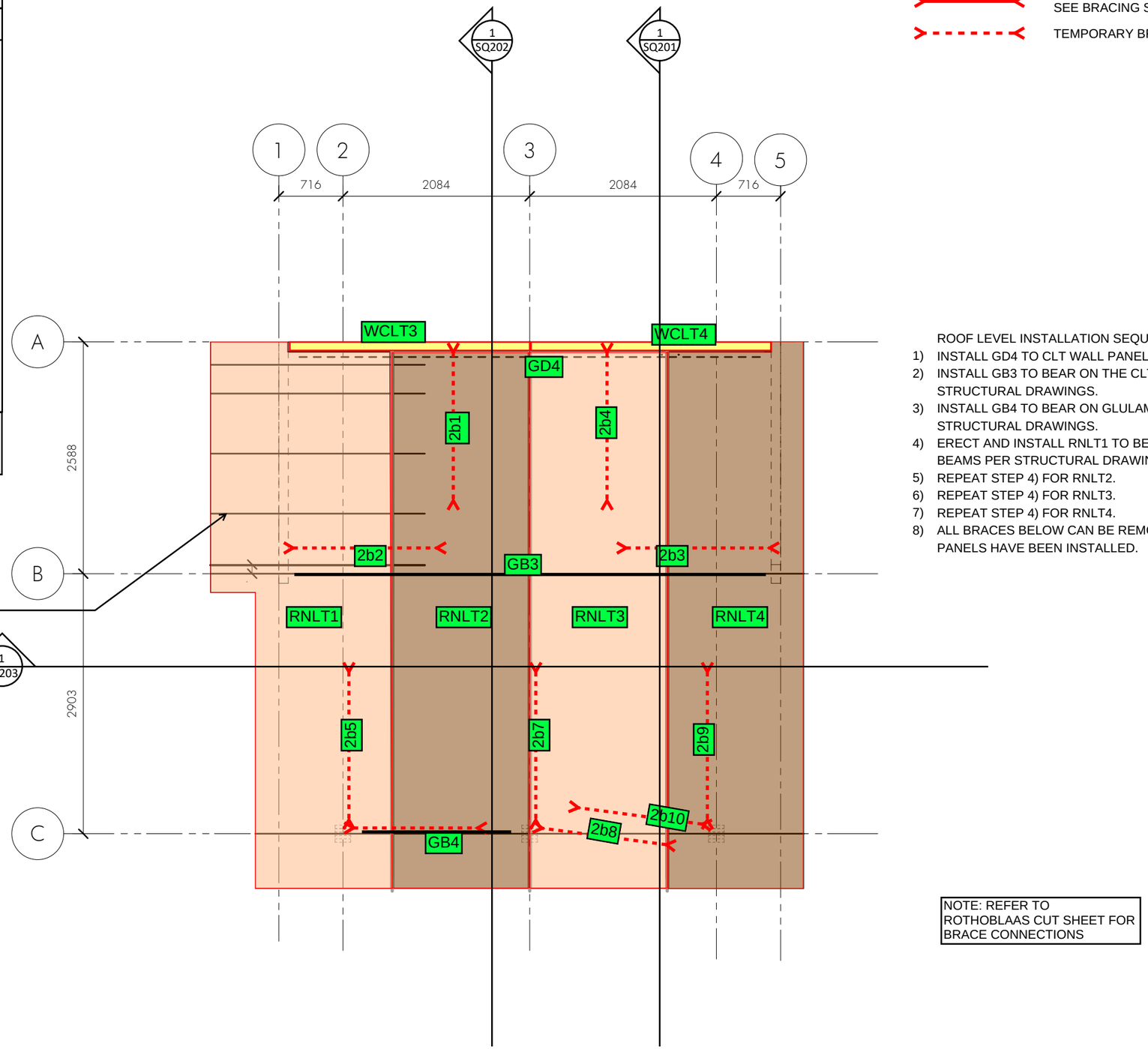
Drawing No:
SQ102

cm in

2/11/2022 9:25:53 AM

TEMPORARY BRACE SCHEDULE		
BRACE ID	BRACE MODEL*	BRACE ANGLE**
1b1	GIR6000	60°
1b2	GIR6000	60°
1b3	GIR6000	60°
1b4	GIR3000	45°
1b5	GIR3000	45°
1b6	GIR6000	60°
1b7	GIR2200	45°
1b8	GIR2200	45°
1b9	GIR2200	45°
1b10	GIR2200	45°
1b11	GIR2200	45°
1b12	GIR2200	45°
2b1	GIR3000	45°
2b2	GIR3000	45°
2b3	GIR3000	45°
2b4	GIR3000	45°
2b5	GIR2200	45°
2b6	GIR2200	45°
2b7	GIR2200	45°
2b8	GIR2200	45°
2b9	GIR2200	45°
2b10	GIR2200	45°

