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STRUCTURAL CALCULATION

FOR THE INSTALLATION OF
Aluminum Unitized Curtain Wall

At

"Creek Tower"
SARAYA RESIDENTIAL BUILDING
Sector E12 – Plot C33
Abu Dhabi

Developer:

MAAM PROPERTY INVESTMENT COMPANY LLC

Consultant:

etanconsult
architecture . urban design

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SECTION 1
General Information

1.1 GENERAL

The following calculation note covers the structure design of the unitized curtain wall for the following project:

"Creek Tower"
SARAYA Residence Building
Sector E12 – Plot C33
Abu Dhabi - UAE

This document is carried out according to architectural drawings, specifications related to the project, relevant standards and the concept drawings from SRB-E12-C33-7000-001 to SRB-E12-C33-7021-001.

1.2 FACADE DESIGN

The unitized curtain wall covers the building from Floor 6^{th} to the top roof floor.
Appendix A represents the typical areas of the unitized curtain wall for the facade elevations of the building.
Appendix B represents a typical floor with the location of the unitized curtain wall.

- According to the building design the typical floor to floor span is 3250mm.
  However, the floor to floor span is higher for the following levels:
  - Floor 26^{th} = 3375 mm
  - Floor 27^{th} = 3800 mm
  - Floor 28^{th} = 4675 mm

  Therefore, these 4 floors will be differently affected by loads than the typical floors.

- Usually, 4 floors of vertical members of curtain wall shall be enough for analysis with the structural analysis program. Since, the support condition of vertical members is similar to the behavior of continuous beam, the results of 4 floors vertical members is very close from a full condition selected for modeling.

Consequently, the analysis will be carried out on 11 floors according to the followings details:

- *The Spandrel area Floor 21^{st}* will be the start of the unitized curtain wall modeling, used to stabilize the whole structure (Nodes 59,1,2).
- *Floor 22^{nd} to 25^{th}* are 4 floors with a typical span of 3250 mm.
- *Floor 26^{th}* with a span of 3375 mm.
- *Floor 27^{th}* with a span of 3800 mm.
- *Floor 28^{th}* with a span of 4675 mm.
- *Floor 29^{th} to 32^{nd}* are 4 floors with a typical span of 3250mm.

Appendix C represents the vertical section through the selected area previously described for modeling. This document locates all the nodes used for modeling the facade.

The modeling of the facade will be carried out in accordance with the following hypothesis:

- _Vertical members modeling: (file SRB-E12-C33-CN/SC-UCW01 and UCW02)_

    - Nodes 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23 are connecting the unitized curtain wall from floor to floor to the building structure. Displacements in any directions are prevented but a certain amount of rotational movement would be permitted to resolve tensile forces. Therefore, these nodes will be considered as “pinned supports”.
    - Nodes 2, 4, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22 are representing the horizontal stacking joint (mating) between two consecutive panels. Consequently, they are connecting two beams which allow a rotational movement. For the location of the lower beam relative to the bracket (connection of the curtain wall to the main structure):
        - This lower beam will be considered with fixed ends.
        - The starting node of the upper beam will be considered with a rotation movement around the end node of the lower beam. Therefore, the starting nodes of beams 13, 15, 17, 19, 21, 23, 25, 28, 30, 32, 34 will be introduced as “hinge connection” (no moment transfer) for the modeling.
    - All other connections of beams will be considered as rigid (continuous profiles).

Note: Since, only the starting nodes of beams 13,15,17,19,21,23,25,28,30,32,34 are considered as “hinge connection”, 100% release of the moments will create an instability of the system in torsion. By lack of torque applied to the members, this singularity will be fixed with a weak torsional spring. The condition of these starting nodes will be specified with a bending and torsional stiffness of 99% less than what they would be for a full resistant moment connection.
Thus the 1% available stiffness might be adequate to allow the load to pass through the node from one member to the other.

- _Horizontal member modeling: (file SRB-E12-C33-CN/SC-UCW03)_
    - Nodes 1, 5, 6, 10, 11, 15, 16, 20, 24, 28, 32, 36 connect the horizontal to the vertical mullions. This connection is carried out with minimum 3 screws or a connection set which prevent any translations or rotations of the transom. Consequently, these nodes will be considered as “fixed supports” for modeling.
    - Nodes2, 4, 7, 9, 12, 14, 21, 23, 25, 27, 29, 31 represent the application points of the glazing dead load on the glass holders in the transoms.
    - Beams 54 (node 29 to 37) and 57 (node 38 to 31) represent the application area which carry the opening shutter dead load of an opening frame according to drawing SRB-E12-C33-7017-001.
    - Beams 17, 18, 19, 20, 21, 22, 39, 49, 41 represent the vertical members. They are not considered for the results but allow the calculation to operate without multiple structures.

The maximum width of the panels (W=1175mm) are located on North-East and South-East Facades. However, according to the location of these panels (center of side walls without corner effect for wind load), These frames will be used for the structural analysis.

1.3 WIND LOAD

The wind loads applied on the structure will be calculated according to the requirements of the specifications related to the contract.
There is no wind tunnel report for this project.
Consequently, the wind load will be calculated according to Abu Dhabi Regulations.
This Regulation is based on Wind Provisions of the 2009 International Building Code and the use of ASCE 7-2005.
For information:

- ASCE 7-2010 has been published but is not adopted for 2009 IBC or by UAE Building Code 2011.
- ASCE 7-2010 should not be used with 2009 IBC because:
    - The load factors are not compatible.
    - The importance factors are not compatible.

1.4 DEAD LOAD

Additionally to the wind effect, the dead load of the structure will be considered in the analysis and its effect will affect the results.
The following data will be introduced:

- Self-weight of mullions according to Profiles information in *Appendix D.*
- Nodal load on transom connection considering the transom weights included in *Appendix D*.(dead load of the structure).
- Glazing weight as follows:
    - *IGU* : 6mm inside + 6mm outside: 30 kg/m²
    - *Spandrel* : 6mm + 1.5mm Aluminium sheet + 1.5 Galvanized sheet: 30.75 kg/m²
- However and according to 2009 IBC section 1605.3.2 related to ASD combinations, only 2/3rd of the dead load is allowed to be applied against the wind load.

1.5 SOFTWARE

The calculation will be carried out with STAAD PRO V8i.

SECTION 2
Wind Load Calculation

2.1 DATA

According to the architectural drawings and specifications, the following data will be used to calculate the wind load in compliance with ASCE 7-2005 (MWFRS):

o Structure Type:	Residential Building
o Building Category:	Category II
o Exposure Category:	Category C
o Building height:	182 m
o Length along the direction of wind (L):	37m (or 27.10m)
o Length Normal to the direction of wind (B):	27.10 (or 37m)
o Building Natural Frequency:	2 Hz (Rigid building, F> 1 <Hz)
o Building Damping ratio:	0.03
o Enclosure classification:	Enclosed Building
o Basis wind load (V) :	45 m/s

From this previous information, in compliance with ASCE 7-2005, we can define the following factors:

o Wind direction factor (K_d):	0.85(Main wind force resisting system)
o Importance factor (I):	1.0 (normal building)
o Topographic factor (K_{zt}):	1.0 (not considered)
o Velocity Pressure exposure coef. (K_z):	Related to height (1.84367 at 182m00)
o Gust Effect factor (G):	0.85 (Rigid Building)
o Internal Pressure coefficient (GC_{pi}):	+/- 0.18 (Enclosed building)
o External pressure coefficient (C_p):	Windward: 0.8 (L/B all values) Leeward: -0.3 (L/B = 0,73 or 1,37) Side wall: -0.7 (L/B all values)

The calculation will be carried out according the following equations:

➢ Wind velocity pressure at height z (m):

$$q_z = 0{,}613.Kz.Kzt.Kd.V^2.I\ (N/m^2)$$
$$= 0{,}613 x Kz x 1{,}0 x 0{,}85 x 45^2 X 1{,}0$$
$$= 1055{,}13.Kz$$

With a Maximum Wind Velocity = 1055,13x1.84367 = 1945 N/m² at 182m.

For information the conversion of Wind Velocity from ASCE 7-2005 to ASCE7-2010 can be provided by the following way:

Wind velocity (ASCE7-2010) = [Wind velocity (ASCE 7-2005)]/ $0.6^{0.5}$ =2 511 N/M² at 182m.

However, as described in Art 1.3 this value will not be applicable for the analysis.

- Design wind pressure p: $p = q_z.G.C_p - q_h.G.(GC_{pi})$ (N/m²)

  Where:
  - $q=q_z$ for windward walls at height z.
  - $q= q_h$ for leeward walls and side walls at height z.
  - $q_i=q_h$ for windward walls, leeward walls and side walls of enclose buildings.

2.2 RESULTS:

According to the equations in article 2.1 and ASCE 7-2005, the design wind pressure at height z (m) for this project are:

Case 1: L = 37 m B = 27.1m

Case 2: L = 27.1 m B = 37 m

Windward:

Case 1:

HEIGHT (m)	DESIGN PRESSURE (Pa)
0 m	959,75 Pa
4,57m	959,75 Pa
18,22 m	1165,64 Pa
31,87 m	1267,48 Pa
45,52 m	1338,95 Pa
59,16 m	1395,07 Pa
72,81 m	1 441,73 Pa
86,46 m	1 481,93 Pa
100,11 m	1 517,39 Pa
113,76 m	1 549,22 Pa
127,41 m	1 578,16 Pa
141,06 m	1 604,75 Pa
154,70 m	1 629,38 Pa
168,35 m	1 652,35 Pa
182,00 m	1 673,89 Pa

Case 2:

HEIGHT (m)	DESIGN PRESSURE (Pa)
0 m	959,75 Pa
4,57m	959,75 Pa
18,22 m	1165,64 Pa
31,87 m	1267,48 Pa
45,52 m	1338,95 Pa
59,16 m	1395,07 Pa
72,81 m	1 441,73 Pa
86,46 m	1 481,93 Pa
100,11 m	1 517,39 Pa
113,76 m	1 549,22 Pa
127,41 m	1 578,16 Pa
141,06 m	1 604,75 Pa
154,70 m	1 629,38 Pa
168,35 m	1 652,35 Pa
182,00 m	1 673,89 Pa

Leeward:

Case 1:

HEIGHT (m)	DESIGN PRESSURE (Pa)
0 m	-846,68 Pa
182,00 m	-846,68 Pa

Case 2:

HEIGHT (m)	DESIGN PRESSURE (Pa)
0 m	-1 177,56 Pa
182,00 m	-1 177,56 Pa

Side wall:

HEIGHT (m)	DESIGN PRESSURE (Pa)
0 m	-1 508,45 Pa
182,00 m	-1 508,45 Pa

HEIGHT (m)	DESIGN PRESSURE (Pa)
0 m	-1 508,45 Pa
182,00 m	-1 508,45 Pa

From the previous calculations we can extract:

Positive Design Wind Pressure (ASCE 7-2005):	1 675 Pa
Negative Design Wind Pressure (ASCE 7-2005):	-1510 Pa

According to ASCE 7-2005, the external pressure coefficient GCp for the edge zones of the unitized curtain wall is defined by ASCE 7-05 Figure 6.17 related to walls and roofs of enclosed or partially enclosed building for h> 60 feet.
These areas cover for each corner, 20% of the horizontal dimension of the building.
As represented in *Appendix E*, only the unitized curtain wall erected on façade North-West and South-East are affected by these areas.