*REFER TO ROTHOBLAAS CUT SHEET FOR GIRAFFE BRACES
**BRACE ANGLE MEASURED FROM HORIZONTAL SURFACE AT BASE CONNECTION



TEMPORARY BRACE
SEE BRACING SCHEDULE

TEMPORARY BRACE BELOW

ROOF LEVEL INSTALLATION SEQUENCE:

1) INSTALL GD4 TO CLT WALL PANELS PER STRUCTURAL DRAWINGS.
2) INSTALL GB3 TO BEAR ON THE CLT EDGE WALLS PER THE STRUCTURAL DRAWINGS.
3) INSTALL GB4 TO BEAR ON GLULAM COLUMNS PER THE STRUCTURAL DRAWINGS.
4) ERECT AND INSTALL RNLT1 TO BEAR ON LEDGER AND GLULAM BEAMS PER STRUCTURAL DRAWINGS.
5) REPEAT STEP 4) FOR RNLT2.
6) REPEAT STEP 4) FOR RNLT3.
7) REPEAT STEP 4) FOR RNLT4.
8) ALL BRACES BELOW CAN BE REMOVED ONCE ALL NLT ROOF PANELS HAVE BEEN INSTALLED.

NOTE: REFER TO ROTHOBLAAS CUT SHEET FOR BRACE CONNECTIONS

1 S105 ROOF PLAN
1 : 50

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PRELIMINARY

Project:
BCIT MASS TIMBER MODULE
BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

Rev	Date	Note

Sample Structural Engineering Inc.
Disclosure statement.

Drawing Title:
ROOF SEQUENCING PLAN

Drawing No:
SQ103

1
cm in

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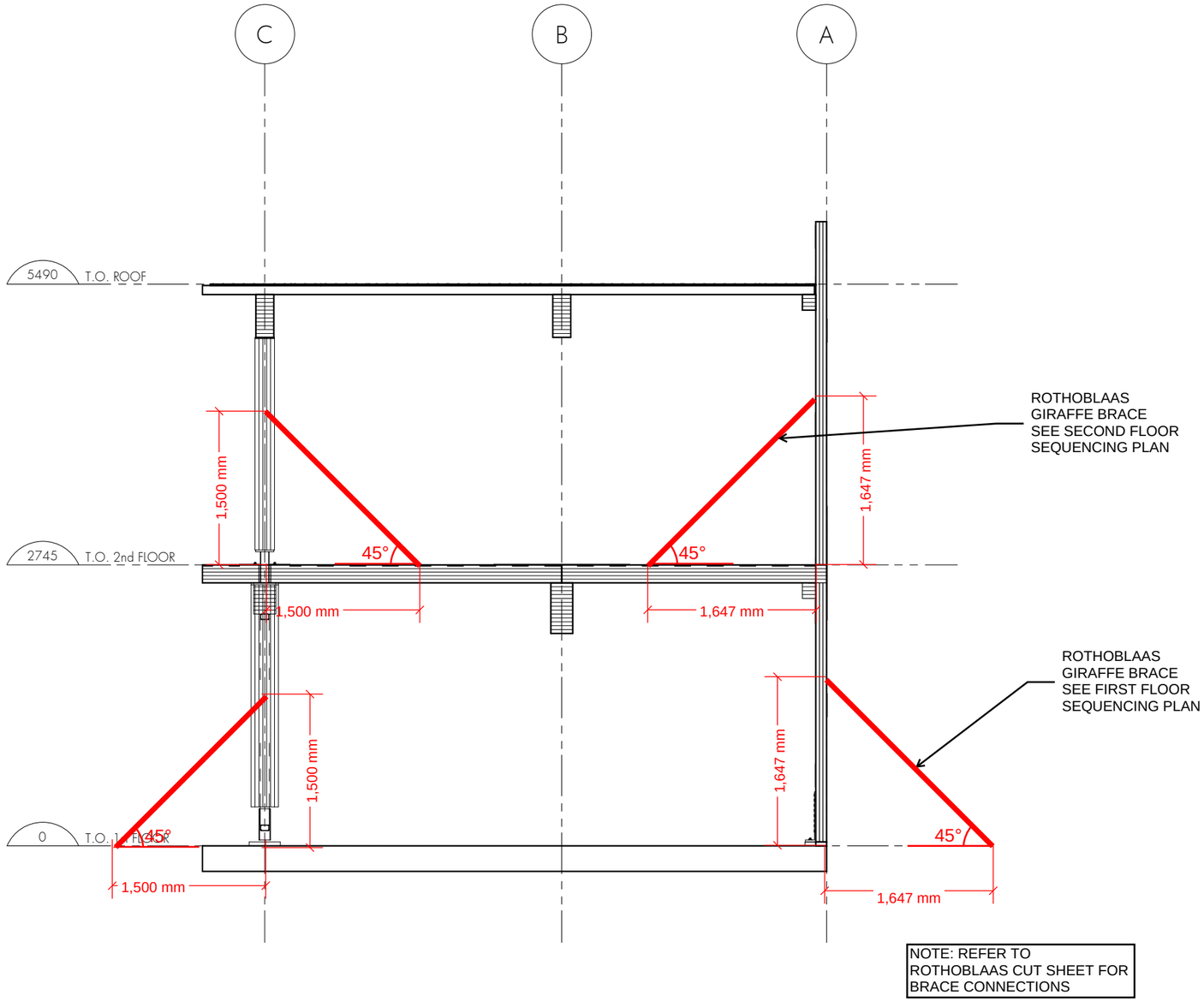