For these edges zones the External Pressure coefficient GCp are:

GCp (windward wall) = +1,000
GCp (leeward wall) = - 1,429

Consequently, the final Design Wind Pressure applied on the façade in compliance with ASCE 7-2005 is:

Positive Design Wind Pressure (ASCE 7-2005):	**= 1 675 Pa**
Negative Design Wind Pressure (ASCE 7-2005):	-1510 x 1.429 **= - 2 158 Pa**

On the other hand, the maximum width of a panel (W=1175mm) is located on North-East and South-West façade which are not in the corner areas.
However and according to ASCE 7-2005, each component of the façade shall be designed for maximum positive and negative pressures.

Therefore the uniform load applied on the vertical members who represent the wind load will be defined as following:

Positive Uniform Load = 1 675 N/m² X 1,175 m = 1968,125N/m = $1{,}97.10^{-03}$ kN/mm
Negative Uniform load =-2 158 N/m² X 1,175 m = -2535,650N/m = $-2{,}54.10^{-03}$ kN/mm

SECTION 3
Fixed Panels - Vertical member analysis
(File SRB-E12-C33-CN/SC-UCW01)

3.1 INPUT DATA FIXED UNITS

Nodes

Node	X (mm)	Y (mm)	Z (mm)	Node	X (mm)	Y (mm)	Z (mm)
1	0.000	755.000	0.000	49	0.000	5.7E 3	0.000
2	0.000	900.000	0.000	50	0.000	8.95E 3	0.000
3	0.000	4.01E 3	0.000	51	0.000	12.2E 3	0.000
4	0.000	4.15E 3	0.000	52	0.000	15.5E 3	0.000
5	0.000	7.26E 3	0.000	53	0.000	19.1E 3	0.000
6	0.000	7.4E 3	0.000	54	0.000	23.3E 3	0.000
7	0.000	10.5E 3	0.000	55	0.000	27.3E 3	0.000
8	0.000	10.6E 3	0.000	56	0.000	30.6E 3	0.000
9	0.000	13.8E 3	0.000	57	0.000	33.8E 3	0.000
10	0.000	13.9E 3	0.000	58	0.000	37.1E 3	0.000
11	0.000	17.1E 3	0.000	59	0.000	0.000	0.000
12	0.000	17.3E 3	0.000				
13	0.000	20.9E 3	0.000				
14	0.000	21.1E 3	0.000				
15	0.000	25.6E 3	0.000				
16	0.000	25.8E 3	0.000				
17	0.000	28.9E 3	0.000				
18	0.000	29E 3	0.000				
19	0.000	32.1E 3	0.000				
20	0.000	32.3E 3	0.000				
21	0.000	35.4E 3	0.000				
22	0.000	35.5E 3	0.000				
23	0.000	38.6E 3	0.000				
24	0.000	38.8E 3	0.000				
25	0.000	1.9E 3	0.000				
26	0.000	3.25E 3	0.000				
27	0.000	5.15E 3	0.000				
28	0.000	6.5E 3	0.000				
29	0.000	8.4E 3	0.000				
30	0.000	9.75E 3	0.000				
31	0.000	11.6E 3	0.000				
32	0.000	13E 3	0.000				
33	0.000	14.9E 3	0.000				
34	0.000	16.3E 3	0.000				
35	0.000	18.3E 3	0.000				
36	0.000	20E 3	0.000				
37	0.000	22.1E 3	0.000				
38	0.000	23.5E 3	0.000				
39	0.000	24.9E 3	0.000				
40	0.000	26.8E 3	0.000				
41	0.000	28.1E 3	0.000				
42	0.000	30E 3	0.000				
43	0.000	31.4E 3	0.000				
44	0.000	33.3E 3	0.000				
45	0.000	34.6E 3	0.000				
46	0.000	36.5E 3	0.000				
47	0.000	37.8E 3	0.000				
48	0.000	2.45E 3	0.000				

Beams

Beam	Node A	Node B	Length (mm)	Property	β (degrees)
1	1	2	145.000	1	0
2	3	4	145.000	1	0
3	5	6	145.000	1	0
4	7	8	145.000	1	0
5	9	10	145.000	1	0
6	11	12	145.000	1	0
7	13	14	145.000	2	0
8	15	16	145.000	3	0
9	17	18	145.000	1	0
10	19	20	145.000	1	0
11	21	22	145.000	1	0
12	23	24	145.000	4	0
13	2	25	1000.000	1	0
14	26	3	755.000	1	0
15	4	27	1000.000	1	0
16	28	5	755.000	1	0
17	6	29	1000.000	1	0
18	30	7	755.000	1	0
19	8	31	1000.000	1	0
20	32	9	755.000	1	0
21	10	33	1000.000	1	0
22	34	11	879.999	1	0
23	12	35	1000.000	2	0
24	36	13	880.001	2	0
25	14	37	1000.000	3	0
26	37	54	1260.000	3	0
27	39	15	754.999	3	0
28	16	40	1000.000	1	0
29	41	17	754.999	1	0
30	18	42	1000.000	1	0
31	43	19	754.999	1	0
32	20	44	1000.000	1	0
33	45	21	755.001	1	0
34	22	46	1000.000	4	0
35	47	23	755.001	4	0
36	25	48	552.500	1	0
37	48	26	797.500	1	0
38	27	49	552.500	1	0
39	49	28	797.500	1	0
40	29	50	552.501	1	0
41	50	30	797.500	1	0
42	31	51	552.501	1	0
43	51	32	797.500	1	0
44	33	52	615.001	1	0
45	52	34	735.000	1	0
46	35	53	827.501	2	0
47	53	36	947.498	2	0
48	38	39	1390.000	3	0
49	54	38	122.499	3	0
50	40	55	552.500	1	0
51	55	41	797.501	1	0
52	42	56	552.500	1	0
53	56	43	797.501	1	0
54	44	57	552.502	1	0
55	57	45	797.497	1	0
56	46	58	552.502	4	0
57	58	47	797.497	4	0
58	59	1	755.000	1	0

Section Properties

These values are extracted from Appendix E.

Prop	Section	Area (cm^2)	I_{yy} (cm^4)	I_{zz} (cm^4)	J (cm^4)	Material
1	1201	13.350	75.247	263.385	338.543	ALUMINUM
2	1201AR	21.510	106.521	332.769	439.147	ALUMINUM
3	1201AP	26.200	129.361	1000.000	1.16E 3	ALUMINUM
4	1202	12.090	62.762	214.305	276.986	ALUMINUM

Note: The reinforcement for profile 1201 AR is carried out with an aluminum rectangular tube (60X50X4)

Materials

The profiles will be extruded in Aluminum grade=6061-T6. .

Mat	Name	E (kN/mm^2)	ν	Density (kg/m^3)	α (1/°K)
5	ALUMINUM	68.948	0.330	2.71E 3	23E -6

Supports

Node	X (kN/mm)	Y (kN/mm)	Z (kN/mm)	rX (kN·m/deg)	rY (kN·m/deg)	rZ (kN·m/deg)
1	Fixed	Fixed	Fixed	-	-	-
3	Fixed	Fixed	Fixed	-	-	-
5	Fixed	Fixed	Fixed	-	-	-
7	Fixed	Fixed	Fixed	-	-	-
9	Fixed	Fixed	Fixed	-	-	-
11	Fixed	Fixed	Fixed	-	-	-
13	Fixed	Fixed	Fixed	-	-	-
15	Fixed	Fixed	Fixed	-	-	-
17	Fixed	Fixed	Fixed	-	-	-
19	Fixed	Fixed	Fixed	-	-	-
21	Fixed	Fixed	Fixed	-	-	-
23	Fixed	Fixed	Fixed	-	-	-
59	Fixed	-	-	-	-	-

Releases

Beam ends not shown in this table are fixed in all directions.

Beam	Node	x	y	z	rx	ry	rz
13	2	Fixed	Fixed	Fixed	Pin	Pin	Pin
15	4	Fixed	Fixed	Fixed	Pin	Pin	Pin
17	6	Fixed	Fixed	Fixed	Pin	Pin	Pin
19	8	Fixed	Fixed	Fixed	Pin	Pin	Pin
21	10	Fixed	Fixed	Fixed	Pin	Pin	Pin
23	12	Fixed	Fixed	Fixed	Pin	Pin	Pin
25	14	Fixed	Fixed	Fixed	Pin	Pin	Pin
28	16	Fixed	Fixed	Fixed	Pin	Pin	Pin
30	18	Fixed	Fixed	Fixed	Pin	Pin	Pin
32	20	Fixed	Fixed	Fixed	Pin	Pin	Pin
34	22	Fixed	Fixed	Fixed	Pin	Pin	Pin

Basic Load Cases

Number	Name
101	1201 SELF WEIGHT
102	VISION TRANSOM WEIGHT
103	OPAQUE TRANSOM WEIGHT
104	STACKING PROFILES SELF WEIGHT
201	WIND PRESSURE
202	WIND SUCTION

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name
301	STRUCTURE WEIGHT + WIND PRESSURE	101	SELF WEIGHT
		102	VISION TRANSOM WEIGHT
		103	OPAQUE TRANSOM WEIGHT
		104	STACKING PROFILES SELF WEIGHT
		201	WIND PRESSURE
302	STRUCTURE WEIGHT + WIND SUCTION	101	1201 SELF WEIGHT
		102	VISION TRANSOM WEIGHT
		103	OPAQUE TRANSOM WEIGHT
		104	STACKING PROFILES SELF WEIGHT
		202	WIND SUCTION
401	FACTORED LOAD 301 (BS 8110)	101	SELF WEIGHT (factor 1.2 X 2/3 = 0.8)
		102	VISION TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		103	OPAQUE TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		104	STACKING PROFILES SELF WEIGHT(factor 1.2 X 2/3 = 0.8)
		201	WIND PRESSURE (factor 1.2)
402	FACTORED LOAD 302 (BS8110)	101	SELF WEIGHT(factor 1.2 X 2/3 = 0.8)
		102	VISION TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		103	OPAQUE TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		104	STACKING PROFILES SELF WEIGHT(factor 1.2 X 2/3 = 0.8)
		202	WIND SUCTION (factor 1.2)

Self-Weight:

Values defined by the profiles properties included in Appendix E.

Direction	Factor
Y	-1.000

Node Loads: 102 VISION TRANSOM WEIGHT

Calculated for the maximum transom width (W=1175mm) in compliance with the weight of profile 1501 defined in Appendix E. Nodal Load according to the location of the vision transom on the panel. [1.175x9.8x1.23 = 14N)

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
25	-	-0.014	-	-	-	-
27	-	-0.014	-	-	-	-
29	-	-0.014	-	-	-	-
31	-	-0.014	-	-	-	-
33	-	-0.014	-	-	-	-
35	-	-0.014	-	-	-	-
37	-	-0.014	-	-	-	-
38	-	-0.014	-	-	-	-
40	-	-0.014	-	-	-	-
42	-	-0.014	-	-	-	-
44	-	-0.014	-	-	-	-
46	-	-0.014	-	-	-	-

Node Loads: 103 OPAQUE TRANSOM WEIGHT

Calculated for the maximum transom width (W=1175mm) in compliance with the weight of profile 1502 defined in Appendix E. Nodal Load according to the location of the vision transom on the panel. (1.175x9.8x2.17=25N)

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
26	-	-0.025	-	-	-	-
28	-	-0.025	-	-	-	-
30	-	-0.025	-	-	-	-
32	-	-0.025	-	-	-	-
34	-	-0.025	-	-	-	-
36	-	-0.025	-	-	-	-
39	-	-0.025	-	-	-	-
41	-	-0.025	-	-	-	-
43	-	-0.025	-	-	-	-
45	-	-0.025	-	-	-	-
47	-	-0.025	-	-	-	-
59	-	-0.025	-	-	-	-

Node Loads: 104 STACKING PROFILES SELF WEIGHT

Calculated for the maximum transom width (W=1175mm) in compliance with the weight of stacking profile defined in Appendix E. Nodal Load according to the location of the vision transom on the panel.(1175x9.8x4.47=51N)

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
2	-	-0.051	-	-	-	-
4	-	-0.051	-	-	-	-
6	-	-0.051	-	-	-	-
8	-	-0.051	-	-	-	-
10	-	-0.051	-	-	-	-
12	-	-0.051	-	-	-	-
14	-	-0.051	-	-	-	-
16	-	-0.051	-	-	-	-

18	-	-0.051	-	-	-	-
20	-	-0.051	-	-	-	-
22	-	-0.051	-	-	-	-

Beam Loads: 201 WIND PRESSURE

Calculated according to the design wind pressure defined in section 2. Uniform load normal to profile width.

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
1	UNI kN/m	GX	1.968	-	-	-	-
2	UNI kN/m	GX	1.968	-	-	-	-
3	UNI kN/m	GX	1.968	-	-	-	-
4	UNI kN/m	GX	1.968	-	-	-	-
5	UNI kN/m	GX	1.968	-	-	-	-
6	UNI kN/m	GX	1.968	-	-	-	-
7	UNI kN/m	GX	1.968	-	-	-	-
8	UNI kN/m	GX	1.968	-	-	-	-
9	UNI kN/m	GX	1.968	-	-	-	-
10	UNI kN/m	GX	1.968	-	-	-	-
11	UNI kN/m	GX	1.968	-	-	-	-
12	UNI kN/m	GX	1.968	-	-	-	-
13	UNI kN/m	GX	1.968	-	-	-	-
14	UNI kN/m	GX	1.968	-	-	-	-
15	UNI kN/m	GX	1.968	-	-	-	-
16	UNI kN/m	GX	1.968	-	-	-	-
17	UNI kN/m	GX	1.968	-	-	-	-
18	UNI kN/m	GX	1.968	-	-	-	-
19	UNI kN/m	GX	1.968	-	-	-	-
20	UNI kN/m	GX	1.968	-	-	-	-
21	UNI kN/m	GX	1.968	-	-	-	-
22	UNI kN/m	GX	1.968	-	-	-	-
23	UNI kN/m	GX	1.968	-	-	-	-
24	UNI kN/m	GX	1.968	-	-	-	-
25	UNI kN/m	GX	1.968	-	-	-	-
26	UNI kN/m	GX	1.968	-	-	-	-
27	UNI kN/m	GX	1.968	-	-	-	-
28	UNI kN/m	GX	1.968	-	-	-	-
29	UNI kN/m	GX	1.968	-	-	-	-
30	UNI kN/m	GX	1.968	-	-	-	-
31	UNI kN/m	GX	1.968	-	-	-	-
32	UNI kN/m	GX	1.968	-	-	-	-
33	UNI kN/m	GX	1.968	-	-	-	-
34	UNI kN/m	GX	1.968	-	-	-	-
35	UNI kN/m	GX	1.968	-	-	-	-
36	UNI kN/m	GX	1.968	-	-	-	-
37	UNI kN/m	GX	1.968	-	-	-	-
38	UNI kN/m	GX	1.968	-	-	-	-
39	UNI kN/m	GX	1.968	-	-	-	-
40	UNI kN/m	GX	1.968	-	-	-	-
41	UNI kN/m	GX	1.968	-	-	-	-
42	UNI kN/m	GX	1.968	-	-	-	-
43	UNI kN/m	GX	1.968	-	-	-	-
44	UNI kN/m	GX	1.968	-	-	-	-
45	UNI kN/m	GX	1.968	-	-	-	-
46	UNI kN/m	GX	1.968	-	-	-	-
47	UNI kN/m	GX	1.968	-	-	-	-
48	UNI kN/m	GX	1.968	-	-	-	-
49	UNI kN/m	GX	1.968	-	-	-	-

50	UNI kN/m	GX	1.968	-	-	-	-
51	UNI kN/m	GX	1.968	-	-	-	-
52	UNI kN/m	GX	1.968	-	-	-	-
53	UNI kN/m	GX	1.968	-	-	-	-
54	UNI kN/m	GX	1.968	-	-	-	-
55	UNI kN/m	GX	1.968	-	-	-	-
56	UNI kN/m	GX	1.968	-	-	-	-
57	UNI kN/m	GX	1.968	-	-	-	-
58	UNI kN/m	GX	1.968	-	-	-	-

Beam Loads: 202 WIND SUCTION

Calculated according to the design wind pressure defined in section 2. Uniform load normal to profile width.

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
1	UNI kN/m	GX	-2.540	-	-	-	-
2	UNI kN/m	GX	-2.540	-	-	-	-
3	UNI kN/m	GX	-2.540	-	-	-	-
4	UNI kN/m	GX	-2.540	-	-	-	-
5	UNI kN/m	GX	-2.540	-	-	-	-
6	UNI kN/m	GX	-2.540	-	-	-	-
7	UNI kN/m	GX	-2.540	-	-	-	-
8	UNI kN/m	GX	-2.540	-	-	-	-
9	UNI kN/m	GX	-2.540	-	-	-	-
10	UNI kN/m	GX	-2.540	-	-	-	-
11	UNI kN/m	GX	-2.540	-	-	-	-
12	UNI kN/m	GX	-2.540	-	-	-	-
13	UNI kN/m	GX	-2.540	-	-	-	-
14	UNI kN/m	GX	-2.540	-	-	-	-
15	UNI kN/m	GX	-2.540	-	-	-	-
16	UNI kN/m	GX	-2.540	-	-	-	-
17	UNI kN/m	GX	-2.540	-	-	-	-
18	UNI kN/m	GX	-2.540	-	-	-	-
19	UNI kN/m	GX	-2.540	-	-	-	-
20	UNI kN/m	GX	-2.540	-	-	-	-
21	UNI kN/m	GX	-2.540	-	-	-	-
22	UNI kN/m	GX	-2.540	-	-	-	-
23	UNI kN/m	GX	-2.540	-	-	-	-
24	UNI kN/m	GX	-2.540	-	-	-	-
25	UNI kN/m	GX	-2.540	-	-	-	-
26	UNI kN/m	GX	-2.540	-	-	-	-
27	UNI kN/m	GX	-2.540	-	-	-	-
28	UNI kN/m	GX	-2.540	-	-	-	-
29	UNI kN/m	GX	-2.540	-	-	-	-
30	UNI kN/m	GX	-2.540	-	-	-	-
31	UNI kN/m	GX	-2.540	-	-	-	-
32	UNI kN/m	GX	-2.540	-	-	-	-
33	UNI kN/m	GX	-2.540	-	-	-	-
34	UNI kN/m	GX	-2.540	-	-	-	-
35	UNI kN/m	GX	-2.540	-	-	-	-
36	UNI kN/m	GX	-2.540	-	-	-	-
37	UNI kN/m	GX	-2.540	-	-	-	-
38	UNI kN/m	GX	-2.540	-	-	-	-
39	UNI kN/m	GX	-2.540	-	-	-	-
40	UNI kN/m	GX	-2.540	-	-	-	-
41	UNI kN/m	GX	-2.540	-	-	-	-
42	UNI kN/m	GX	-2.540	-	-	-	-
43	UNI kN/m	GX	-2.540	-	-	-	-
44	UNI kN/m	GX	-2.540	-	-	-	-
45	UNI kN/m	GX	-2.540	-	-	-	-
46	UNI kN/m	GX	-2.540	-	-	-	-
47	UNI kN/m	GX	-2.540	-	-	-	-
48	UNI kN/m	GX	-2.540	-	-	-	-

49	UNI kN/m	GX	-2.540	-	-	-	-
50	UNI kN/m	GX	-2.540	-	-	-	-
51	UNI kN/m	GX	-2.540	-	-	-	-
52	UNI kN/m	GX	-2.540	-	-	-	-
53	UNI kN/m	GX	-2.540	-	-	-	-
54	UNI kN/m	GX	-2.540	-	-	-	-
55	UNI kN/m	GX	-2.540	-	-	-	-
56	UNI kN/m	GX	-2.540	-	-	-	-
57	UNI kN/m	GX	-2.540	-	-	-	-
58	UNI kN/m	GX	-2.540	-	-	-	-

3.2 OUTPUT

Nodes Displacement:

		Hor.	Vertical	Hor .	Resultant	Rotational		
Node	L/C	X mm	Y mm	Z mm	mm	rX rad	rY rad	rZ rad
1	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.001
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.001
2	301 STRUCTURE WEIGHT + WIND PRESSURE	0.107	0	0	0.107	0	0	-0.001
	301 STRUCTURE WEIGHT + WIND PRESSURE	-0.138	0	0	0.138	0	0	0.001
3	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.013
4	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.415	0	0	1.415	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.824	0	0	1.824	0	0	-0.012
5	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.012
6	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.317	0	0	1.317	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.698	0	0	1.698	0	0	-0.012
7	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.012
8	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.321	0	0	1.321	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.703	0	0	1.703	0	0	-0.012
9	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.012
10	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.303	0	0	1.303	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.68	0	0	1.68	0	0	-0.011
11	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.013
12	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.433	0	0	1.433	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.848	0	0	1.848	0	0	-0.013
13	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.013
14	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.414	0	0	1.414	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.823	0	0	1.823	0	0	-0.012
15	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.011