NOTE: REFER TO ROTHOBLAAS CUT SHEET FOR BRACE CONNECTIONS

1 SECTION
S216 1 : 50

2/11/2022 9:25:57 AM

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PRELIMINARY

Project:
BCIT MASS TIMBER MODULE

BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

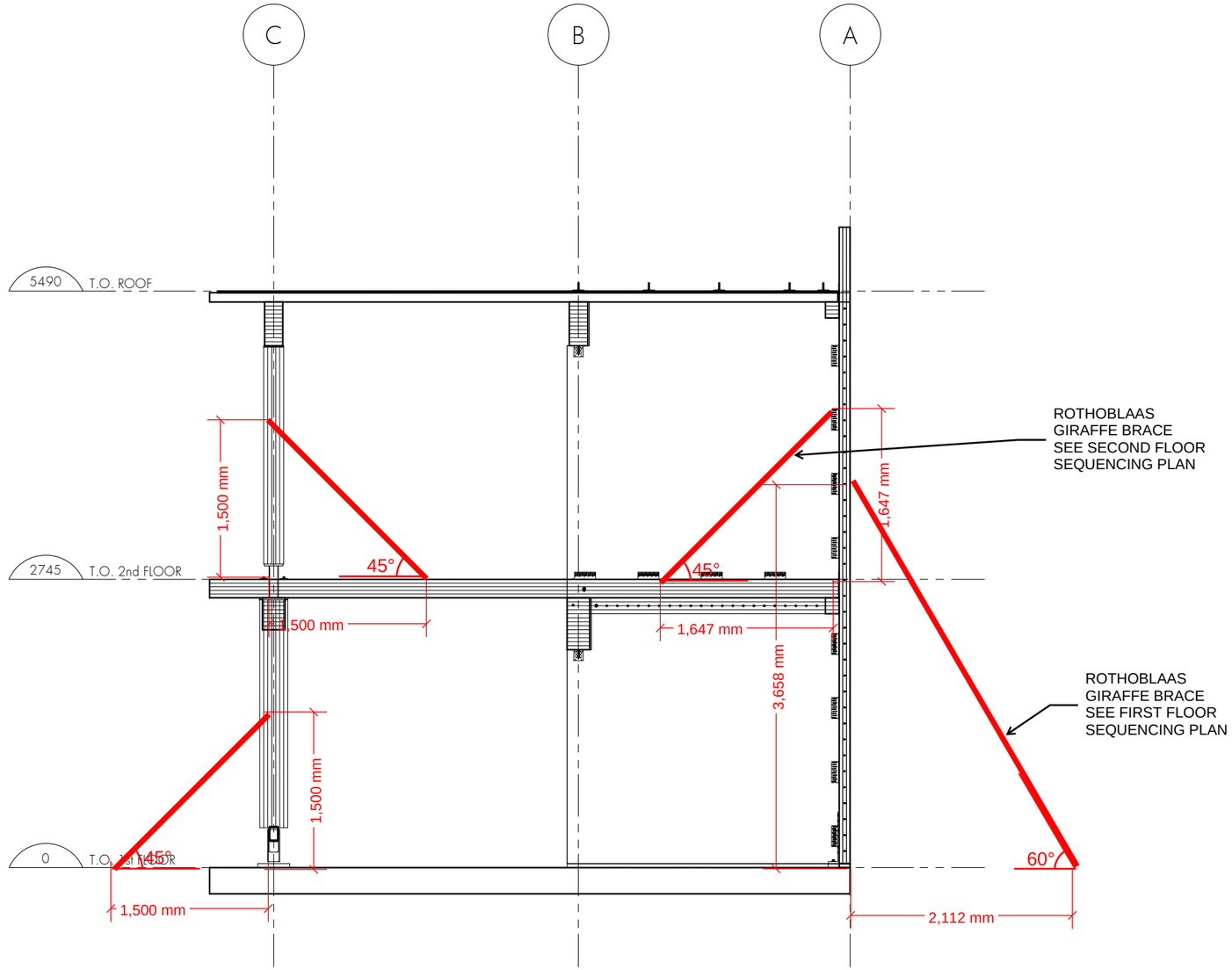
Rev	Date	Note

Sample Structural Engineering Inc.
Disclosure statement.

Drawing Title:
SECTION

Drawing No:
SQ200

1
cm in



NOTE: REFER TO ROTHOBLAAS CUT SHEET FOR BRACE CONNECTIONS

1 SECTION
S217 1 : 50

2/11/2022 9:25:58 AM

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123 SAMPLE ST.
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PRELIMINARY