16	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.288	0	0	1.288	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.661	0	0	1.661	0	0	-0.011
17	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.001
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.002
18	301 STRUCTURE WEIGHT + WIND PRESSURE	0.031	-0.001	0	0.031	0	0	-0.001
	301 STRUCTURE WEIGHT + WIND PRESSURE	-0.04	-0.001	0	0.04	0	0	0.001
19	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.013
20	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.422	0	0	1.422	0	0	0.01
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.834	0	0	1.834	0	0	-0.012
21	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.01
22	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.141	0	0	1.141	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	1.471	0	0	1.471	0	0	-0.01
23	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.003
	301 STRUCTURE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.004
24	301 STRUCTURE WEIGHT + WIND PRESSURE	-0.412	0	0	0.412	0	0	0.003
	301 STRUCTURE WEIGHT + WIND PRESSURE	0.531	0	0	0.531	0	0	-0.004
25	301 STRUCTURE WEIGHT + WIND PRESSURE	9.471	-0.001	0	9.471	0	0	-0.006
	301 STRUCTURE WEIGHT + WIND PRESSURE	-12.211	-0.001	0	12.211	0	0	0.007
26	301 STRUCTURE WEIGHT + WIND PRESSURE	7.313	-0.001	0	7.313	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	-9.429	-0.001	0	9.429	0	0	-0.01
27	301 STRUCTURE WEIGHT + WIND PRESSURE	8.202	-0.001	0	8.202	0	0	-0.006
	301 STRUCTURE WEIGHT + WIND PRESSURE	-10.575	-0.001	0	10.575	0	0	0.008
28	301 STRUCTURE WEIGHT + WIND PRESSURE	6.987	-0.001	0	6.987	0	0	0.007
	301 STRUCTURE WEIGHT + WIND PRESSURE	-9.008	-0.001	0	9.008	0	0	-0.009
29	301 STRUCTURE WEIGHT + WIND PRESSURE	8.278	-0.001	0	8.278	0	0	-0.006
	301 STRUCTURE WEIGHT + WIND PRESSURE	-10.673	-0.001	0	10.673	0	0	0.008
30	301 STRUCTURE WEIGHT + WIND PRESSURE	6.828	-0.001	0	6.828	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	-8.804	-0.001	0	8.804	0	0	-0.01
31	301 STRUCTURE WEIGHT + WIND PRESSURE	8.064	-0.001	0	8.064	0	0	-0.006
	301 STRUCTURE WEIGHT + WIND PRESSURE	-10.397	-0.001	0	10.397	0	0	0.008
32	301 STRUCTURE WEIGHT + WIND PRESSURE	6.767	-0.001	0	6.767	0	0	0.007
	301 STRUCTURE WEIGHT + WIND PRESSURE	-8.725	-0.001	0	8.725	0	0	-0.01
33	301 STRUCTURE WEIGHT + WIND PRESSURE	9.394	-0.001	0	9.394	0	0	-0.007
	301 STRUCTURE WEIGHT + WIND PRESSURE	-12.112	-0.001	0	12.112	0	0	0.009
34	301 STRUCTURE WEIGHT + WIND PRESSURE	8.594	-0.001	0	8.594	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	-11.081	-0.001	0	11.081	0	0	-0.01
35	301 STRUCTURE WEIGHT + WIND PRESSURE	10.474	-0.001	0	10.474	0	0	-0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	-13.504	-0.001	0	13.504	0	0	0.011
36	301 STRUCTURE WEIGHT + WIND PRESSURE	9.2	-0.001	0	9.2	0	0	0.009
	301 STRUCTURE WEIGHT + WIND PRESSURE	-11.862	-0.001	0	11.862	0	0	-0.012
37	301 STRUCTURE WEIGHT + WIND PRESSURE	7.477	-0.001	0	7.477	0	0	-0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	-9.64	-0.001	0	9.64	0	0	0.01

38	301 STRUCTURE WEIGHT + WIND PRESSURE	12.735	-0.001	0	12.735	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-16.42	-0.001	0	16.42	0	0	-0.001
39	301 STRUCTURE WEIGHT + WIND PRESSURE	6.503	-0.001	0	6.503	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	-8.384	-0.001	0	8.384	0	0	-0.01
40	301 STRUCTURE WEIGHT + WIND PRESSURE	3.26	-0.001	0	3.26	0	0	-0.002
	301 STRUCTURE WEIGHT + WIND PRESSURE	-4.203	-0.001	0	4.203	0	0	0.003
41	301 STRUCTURE WEIGHT + WIND PRESSURE	1.171	0	0	1.171	0	0	0.003
	301 STRUCTURE WEIGHT + WIND PRESSURE	-1.51	0	0	1.51	0	0	-0.004
42	301 STRUCTURE WEIGHT + WIND PRESSURE	9.449	-0.001	0	9.449	0	0	-0.006
	301 STRUCTURE WEIGHT + WIND PRESSURE	-12.183	-0.001	0	12.183	0	0	0.007
43	301 STRUCTURE WEIGHT + WIND PRESSURE	7.33	-0.001	0	7.33	0	0	0.008
	301 STRUCTURE WEIGHT + WIND PRESSURE	-9.451	-0.001	0	9.451	0	0	-0.01
44	301 STRUCTURE WEIGHT + WIND PRESSURE	7.695	-0.001	0	7.695	0	0	-0.006
	301 STRUCTURE WEIGHT + WIND PRESSURE	-9.922	-0.001	0	9.922	0	0	0.007
45	301 STRUCTURE WEIGHT + WIND PRESSURE	6.233	-0.001	0	6.233	0	0	0.007
	301 STRUCTURE WEIGHT + WIND PRESSURE	-8.036	-0.001	0	8.036	0	0	-0.009
46	301 STRUCTURE WEIGHT + WIND PRESSURE	1.817	-0.001	0	1.817	0	0	-0.002
	301 STRUCTURE WEIGHT + WIND PRESSURE	-2.342	-0.001	0	2.342	0	0	0.003
47	301 STRUCTURE WEIGHT + WIND PRESSURE	1.891	-0.001	0	1.891	0	0	0.002
	301 STRUCTURE WEIGHT + WIND PRESSURE	-2.438	-0.001	0	2.438	0	0	-0.002
48	301 STRUCTURE WEIGHT + WIND PRESSURE	10.942	-0.001	0	10.942	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-14.108	-0.001	0	14.108	0	0	-0.001
49	301 STRUCTURE WEIGHT + WIND PRESSURE	9.942	-0.001	0	9.942	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-12.819	-0.001	0	12.819	0	0	0
50	301 STRUCTURE WEIGHT + WIND PRESSURE	9.999	-0.001	0	9.999	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-12.892	-0.001	0	12.892	0	0	0
51	301 STRUCTURE WEIGHT + WIND PRESSURE	9.924	-0.001	0	9.924	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-12.795	-0.001	0	12.795	0	0	0
52	301 STRUCTURE WEIGHT + WIND PRESSURE	11.578	-0.001	0	11.578	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-14.929	-0.001	0	14.929	0	0	0
53	301 STRUCTURE WEIGHT + WIND PRESSURE	14.038	-0.001	0	14.038	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-18.1	-0.001	0	18.1	0	0	0
54	301 STRUCTURE WEIGHT + WIND PRESSURE	12.742	-0.001	0	12.742	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-16.429	-0.001	0	16.429	0	0	0
55	301 STRUCTURE WEIGHT + WIND PRESSURE	3.441	-0.001	0	3.441	0	0	0.001
	301 STRUCTURE WEIGHT + WIND PRESSURE	-4.436	-0.001	0	4.436	0	0	-0.002
56	301 STRUCTURE WEIGHT + WIND PRESSURE	10.944	-0.001	0	10.944	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-14.11	-0.001	0	14.11	0	0	0
57	301 STRUCTURE WEIGHT + WIND PRESSURE	9.284	-0.001	0	9.284	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-11.97	-0.001	0	11.97	0	0	0
58	301 STRUCTURE WEIGHT + WIND PRESSURE	2.51	-0.001	0	2.51	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	-3.237	-0.001	0	3.237	0	0	0.001
59	301 STRUCTURE WEIGHT + WIND PRESSURE	-0.077	0	0	0.077	0	0	0
	301 STRUCTURE WEIGHT + WIND PRESSURE	0.1	0	0	0.1	0	0	0

According to standards, the deflection limit of a non-factored load case for an Aluminum Structure is L/240 or 19mm whichever is less.
For this project f max = 19mm.
The maximum displacement is located on the node 53 is:

- o 14mm under Wind pressure
- o 18,1 mm under Wind suction

This is less than 19mm, so the result is accepted.

Maximum Stresses:

			Max Compressive			Max Tensile		
Beam	L/C	Length mm	Stress N/mm2	Dist mm	Corner	Stress N/mm2	Dist mm	Corner
1	401 FACTORED LOAD 301 (BS 8110)	145	15.598	0	3	-15.452	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	20.089	0	1	-19.944	0	3
2	401 FACTORED LOAD 301 (BS 8110)	145	18.034	0	3	-17.888	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.23	0	1	-23.085	0	3
3	401 FACTORED LOAD 301 (BS 8110)	145	17.871	0	3	-17.726	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.021	0	1	-22.876	0	3
4	401 FACTORED LOAD 301 (BS 8110)	145	17.956	0	3	-17.81	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.13	0	1	-22.984	0	3
5	401 FACTORED LOAD 301 (BS 8110)	145	18.514	0	3	-18.364	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.849	0	1	-23.7	0	3
6	401 FACTORED LOAD 301 (BS 8110)	145	21.672	0	3	-21.473	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	27.914	0	1	-27.715	0	3
7	401 FACTORED LOAD 301 (BS 8110)	145	32.06	0	3	-31.889	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	41.311	0	1	-41.14	0	3
8	401 FACTORED LOAD 301 (BS 8110)	145	6.118	0	3	-6.045	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	7.878	0	1	-7.804	0	3
9	401 FACTORED LOAD 301 (BS 8110)	445	46.964	0	3	-46.819	0	1
	402 FACTOREDLOAD 302 (BS 8110)	445	60.532	0	1	-60.386	0	3
10	401 FACTORED LOAD 301 (BS 8110)	145	17.638	0	3	-17.492	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	22.72	0	1	-22.574	0	3
11	401 FACTORED LOAD 301 (BS 8110)	145	23.933	0	3	-23.735	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	30.829	0	1	-30.631	0	3
12	401 FACTORED LOAD 301 (BS 8110)	145	0.296	0	3	-0.259	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	0.376	0	1	-0.339	0	3
13	401 FACTORED LOAD 301 (BS 8110)	1000	54.916	1000	1	-54.88	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	70.8	1000	3	-70.764	1000	1
14	401 FACTORED LOAD 301 (BS 8110)	755	38.281	0	1	-38.349	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755	49.367	0	3	-49.436	0	1
15	401 FACTORED LOAD 301 (BS 8110)	1000	53.395	1000	1	-53.359	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	68.839	1000	3	-68.804	1000	1
16	401 FACTORED LOAD 301 (BS 8110)	780	39.107	0	1	-39.174	0	3