Project:
BCIT MASS TIMBER MODULE

BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

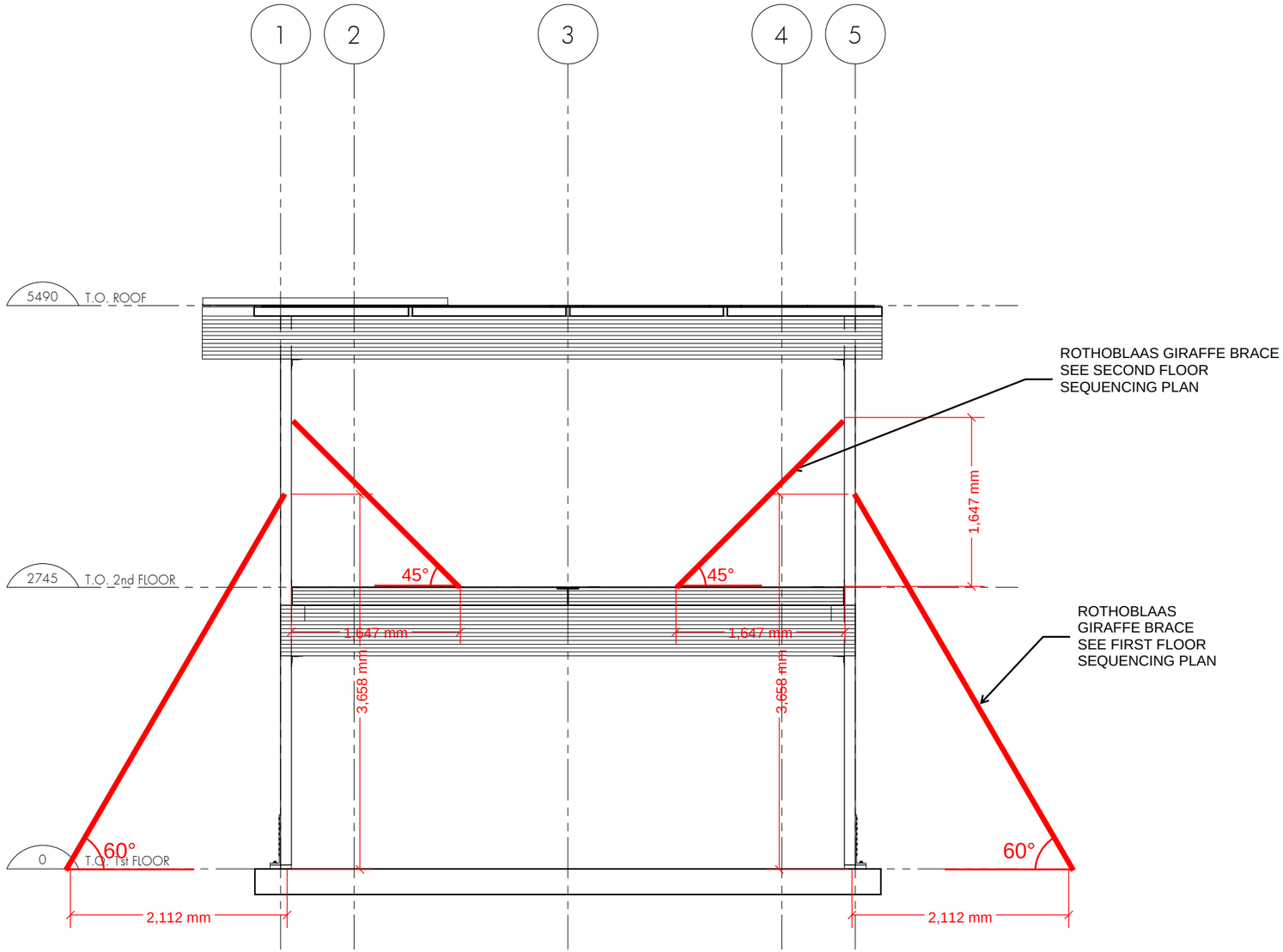
Rev	Date	Note

Sample Structural Engineering Inc.
Disclosure statement.

Drawing Title:
SECTION

Drawing No:
SQ201

cm in



NOTE: REFER TO ROTHOBLAAS CUT SHEET FOR BRACE CONNECTIONS

1 SECTION
S218 1 : 50

2/11/2022 9:26:00 AM

SAMPLE
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COMPANY INC.

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sample@sampleeng.com

PRELIMINARY

Project:
BCIT MASS TIMBER MODULE
BURNABY, BC

Project No:
20.192

Scale: AS NOTED
Drawn By: KM
Checked By: MH/DM

REVISIONS AND DISTRIBUTION LOG

Rev	Date	Note

Sample Structural Engineering Inc.
Disclosure statement.

Drawing Title:
SECTION

Drawing No:
SQ202

1
cm in

GIRAFFE

ASSEMBLY SUPPORT

VIDEO

PRACTICAL
For quick and easy assembly of walls and floors made of timber elements.

PRECISE