	402 FACTOREDLOAD 302 (BS 8110)	780	50.432	0	3	-50.499	0	1
17	401 FACTORED LOAD 301 (BS 8110)	1000	53.47	1000	1	-53.435	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	68.936	1000	3	-68.901	1000	1
18	401 FACTORED LOAD 301 (BS 8110)	755	37.812	0	1	-37.881	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755	48.763	0	3	-48.832	0	1
19	401 FACTORED LOAD 301 (BS 8110)	975	52.497	975	1	-52.46	975	3
	402 FACTOREDLOAD 302 (BS 8110)	975	67.681	975	3	-67.644	975	1
20	401 FACTORED LOAD 301 (BS 8110)	755	37.366	0	1	-37.435	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755	48.187	0	3	-48.256	0	1
21	401 FACTORED LOAD 301 (BS 8110)	1000	56.031	1000	1	-55.992	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	72.238	1000	3	-72.198	1000	1
22	401 FACTORED LOAD 301 (BS 8110)	879.999	44.145	0	1	-44.21	0	3
	402 FACTOREDLOAD 302 (BS 8110)	879.999	56.928	0	3	-56.993	0	1
23	401 FACTORED LOAD 301 (BS 8110)	1000	56.087	1000	1	-56.047	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	72.309	1000	3	-72.269	1000	1
24	401 FACTORED LOAD 301 (BS 8110)	880.001	37.733	0	1	-37.798	0	3
	402 FACTOREDLOAD 302 (BS 8110)	880.001	48.66	0	3	-48.725	0	1
25	401 FACTORED LOAD 301 (BS 8110)	1000	39.587	1000	1	-39.525	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	51.032	1000	3	-50.97	1000	1
26	401 FACTORED LOAD 301 (BS 8110)	1264.999	60.991	1265	1	-60.992	1265	3
	402 FACTOREDLOAD 302 (BS 8110)	1264.999	78.638	1265	3	-78.639	1265	1
27	401 FACTORED LOAD 301 (BS 8110)	754.999	31.268	0	1	-31.357	0	3
	402 FACTOREDLOAD 302 (BS 8110)	754.999	40.328	0	3	-40.417	0	1
28	401 FACTORED LOAD 301 (BS 8110)	1000	34.593	1000	1	-34.564	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	44.598	1000	3	-44.569	1000	1
29	401 FACTORED LOAD 301 (BS 8110)	455	46.844	455	3	-46.939	455	1
	402 FACTOREDLOAD 302 (BS 8110)	455	60.412	455	1	-60.506	455	3
30	401 FACTORED LOAD 301 (BS 8110)	1000	55.014	1000	1	-54.991	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	70.929	1000	3	-70.906	1000	1
31	401 FACTORED LOAD 301 (BS 8110)	754.999	38.566	0	1	-38.647	0	3
	402 FACTOREDLOAD 302 (BS 8110)	754.999	49.736	0	3	-49.818	0	1
32	401 FACTORED LOAD 301 (BS 8110)	1000	51.525	1000	1	-51.49	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	66.428	1000	3	-66.393	1000	1
33	401 FACTORED LOAD 301 (BS 8110)	755.001	33.298	0	1	-33.367	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755.001	42.942	0	3	-43.011	0	1
34	401 FACTORED LOAD 301 (BS 8110)	1000	24.819	1000	1	-24.795	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	31.996	1000	3	-31.972	1000	1
35	401 FACTORED LOAD 301 (BS 8110)	755.001	22.134	0	1	-22.191	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755.001	28.546	0	3	-28.604	0	1
36	401 FACTORED LOAD 301 (BS 8110)	552.5	61.355	460.417	1	-61.356	460.417	3
	402 FACTOREDLOAD 302 (BS 8110)	552.5	79.108	460.417	3	-79.108	460.417	1
37	401 FACTORED LOAD 301 (BS 8110)	797.5	61.14	0	1	-61.145	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.5	78.831	0	3	-78.836	0	1
38	401 FACTORED LOAD 301 (BS 8110)	552.5	60.203	460.416	1	-60.203	460.416	3

	402 FACTOREDLOAD 302 (BS 8110)	552.5	77.622	460.416	3	-77.622	460.416	1
39	401 FACTORED LOAD 301 (BS 8110)	772.5	60.061	0	1	-60.066	0	3
	402 FACTOREDLOAD 302 (BS 8110)	772.5	77.44	0	3	-77.444	0	1
40	401 FACTORED LOAD 301 (BS 8110)	552.501	60.243	460.417	1	-60.244	460.417	3
	402 FACTOREDLOAD 302 (BS 8110)	552.501	77.674	460.417	3	-77.675	460.417	1
41	401 FACTORED LOAD 301 (BS 8110)	797.5	60.094	0	1	-60.099	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.5	77.483	0	3	-77.488	0	1
42	401 FACTORED LOAD 301 (BS 8110)	577.5	59.921	481.25	1	-59.922	481.25	3
	402 FACTOREDLOAD 302 (BS 8110)	577.5	77.259	481.25	3	-77.259	481.25	1
43	401 FACTORED LOAD 301 (BS 8110)	797.5	59.764	0	1	-59.769	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.5	77.057	0	3	-77.061	0	1
44	401 FACTORED LOAD 301 (BS 8110)	615.001	64.213	512.501	1	-64.213	512.501	3
	402 FACTOREDLOAD 302 (BS 8110)	615.001	82.793	512.501	3	-82.792	512.501	1
45	401 FACTORED LOAD 301 (BS 8110)	735	63.987	0	1	-63.991	0	3
	402 FACTOREDLOAD 302 (BS 8110)	735	82.502	0	3	-82.505	0	1
46	401 FACTORED LOAD 301 (BS 8110)	827.501	68.391	689.584	1	-68.392	689.584	3
	402 FACTOREDLOAD 302 (BS 8110)	827.501	88.18	689.584	3	-88.18	689.584	1
47	401 FACTORED LOAD 301 (BS 8110)	947.498	67.89	0	1	-67.896	0	3
	402 FACTOREDLOAD 302 (BS 8110)	947.498	87.534	0	3	-87.54	0	1
48	401 FACTORED LOAD 301 (BS 8110)	122.499	60.992	10.208	1	-60.993	10.208	3
	402 FACTOREDLOAD 302 (BS 8110)	122.499	78.64	10.208	3	-78.641	10.208	1
49	401 FACTORED LOAD 301 (BS 8110)	1387.501	60.818	0	1	-60.832	0	3
	402 FACTOREDLOAD 302 (BS 8110)	1387.501	78.417	0	3	-78.432	0	1
50	401 FACTORED LOAD 301 (BS 8110)	552.5	35.156	138.125	1	-35.15	138.125	3
	402 FACTOREDLOAD 302 (BS 8110)	552.5	45.327	138.125	3	-45.321	138.125	1
51	401 FACTORED LOAD 301 (BS 8110)	797.501	30.101	0	1	-30.112	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.501	38.812	0	3	-38.823	0	1
52	401 FACTORED LOAD 301 (BS 8110)	552.5	61.517	460.416	1	-61.531	460.416	3
	402 FACTOREDLOAD 302 (BS 8110)	552.5	79.318	460.416	3	-79.332	460.416	1
53	401 FACTORED LOAD 301 (BS 8110)	797.501	61.315	0	1	-61.332	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.501	79.058	0	3	-79.076	0	1
54	401 FACTORED LOAD 301 (BS 8110)	552.502	57.421	460.418	1	-57.422	460.418	3
	402 FACTOREDLOAD 302 (BS 8110)	552.502	74.036	460.418	3	-74.037	460.418	1
55	401 FACTORED LOAD 301 (BS 8110)	797.497	57.098	0	1	-57.103	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.497	73.619	0	3	-73.624	0	1
56	401 FACTORED LOAD 301 (BS 8110)	552.502	29.532	552.502	1	-29.54	552.502	3
	402 FACTOREDLOAD 302 (BS 8110)	552.502	38.078	552.502	3	-38.086	552.502	1
57	401 FACTORED LOAD 301 (BS 8110)	797.497	29.557	66.458	1	-29.568	66.458	3
	402 FACTOREDLOAD 302 (BS 8110)	797.497	38.11	66.458	3	-38.121	66.458	1
58	401 FACTORED LOAD 301 (BS 8110)	755	15.517	755	3	-15.533	755	1
	402 FACTOREDLOAD 302 (BS 8110)	755	20.009	755	1	-20.025	755	3

The maximum stress issued from the result is located on the Beam 46 = 88.18 N/mm² = 88.18 MPa whichever is less than the maximum Stress allowed for Extruded Aluminum Grade 6061-T6 (152 MPa) So, the result is accepted.

SECTION 4
Opening Panels - Vertical member analysis
(File SRB-E12-C33-CN/SC-UCW02)

4.1 INPUT DATA OPENING UNITS

Nodes

Node	X (mm)	Y (mm)	Z (mm)	Node	X (mm)	Y (mm)	Z (mm)
1	0.000	755.000	0.000	49	0.000	5.7E 3	0.000
2	0.000	900.000	0.000	50	0.000	8.95E 3	0.000
3	0.000	4.01E 3	0.000	51	0.000	12.2E 3	0.000
4	0.000	4.15E 3	0.000	52	0.000	15.5E 3	0.000
5	0.000	7.26E 3	0.000	53	0.000	19.1E 3	0.000
6	0.000	7.4E 3	0.000	54	0.000	23.3E 3	0.000
7	0.000	10.5E 3	0.000	55	0.000	27.3E 3	0.000
8	0.000	10.6E 3	0.000	56	0.000	30.6E 3	0.000
9	0.000	13.8E 3	0.000	57	0.000	33.8E 3	0.000
10	0.000	13.9E 3	0.000	58	0.000	37.1E 3	0.000
11	0.000	17.1E 3	0.000	59	0.000	0.000	0.000
12	0.000	17.3E 3	0.000				
13	0.000	20.9E 3	0.000				
14	0.000	21.1E 3	0.000				
15	0.000	25.6E 3	0.000				
16	0.000	25.8E 3	0.000				
17	0.000	28.9E 3	0.000				
18	0.000	29E 3	0.000				
19	0.000	32.1E 3	0.000				
20	0.000	32.3E 3	0.000				
21	0.000	35.4E 3	0.000				
22	0.000	35.5E 3	0.000				
23	0.000	38.6E 3	0.000				
24	0.000	38.8E 3	0.000				
25	0.000	1.9E 3	0.000				
26	0.000	3.25E 3	0.000				
27	0.000	5.15E 3	0.000				
28	0.000	6.5E 3	0.000				
29	0.000	8.4E 3	0.000				
30	0.000	9.75E 3	0.000				
31	0.000	11.6E 3	0.000				
32	0.000	13E 3	0.000				
33	0.000	14.9E 3	0.000				
34	0.000	16.3E 3	0.000				
35	0.000	18.3E 3	0.000				
36	0.000	20E 3	0.000				
37	0.000	22.1E 3	0.000				
38	0.000	23.5E 3	0.000				
39	0.000	24.9E 3	0.000				
40	0.000	26.8E 3	0.000				
41	0.000	28.1E 3	0.000				
42	0.000	30E 3	0.000				
43	0.000	31.4E 3	0.000				
44	0.000	33.3E 3	0.000				
45	0.000	34.6E 3	0.000				
46	0.000	36.5E 3	0.000				
47	0.000	37.8E 3	0.000				
48	0.000	2.45E 3	0.000				

Beams

Beam	Node A	Node B	Length (mm)	Property	β (degrees)
1	1	2	145.000	1	0
2	3	4	145.000	1	0
3	5	6	145.000	1	0
4	7	8	145.000	1	0
5	9	10	145.000	1	0
6	11	12	145.000	1	0
7	13	14	145.000	2	0
8	15	16	145.000	3	0
9	17	18	145.000	1	0
10	19	20	145.000	1	0
11	21	22	145.000	1	0
12	23	24	145.000	4	0
13	2	25	1000.000	1	0
14	26	3	755.000	1	0
15	4	27	1000.000	1	0
16	28	5	755.000	1	0
17	6	29	1000.000	1	0
18	30	7	755.000	1	0
19	8	31	1000.000	1	0
20	32	9	755.000	1	0
21	10	33	1000.000	1	0
22	34	11	879.999	1	0
23	12	35	1000.000	2	0
24	36	13	880.001	2	0
25	14	37	1000.000	3	0
26	37	54	1260.000	3	0
27	39	15	754.999	3	0
28	16	40	1000.000	1	0
29	41	17	754.999	1	0
30	18	42	1000.000	1	0
31	43	19	754.999	1	0
32	20	44	1000.000	1	0
33	45	21	755.001	1	0
34	22	46	1000.000	4	0
35	47	23	755.001	4	0
36	25	48	552.500	1	0
37	48	26	797.500	1	0
38	27	49	552.500	1	0
39	49	28	797.500	1	0
40	29	50	552.501	1	0
41	50	30	797.500	1	0
42	31	51	552.501	1	0
43	51	32	797.500	1	0
44	33	52	615.001	1	0
45	52	34	735.000	1	0
46	35	53	827.501	2	0
47	53	36	947.498	2	0
48	38	39	1390.000	3	0
49	54	38	122.499	3	0
50	40	55	552.500	1	0
51	55	41	797.501	1	0
52	42	56	552.500	1	0
53	56	43	797.501	1	0
54	44	57	552.502	1	0
55	57	45	797.497	1	0
56	46	58	552.502	4	0
57	58	47	797.497	4	0
58	59	1	755.000	1	0

Section Properties (*These values are extracted from Appendix E.)*

Prop	Section	Area (cm^2)	I_{yy} (cm^4)	I_{zz} (cm^4)	J (cm^4)	Material
1	1202 F	13.620	258.972	72.738	331.509	ALUMINUM
2	1202	12.090	214.305	62.761	276.986	ALUMINUM
3	1202 FAR	21.780	328.454	104.221	432.529	ALUMINUM
4	1202 AR	26.200	270.030	95.866	365.761	ALUMINUM
5	1201 AP	26.200	1027.030	129.361	1156.217	ALUMINUM

Note: The reinforcement for profiles 1202AR and 1202FAR are carried out with a steel rectangular tube (50X60X4)

Materials

The profiles will be extruded in Aluminum grade=6061-T6. A full table of the properties is included in Appendix D.

Mat	Name	E (kN/mm^2)	ν	Density (kg/m^3)	α (1/°K)
5	ALUMINUM	68.948	0.330	2.71E 3	23E -6

Supports

Node	X (kN/mm)	Y (kN/mm)	Z (kN/mm)	rX (kN·m/deg)	rY (kN·m/deg)	rZ (kN·m/deg)
1	Fixed	Fixed	Fixed	-	-	-
3	Fixed	Fixed	Fixed	-	-	-
5	Fixed	Fixed	Fixed	-	-	-
7	Fixed	Fixed	Fixed	-	-	-
9	Fixed	Fixed	Fixed	-	-	-
11	Fixed	Fixed	Fixed	-	-	-
13	Fixed	Fixed	Fixed	-	-	-
15	Fixed	Fixed	Fixed	-	-	-
17	Fixed	Fixed	Fixed	-	-	-
19	Fixed	Fixed	Fixed	-	-	-
21	Fixed	Fixed	Fixed	-	-	-
23	Fixed	Fixed	Fixed	-	-	-
59	Fixed	-	-	-	-	-

Releases

Beam ends not shown in this table are fixed in all directions.

Beam	Node	x	y	z	rx	ry	rz
13	2	Fixed	Fixed	Fixed	Pin	Pin	Pin
15	4	Fixed	Fixed	Fixed	Pin	Pin	Pin
17	6	Fixed	Fixed	Fixed	Pin	Pin	Pin
19	8	Fixed	Fixed	Fixed	Pin	Pin	Pin
21	10	Fixed	Fixed	Fixed	Pin	Pin	Pin
23	12	Fixed	Fixed	Fixed	Pin	Pin	Pin
25	14	Fixed	Fixed	Fixed	Pin	Pin	Pin
28	16	Fixed	Fixed	Fixed	Pin	Pin	Pin
30	18	Fixed	Fixed	Fixed	Pin	Pin	Pin
32	20	Fixed	Fixed	Fixed	Pin	Pin	Pin
34	22	Fixed	Fixed	Fixed	Pin	Pin	Pin

Basic Load Cases

Number	Name
101	1201 SELF WEIGHT
102	VISION TRANSOM WEIGHT
103	OPAQUE TRANSOM WEIGHT
104	STACKING PROFILES SELF WEIGHT
201	WIND PRESSURE
202	WIND SUCTION

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name
301	STRUCTURE WEIGHT + WIND PRESSURE	101	SELF WEIGHT
		102	VISION TRANSOM WEIGHT
		103	OPAQUE TRANSOM WEIGHT
		104	STACKING PROFILES SELF WEIGHT
		201	WIND PRESSURE
302	STRUCTURE WEIGHT + WIND SUCTION	101	1201 SELF WEIGHT
		102	VISION TRANSOM WEIGHT
		103	OPAQUE TRANSOM WEIGHT
		104	STACKING PROFILES SELF WEIGHT
		202	WIND SUCTION
401	FACTORED LOAD 301 (BS 8110)	101	SELF WEIGHT (factor 1.2 X 2/3 = 0.8)
		102	VISION TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		103	OPAQUE TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		104	STACKING PROFILES SELF WEIGHT(factor 1.2 X 2/3 = 0.8)
		201	WIND PRESSURE (factor 1.2)
402	FACTORED LOAD 302 (BS8110)	101	SELF WEIGHT(factor 1.2 X 2/3 = 0.8)
		102	VISION TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		103	OPAQUE TRANSOM WEIGHT(factor 1.2 X 2/3 = 0.8)
		104	STACKING PROFILES SELF WEIGHT(factor 1.2 X 2/3 = 0.8)
		202	WIND SUCTION (factor 1.2)

Self-Weight:

Values defined by the profiles properties included in Appendix E.

Direction	Factor
Y	-1.000

Node Loads: 102 VISION TRANSOM WEIGHT

Calculated for the maximum transom width (W=1175mm) in compliance with the weight of profile 1501 defined in Appendix E. Nodal Load according to the location of the vision transom on the panel. [1.175x9.8x1.23 = 14N)

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
25	-	-0.014	-	-	-	-
27	-	-0.014	-	-	-	-
29	-	-0.014	-	-	-	-
31	-	-0.014	-	-	-	-
33	-	-0.014	-	-	-	-
35	-	-0.014	-	-	-	-
37	-	-0.014	-	-	-	-
38	-	-0.014	-	-	-	-
40	-	-0.014	-	-	-	-
42	-	-0.014	-	-	-	-
44	-	-0.014	-	-	-	-
46	-	-0.014	-	-	-	-

Node Loads: 103 OPAQUE TRANSOM WEIGHT

Calculated for the maximum transom width (W=1175mm) in compliance with the weight of profile 1502 defined in Appendix E. Nodal Load according to the location of the vision transom on the panel.(1.175x9.8x2.17=25N)

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
26	-	-0.025	-	-	-	-
28	-	-0.025	-	-	-	-
30	-	-0.025	-	-	-	-
32	-	-0.025	-	-	-	-
34	-	-0.025	-	-	-	-
36	-	-0.025	-	-	-	-
39	-	-0.025	-	-	-	-
41	-	-0.025	-	-	-	-
43	-	-0.025	-	-	-	-
45	-	-0.025	-	-	-	-
47	-	-0.025	-	-	-	-
59	-	-0.025	-	-	-	-

Node Loads: 104 STACKING PROFILES SELF WEIGHT

Calculated for the maximum transom width (W=1175mm) in compliance with the weight of stacking profile defined in Appendix E. Nodal Load according to the location of the vision transom on the panel.(1175x9.8x4.47=51N)

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
2	-	-0.051	-	-	-	-
4	-	-0.051	-	-	-	-
6	-	-0.051	-	-	-	-
8	-	-0.051	-	-	-	-
10	-	-0.051	-	-	-	-
12	-	-0.051	-	-	-	-
14	-	-0.051	-	-	-	-
16	-	-0.051	-	-	-	-

18	-	-0.051	-	-	-	-
20	-	-0.051	-	-	-	-
22	-	-0.051	-	-	-	-

Beam Loads: 201 WIND PRESSURE

Calculated according to the design wind pressure defined in section 2. Uniform load normal to profile width.