Quick adjustment with automatic lock.

LENGTH
The 6,0 metre long version offers support even over long distances.

GIR4000
GIR6000

GIR3000

GIR3000
GIR4000
GIR6000

GIR2200

GIR3000

GIR4000

GIR6000

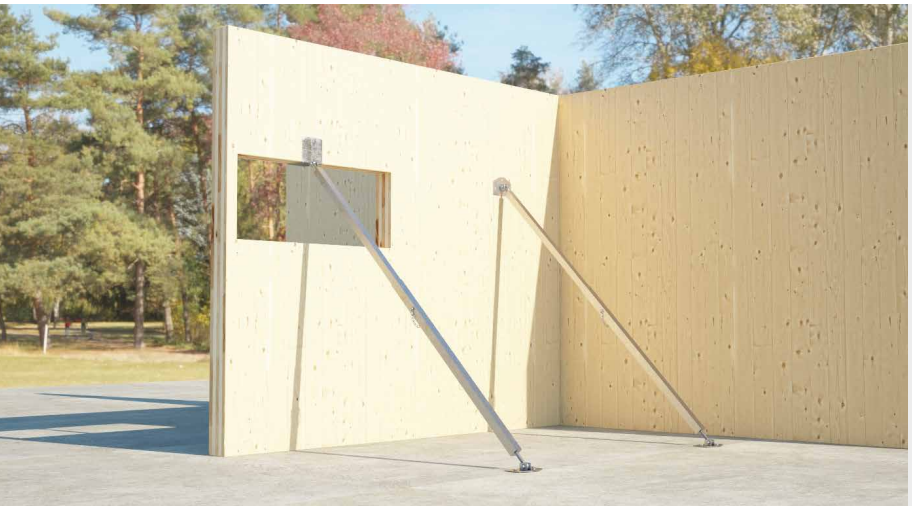
CHARACTERISTICS

FOCUS	temporary assembly support
LENGTH	from 220 cm to 600 cm
LOAD CAPACITY	up to 20 kN
FASTENING	HBS PLATE Ø10, SKR Ø12

VIDEO
Scan the QR Code and watch the video on our YouTube channel

MATERIAL
GIR3000 and GIR4000 in zinc plated steel; GIR2200 and GIR6000 in extruded 6060 aluminium.

FIELDS OF USE
Temporary support for the assembly of CLT floors and walls, prefabricated timber framing elements, glulam supports and pillars and more.



TWO STOREYS

GIR6000 acts as a practical and safe support to be used even in case of distant elements extending up to two storeys.

ORGANISED

The practical transport element allows to handle and store up to 10 GIRAFFE in an orderly manner.