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
1	UNI kN/m	GX	1.968	-	-	-	-
2	UNI kN/m	GX	1.968	-	-	-	-
3	UNI kN/m	GX	1.968	-	-	-	-
4	UNI kN/m	GX	1.968	-	-	-	-
5	UNI kN/m	GX	1.968	-	-	-	-
6	UNI kN/m	GX	1.968	-	-	-	-
7	UNI kN/m	GX	1.968	-	-	-	-
8	UNI kN/m	GX	1.968	-	-	-	-
9	UNI kN/m	GX	1.968	-	-	-	-
10	UNI kN/m	GX	1.968	-	-	-	-
11	UNI kN/m	GX	1.968	-	-	-	-
12	UNI kN/m	GX	1.968	-	-	-	-
13	UNI kN/m	GX	1.968	-	-	-	-
14	UNI kN/m	GX	1.968	-	-	-	-
15	UNI kN/m	GX	1.968	-	-	-	-
16	UNI kN/m	GX	1.968	-	-	-	-
17	UNI kN/m	GX	1.968	-	-	-	-
18	UNI kN/m	GX	1.968	-	-	-	-
19	UNI kN/m	GX	1.968	-	-	-	-
20	UNI kN/m	GX	1.968	-	-	-	-
21	UNI kN/m	GX	1.968	-	-	-	-
22	UNI kN/m	GX	1.968	-	-	-	-
23	UNI kN/m	GX	1.968	-	-	-	-
24	UNI kN/m	GX	1.968	-	-	-	-
25	UNI kN/m	GX	1.968	-	-	-	-
26	UNI kN/m	GX	1.968	-	-	-	-
27	UNI kN/m	GX	1.968	-	-	-	-
28	UNI kN/m	GX	1.968	-	-	-	-
29	UNI kN/m	GX	1.968	-	-	-	-
30	UNI kN/m	GX	1.968	-	-	-	-
31	UNI kN/m	GX	1.968	-	-	-	-
32	UNI kN/m	GX	1.968	-	-	-	-
33	UNI kN/m	GX	1.968	-	-	-	-
34	UNI kN/m	GX	1.968	-	-	-	-
35	UNI kN/m	GX	1.968	-	-	-	-
36	UNI kN/m	GX	1.968	-	-	-	-
37	UNI kN/m	GX	1.968	-	-	-	-
38	UNI kN/m	GX	1.968	-	-	-	-
39	UNI kN/m	GX	1.968	-	-	-	-
40	UNI kN/m	GX	1.968	-	-	-	-
41	UNI kN/m	GX	1.968	-	-	-	-
42	UNI kN/m	GX	1.968	-	-	-	-
43	UNI kN/m	GX	1.968	-	-	-	-
44	UNI kN/m	GX	1.968	-	-	-	-
45	UNI kN/m	GX	1.968	-	-	-	-
46	UNI kN/m	GX	1.968	-	-	-	-
47	UNI kN/m	GX	1.968	-	-	-	-
48	UNI kN/m	GX	1.968	-	-	-	-
49	UNI kN/m	GX	1.968	-	-	-	-
50	UNI kN/m	GX	1.968	-	-	-	-

51	UNI kN/m	GX	1.968	-	-	-	-
52	UNI kN/m	GX	1.968	-	-	-	-
53	UNI kN/m	GX	1.968	-	-	-	-
54	UNI kN/m	GX	1.968	-	-	-	-
55	UNI kN/m	GX	1.968	-	-	-	-
56	UNI kN/m	GX	1.968	-	-	-	-
57	UNI kN/m	GX	1.968	-	-	-	-
58	UNI kN/m	GX	1.968	-	-	-	-

Beam Loads: 202 WIND SUCTION

Calculated according to the design wind pressure defined in section 2. Uniform load normal to profile width.

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
1	UNI kN/m	GX	-2.540	-	-	-	-
2	UNI kN/m	GX	-2.540	-	-	-	-
3	UNI kN/m	GX	-2.540	-	-	-	-
4	UNI kN/m	GX	-2.540	-	-	-	-
5	UNI kN/m	GX	-2.540	-	-	-	-
6	UNI kN/m	GX	-2.540	-	-	-	-
7	UNI kN/m	GX	-2.540	-	-	-	-
8	UNI kN/m	GX	-2.540	-	-	-	-
9	UNI kN/m	GX	-2.540	-	-	-	-
10	UNI kN/m	GX	-2.540	-	-	-	-
11	UNI kN/m	GX	-2.540	-	-	-	-
12	UNI kN/m	GX	-2.540	-	-	-	-
13	UNI kN/m	GX	-2.540	-	-	-	-
14	UNI kN/m	GX	-2.540	-	-	-	-
15	UNI kN/m	GX	-2.540	-	-	-	-
16	UNI kN/m	GX	-2.540	-	-	-	-
17	UNI kN/m	GX	-2.540	-	-	-	-
18	UNI kN/m	GX	-2.540	-	-	-	-
19	UNI kN/m	GX	-2.540	-	-	-	-
20	UNI kN/m	GX	-2.540	-	-	-	-
21	UNI kN/m	GX	-2.540	-	-	-	-
22	UNI kN/m	GX	-2.540	-	-	-	-
23	UNI kN/m	GX	-2.540	-	-	-	-
24	UNI kN/m	GX	-2.540	-	-	-	-
25	UNI kN/m	GX	-2.540	-	-	-	-
26	UNI kN/m	GX	-2.540	-	-	-	-
27	UNI kN/m	GX	-2.540	-	-	-	-
28	UNI kN/m	GX	-2.540	-	-	-	-
29	UNI kN/m	GX	-2.540	-	-	-	-
30	UNI kN/m	GX	-2.540	-	-	-	-
31	UNI kN/m	GX	-2.540	-	-	-	-
32	UNI kN/m	GX	-2.540	-	-	-	-
33	UNI kN/m	GX	-2.540	-	-	-	-
34	UNI kN/m	GX	-2.540	-	-	-	-
35	UNI kN/m	GX	-2.540	-	-	-	-
36	UNI kN/m	GX	-2.540	-	-	-	-
37	UNI kN/m	GX	-2.540	-	-	-	-
38	UNI kN/m	GX	-2.540	-	-	-	-
39	UNI kN/m	GX	-2.540	-	-	-	-
40	UNI kN/m	GX	-2.540	-	-	-	-
41	UNI kN/m	GX	-2.540	-	-	-	-
42	UNI kN/m	GX	-2.540	-	-	-	-
43	UNI kN/m	GX	-2.540	-	-	-	-
44	UNI kN/m	GX	-2.540	-	-	-	-
45	UNI kN/m	GX	-2.540	-	-	-	-
46	UNI kN/m	GX	-2.540	-	-	-	-
47	UNI kN/m	GX	-2.540	-	-	-	-
48	UNI kN/m	GX	-2.540	-	-	-	-
49	UNI kN/m	GX	-2.540	-	-	-	-

50	UNI kN/m	GX	-2.540	-	-	-	-
51	UNI kN/m	GX	-2.540	-	-	-	-
52	UNI kN/m	GX	-2.540	-	-	-	-
53	UNI kN/m	GX	-2.540	-	-	-	-
54	UNI kN/m	GX	-2.540	-	-	-	-
55	UNI kN/m	GX	-2.540	-	-	-	-
56	UNI kN/m	GX	-2.540	-	-	-	-
57	UNI kN/m	GX	-2.540	-	-	-	-
58	UNI kN/m	GX	-2.540	-	-	-	-

4.2 OUTPUT

Nodes Displacement:

		Hor.	Vertical	Hor.	Resultant	Rotational		
Node	L/C	X mm	Y mm	Z mm	mm	rX rad	rY rad	rZ rad
1	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	-0.001
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	0.001
2	301 STRUCUTRE WEIGHT + WIND PRESSURE	0.115	0	0	0.115	0	0	-0.001
	302 STRUCTURE WEIGHT + WIND SUCTION	-0.148	0	0	0.148	0	0	0.001
3	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.012
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.015
4	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.64	0	0	1.64	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	2.115	0	0	2.115	0	0	-0.014
5	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.014
6	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.519	0	0	1.519	0	0	0.01
	302 STRUCTURE WEIGHT + WIND SUCTION	1.959	0	0	1.959	0	0	-0.013
7	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.014
8	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.528	0	0	1.528	0	0	0.01
	302 STRUCTURE WEIGHT + WIND SUCTION	1.97	0	0	1.97	0	0	-0.013
9	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.014
10	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.512	0	0	1.512	0	0	0.01
	302 STRUCTURE WEIGHT + WIND SUCTION	1.949	0	0	1.949	0	0	-0.013
11	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.015
12	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.624	0	0	1.624	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	2.093	0	0	2.093	0	0	-0.014
13	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.01
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.012
14	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.357	0	0	1.357	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	1.749	0	0	1.749	0	0	-0.012
15	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.008
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.011
16	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.187	0	0	1.187	0	0	0.008

	302 STRUCTURE WEIGHT + WIND SUCTION	1.53	0	0	1.53	0	0	-0.011
17	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.002
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.002
18	301 STRUCUTRE WEIGHT + WIND PRESSURE	-0.219	-0.001	0	0.219	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	0.282	-0.001	0	0.282	0	0	0
19	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.015
20	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.638	0	0	1.638	0	0	0.011
	302 STRUCTURE WEIGHT + WIND SUCTION	2.112	0	0	2.112	0	0	-0.014
21	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.012
22	301 STRUCUTRE WEIGHT + WIND PRESSURE	-1.297	0	0	1.297	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	1.672	0	0	1.672	0	0	-0.011
23	301 STRUCUTRE WEIGHT + WIND PRESSURE	0	0	0	0	0	0	0.003
	302 STRUCTURE WEIGHT + WIND SUCTION	0	0	0	0	0	0	-0.003
24	301 STRUCUTRE WEIGHT + WIND PRESSURE	-0.364	0	0	0.364	0	0	0.003
	302 STRUCTURE WEIGHT + WIND SUCTION	0.469	0	0	0.469	0	0	-0.003
25	301 STRUCUTRE WEIGHT + WIND PRESSURE	10.923	-0.001	0	10.923	0	0	-0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-14.083	-0.001	0	14.083	0	0	0.009
26	301 STRUCUTRE WEIGHT + WIND PRESSURE	8.521	-0.001	0	8.521	0	0	0.01
	302 STRUCTURE WEIGHT + WIND SUCTION	-10.987	-0.001	0	10.987	0	0	-0.013
27	301 STRUCUTRE WEIGHT + WIND PRESSURE	9.424	-0.001	0	9.424	0	0	-0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-12.151	-0.001	0	12.151	0	0	0.01
28	301 STRUCUTRE WEIGHT + WIND PRESSURE	8.112	-0.001	0	8.112	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-10.459	-0.001	0	10.459	0	0	-0.011
29	301 STRUCUTRE WEIGHT + WIND PRESSURE	9.526	-0.001	0	9.526	0	0	-0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-12.282	-0.001	0	12.282	0	0	0.01
30	301 STRUCUTRE WEIGHT + WIND PRESSURE	7.943	-0.001	0	7.943	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-10.241	-0.001	0	10.241	0	0	-0.012
31	301 STRUCUTRE WEIGHT + WIND PRESSURE	9.299	-0.001	0	9.299	0	0	-0.008
	302 STRUCTURE WEIGHT + WIND SUCTION	-11.989	-0.001	0	11.989	0	0	0.01
32	301 STRUCUTRE WEIGHT + WIND PRESSURE	7.887	-0.001	0	7.887	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-10.169	-0.001	0	10.169	0	0	-0.012
33	301 STRUCUTRE WEIGHT + WIND PRESSURE	10.723	-0.001	0	10.723	0	0	-0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-13.826	-0.001	0	13.826	0	0	0.011
34	301 STRUCUTRE WEIGHT + WIND PRESSURE	9.861	-0.001	0	9.861	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-12.714	-0.001	0	12.714	0	0	-0.012
35	301 STRUCUTRE WEIGHT + WIND PRESSURE	9.757	-0.001	0	9.757	0	0	-0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-12.58	-0.001	0	12.58	0	0	0.011
36	301 STRUCUTRE WEIGHT + WIND PRESSURE	8.778	-0.001	0	8.778	0	0	0.009
	302 STRUCTURE WEIGHT + WIND SUCTION	-11.318	-0.001	0	11.318	0	0	-0.011
37	301 STRUCUTRE WEIGHT + WIND PRESSURE	6.851	-0.001	0	6.851	0	0	-0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-8.833	-0.001	0	8.833	0	0	0.009
38	301 STRUCUTRE WEIGHT + WIND PRESSURE	11.72	-0.001	0	11.72	0	0	0