CODES AND DIMENSIONS

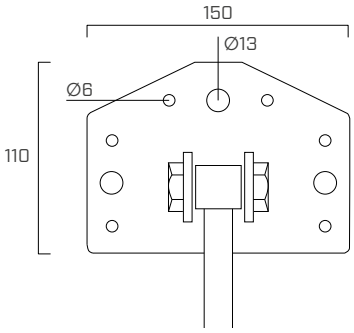
CODE	length [mm]	profile [mm]	weight [kg]	adjustment [mm]	pcs
GIR2200	1180 - 2200	40 x 40 / 35 x 35	3,35	100 + 100	1
GIR3000 (with locking stop)	1750 - 3000	40 x 40 / 35 x 35	9,80	100 + 100	1
GIR4000	1750 - 4000	45 x 45 / 40 x 40 / 35 x 35	13,0	100 + 100	1
GIR6000	2120 - 6000	80 x 80 / 68 x 68 / 55 x 55	27,0	135 + 135	1

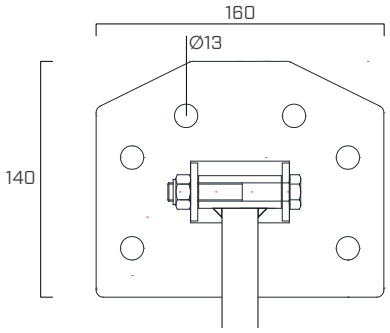
OPTIONAL ITEMS

CODE	description	pcs
GIRPLATE	small spare plate (without threaded rod)	1
GIRPLATEL	large spare plate (without threaded rod)	1
GIRPLATE90	spare plate with 90° edge (without threaded rod)	1
METSP	spare dowel for GIR4000	1
GIRHOLDER	transport element compatible with 10x GIR3000, 10xGIR4000 or 8xGIR6000	1

GEOMETRY AND INSTALLATION

ANCHOR PLATE





GIRPLATE: SUITABLE FOR GIR2200/GIR3000/GIR4000

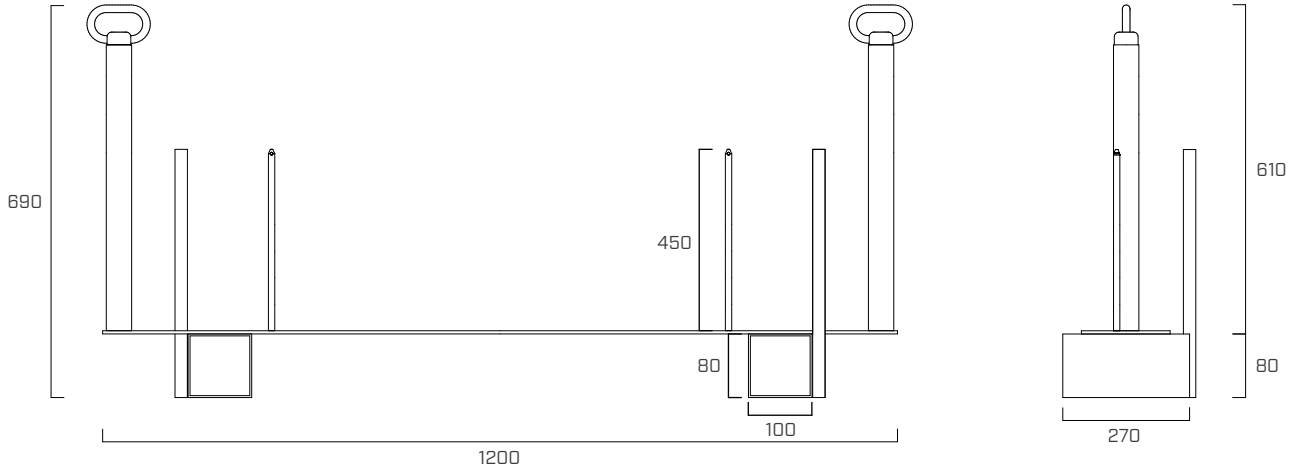
Plate thickness	[mm]	4
no. holes	Ø13	3
no. holes	Ø6	6

GIRPLATEL: SUITABLE FOR GIR6000

Plate thickness	[mm]	6
no. holes	Ø13	6

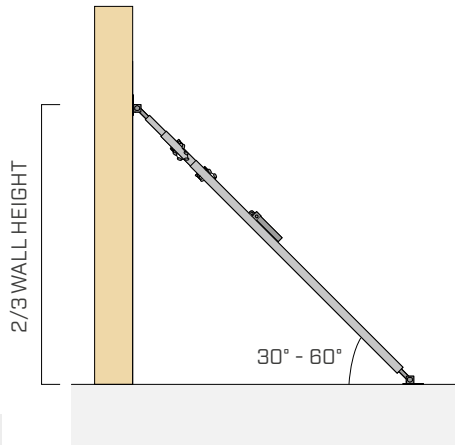
DIMENSIONS

TRANSPORT ELEMENT



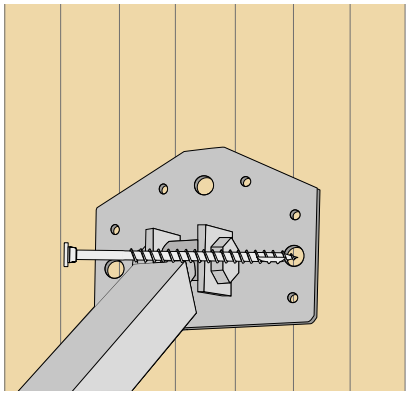
GIRHOLDER: suitable for GIR3000, GIR4000 and GIR6000

GIRAFFE INSTALLATION



1

HBS PLATE Ø10



2

1. Place GIRAFFE on the wall and adjust its length accordingly. The support must be applied in the upper third of the wall. The angle of GIRAFFE must be between 30° and 60°.

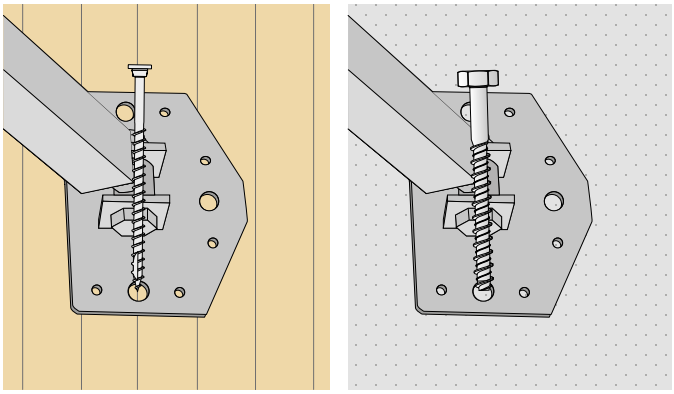
2. Fix the GIRAFFE plate to the wall using the HBS plate screws.

TIMBER FLOOR

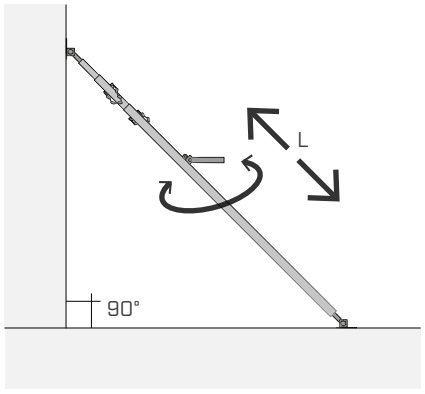
HBS PLATE Ø10

CONCRETE FLOOR

SKR Ø12



3



4

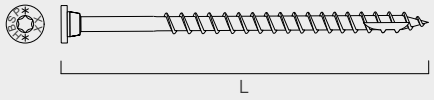
3. Fix the GIRAFFE plate to the timber floor using the HBS PLATE screws and to the concrete floor using SKR anchors.

4. Position the wall precisely by setting the length of GIRAFFE by means of the adjustment handle.

CONNECTORS:

JOINT ON TIMBER - HOLES Ø13

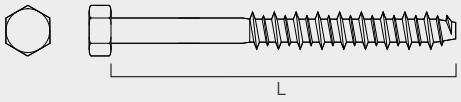
CE
ETA-11/0030



HBS PLATE Ø10 - pan head screw

L = 100 - 180 mm*

JOINT ON CONCRETE - HOLES Ø13



SKR Ø12 - screw anchor for concrete

L = 100 - 400 mm*

* The choice of length of the connection is assessed each time in function of the element to be supported, the type of support on which GIRAFFE is used and the load to be sustained.

STRUCTURAL VALUES*

	GIR2200	GIR3000			GIR4000			GIR6000			
deflection [m]	2,20 [m]	1,75 [m]	2,40 [m]	3,00 [m]	1,75 [m]	2,85 [m]	4,00 [m]	3,00 [m]	4,00 [m]	5,00 [m]	6,00 [m]
R_{max} [kN]	**2,52** [kN]	**12,00** [kN]	**10,90** [kN]	**6,55** [kN]	**15,55** [kN]	**8,33** [kN]	**5,57** [kN]	**20,36** [kN]	**17,45** [kN]	**11,64** [kN]	**6,33** [kN]

(*) The values indicated refer to the load capacity in the direction of the axis of the assembly support and have been determined based on tests and calculations. When subjected to excessive loads, the support deforms without breaking.

CALCULATION EXAMPLE

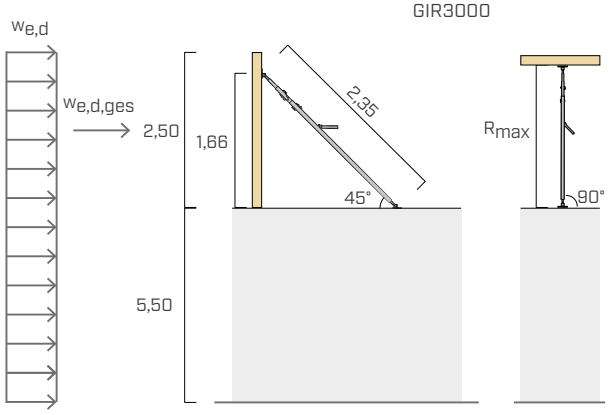
GEOMETRY

A = L x H = 5,00 m x 2,50 m = 12,50 m^2

REQUIREMENTS

Wind zone 1, height above sea level: 214 m, building height: z = 5,50 m.

GIR3000



CALCULATION

WIND LOAD ACTION ACCORDING TO EUROCODE 1991-1-4

v_b	Basic speed	(according to national wind zone map)	**25,0**	m/s
q_b	Basic dynamic pressure	$0,5 \cdot p \cdot v_b^2 \cdot 10^{-3} = 0,5 \cdot 1,25\ (kg/m^3) \cdot 25,0^2\ (m/s) \cdot 10^{-3}$	**0,39**	kN/m^2
$q_{p(z)}$	Peak wind speed	$1,7 \cdot q_b \cdot (z/10)^{0,37} = 1,7 \cdot 0,39 \cdot (8/10)^{0,37}$	**0,61**	kN/m^2

EFFECT ON THE WALL

$w_{e,d}$	Reference basic speed	$\gamma_Q \cdot q_{p(z)} = 1,5 \cdot 0,61$	**0,92**	kN/m^2
$w_{e,d,ges}$	Total wind action load on the wall	$w_{e,d}\ (kN/m^2) \cdot A\ (m^2) = 0,92 \cdot 12,5$	**11,50**	kN

CHOICE OF ASSEMBLY SUPPORT

2 x GIR3000 installed at a length of approx. 2,40 m:

VERIFICATION OF AN ASSEMBLY SUPPORT

$F_{ax,Gir} = 1/2 \cdot w_{e,d,ges} / \cos(\alpha) = 1/2 \cdot 11,50 \cdot \cos(45°) = 4,07\ kN < R_{max,GIR3000\ ;\ L\ =\ 2,40} = 10,90\ kN$

VERIFICATION OF FASTENERS

Fastening on wall and floor with 2 x HBSP 10 x 100 each

Shear strength:

$R_{v,d} = 2 \cdot 6,01 \cdot (1,0 / 1,3) = 9,24\ kN$

Axial resistance of the thread:

$R_{ax,d} = 2^{(0,9)} \cdot 9,47 \cdot (1,0 / 1,3) = 13,59\ kN$

COMBINED VERIFICATION OF FASTENING

on wall:

$(\sin(45°) \cdot 4,07 / 9,24)^2 + (0,5 \cdot 11,50 / 13,59)^2 = 0,28 < 1,0$

on the ground:

$(\sin(45°) \cdot 4,07 / 13,59)^2 + (0,5 \cdot 11,50 / 9,24)^2 = 0,43 < 1,0$

NOTES:

- The load capacities have been determined in accordance with EN 1995:2014, EN 1993:2005 and in accordance with the ETA-11/0030 certificate and the tests carried out; they refer exclusively to the assembly support, type of fastening and angle of inclination indicated.
- The values γ_M= 1,3 and k_{mod} = 1,0, according to EN 1995-1-1, have been selected for the calculation. The shear value of a thin plate was considered for the strength of the screw.
- When fastening the bottom or top plate, the maximum permissible screwing torque of the fastenings elements must be observed.
- Prerequisites for the load-bearing capacity assumption are the complete screwing of the screws and compliance with the minimum distances from the edge in accordance with EN 1995-1-1.


rothoblaas