	302 STRUCTURE WEIGHT + WIND SUCTION	-15.111	-0.001	0	15.111	0	0	-0.001
39	301 STRUCUTRE WEIGHT + WIND PRESSURE	5.99	-0.001	0	5.99	0	0	0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-7.724	-0.001	0	7.724	0	0	-0.009
40	301 STRUCUTRE WEIGHT + WIND PRESSURE	3.926	-0.001	0	3.926	0	0	-0.003
	302 STRUCTURE WEIGHT + WIND SUCTION	-5.062	-0.001	0	5.062	0	0	0.003
41	301 STRUCUTRE WEIGHT + WIND PRESSURE	1.462	0	0	1.462	0	0	0.004
	302 STRUCTURE WEIGHT + WIND SUCTION	-1.884	0	0	1.884	0	0	-0.005
42	301 STRUCUTRE WEIGHT + WIND PRESSURE	10.725	-0.001	0	10.725	0	0	-0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-13.828	-0.001	0	13.828	0	0	0.009
43	301 STRUCUTRE WEIGHT + WIND PRESSURE	8.481	-0.001	0	8.481	0	0	0.01
	302 STRUCTURE WEIGHT + WIND SUCTION	-10.935	-0.001	0	10.935	0	0	-0.012
44	301 STRUCUTRE WEIGHT + WIND PRESSURE	8.752	-0.001	0	8.752	0	0	-0.007
	302 STRUCTURE WEIGHT + WIND SUCTION	-11.284	-0.001	0	11.284	0	0	0.009
45	301 STRUCUTRE WEIGHT + WIND PRESSURE	7.149	-0.001	0	7.149	0	0	0.008
	302 STRUCTURE WEIGHT + WIND SUCTION	-9.218	-0.001	0	9.218	0	0	-0.011
46	301 STRUCUTRE WEIGHT + WIND PRESSURE	1.472	-0.001	0	1.472	0	0	-0.002
	302 STRUCTURE WEIGHT + WIND SUCTION	-1.898	-0.001	0	1.898	0	0	0.003
47	301 STRUCUTRE WEIGHT + WIND PRESSURE	1.662	0	0	1.662	0	0	0.002
	302 STRUCTURE WEIGHT + WIND SUCTION	-2.143	0	0	2.143	0	0	-0.002
48	301 STRUCUTRE WEIGHT + WIND PRESSURE	12.812	-0.001	0	12.812	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-16.519	-0.001	0	16.519	0	0	0
49	301 STRUCUTRE WEIGHT + WIND PRESSURE	11.612	-0.001	0	11.612	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-14.972	-0.001	0	14.972	0	0	0
50	301 STRUCUTRE WEIGHT + WIND PRESSURE	11.695	-0.001	0	11.695	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-15.079	-0.001	0	15.079	0	0	0
51	301 STRUCUTRE WEIGHT + WIND PRESSURE	11.633	-0.001	0	11.633	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-14.999	-0.001	0	14.999	0	0	0
52	301 STRUCUTRE WEIGHT + WIND PRESSURE	13.412	-0.001	0	13.412	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-17.293	-0.001	0	17.293	0	0	0
53	301 STRUCUTRE WEIGHT + WIND PRESSURE	13.418	-0.001	0	13.418	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-17.301	-0.001	0	17.301	0	0	0
54	301 STRUCUTRE WEIGHT + WIND PRESSURE	11.725	-0.001	0	11.725	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-15.117	-0.001	0	15.117	0	0	0
55	301 STRUCUTRE WEIGHT + WIND PRESSURE	4.181	-0.001	0	4.181	0	0	0.002
	302 STRUCTURE WEIGHT + WIND SUCTION	-5.391	-0.001	0	5.391	0	0	-0.002
56	301 STRUCUTRE WEIGHT + WIND PRESSURE	12.688	-0.001	0	12.688	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-16.359	-0.001	0	16.359	0	0	0
57	301 STRUCUTRE WEIGHT + WIND PRESSURE	10.73	-0.001	0	10.73	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-13.834	-0.001	0	13.834	0	0	0
58	301 STRUCUTRE WEIGHT + WIND PRESSURE	2.155	-0.001	0	2.155	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	-2.779	-0.001	0	2.779	0	0	0.001
59	301 STRUCUTRE WEIGHT + WIND PRESSURE	-0.092	0	0	0.092	0	0	0
	302 STRUCTURE WEIGHT + WIND SUCTION	0.118	0	0	0.118	0	0	0

According to standards, the deflection limit of a non-factored load case for an Aluminum Structure is L/240 or 19mm whichever is less. For this project f max = 19mm.
The maximum displacement is located on the node 53 is:

- 13,5 mm under Wind pressure
- 17,3 mm under Wind suction

This is less than 19mm. So the result is accepted.

<u>Maximum Stresses:</u>

			Max Compressive			Max Tensile		
Beam	L/C	Length mm	Stress N/mm2	Dist mm	Corner	Stress N/mm2	Dist mm	Corner
1	401 FACTORED LOAD 301 (BS 8110)	145	15.894	0	3	-15.753	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	20.473	0	1	-20.331	0	3
2	401 FACTORED LOAD 301 (BS 8110)	145	18.657	0	3	-18.516	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	24.035	0	1	-23.893	0	3
3	401 FACTORED LOAD 301 (BS 8110)	145	18.461	0	3	-18.32	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.782	0	1	-23.641	0	3
4	401 FACTORED LOAD 301 (BS 8110)	145	18.576	0	3	-18.434	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.93	0	1	-23.789	0	3
5	401 FACTORED LOAD 301 (BS 8110)	145	19.091	0	3	-18.946	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	24.594	0	1	-24.449	0	3
6	401 FACTORED LOAD 301 (BS 8110)	145	23.15	0	3	-22.936	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	29.817	0	1	-29.603	0	3
7	401 FACTORED LOAD 301 (BS 8110)	145	28.271	0	3	-28.1	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	36.427	0	1	-36.255	0	3
8	401 FACTORED LOAD 301 (BS 8110)	145	6.065	0	3	-6.007	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	7.811	0	1	-7.754	0	3
9	401 FACTORED LOAD 301 (BS 8110)	445	47.508	0	3	-47.366	0	1
	402 FACTOREDLOAD 302 (BS 8110)	445	61.234	0	1	-61.092	0	3
10	401 FACTORED LOAD 301 (BS 8110)	145	18.155	0	3	-18.013	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	23.387	0	1	-23.246	0	3
11	401 FACTORED LOAD 301 (BS 8110)	145	25.637	0	3	-25.412	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	33.022	0	1	-32.797	0	3
12	401 FACTORED LOAD 301 (BS 8110)	145	0.292	0	3	-0.262	0	1
	402 FACTOREDLOAD 302 (BS 8110)	145	0.373	0	1	-0.343	0	3
13	401 FACTORED LOAD 301 (BS 8110)	1000	54.724	1000	1	-54.691	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	70.553	1000	3	-70.52	1000	1
14	401 FACTORED LOAD 301 (BS 8110)	755	37.908	0	1	-37.972	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755	48.886	0	3	-48.95	0	1
15	401 FACTORED LOAD 301 (BS 8110)	1000	53.004	1000	1	-52.971	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	68.335	1000	3	-68.302	1000	1
16	401 FACTORED LOAD 301 (BS 8110)	780	38.688	0	1	-38.751	0	3

	402 FACTOREDLOAD 302 (BS 8110)	780	49.891	0	3	-49.954	0	1
17	401 FACTORED LOAD 301 (BS 8110)	1000	53.09	1000	1	-53.057	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	68.446	1000	3	-68.414	1000	1
18	401 FACTORED LOAD 301 (BS 8110)	755	37.374	0	1	-37.438	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755	48.197	0	3	-48.261	0	1
19	401 FACTORED LOAD 301 (BS 8110)	975	52.109	975	1	-52.075	975	3
	402 FACTOREDLOAD 302 (BS 8110)	975	67.181	975	3	-67.147	975	1
20	401 FACTORED LOAD 301 (BS 8110)	755	36.954	0	1	-37.018	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755	47.655	0	3	-47.719	0	1
21	401 FACTORED LOAD 301 (BS 8110)	1000	55.385	1000	1	-55.349	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	71.405	1000	3	-71.369	1000	1
22	401 FACTORED LOAD 301 (BS 8110)	879.999	43.114	0	1	-43.174	0	3
	402 FACTOREDLOAD 302 (BS 8110)	879.999	55.597	0	3	-55.657	0	1
23	401 FACTORED LOAD 301 (BS 8110)	1000	48.139	1000	1	-48.104	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	62.062	1000	3	-62.027	1000	1
24	401 FACTORED LOAD 301 (BS 8110)	880.001	32.487	0	1	-32.547	0	3
	402 FACTOREDLOAD 302 (BS 8110)	880.001	41.896	0	3	-41.956	0	1
25	401 FACTORED LOAD 301 (BS 8110)	1000	39.478	1000	1	-39.419	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	50.892	1000	3	-50.833	1000	1
26	401 FACTORED LOAD 301 (BS 8110)	1264.999	60.938	1265	1	-60.94	1265	3
	402 FACTOREDLOAD 302 (BS 8110)	1264.999	78.57	1265	3	-78.572	1265	1
27	401 FACTORED LOAD 301 (BS 8110)	754.999	31.283	0	1	-31.367	0	3
	402 FACTOREDLOAD 302 (BS 8110)	754.999	40.347	0	3	-40.431	0	1
28	401 FACTORED LOAD 301 (BS 8110)	1000	34.608	1000	1	-34.58	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	44.618	1000	3	-44.59	1000	1
29	401 FACTORED LOAD 301 (BS 8110)	455	47.393	455	3	-47.481	455	1
	402 FACTOREDLOAD 302 (BS 8110)	455	61.119	455	1	-61.207	455	3
30	401 FACTORED LOAD 301 (BS 8110)	1000	54.76	1000	1	-54.74	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	70.602	1000	3	-70.581	1000	1
31	401 FACTORED LOAD 301 (BS 8110)	754.999	38.24	0	1	-38.315	0	3
	402 FACTOREDLOAD 302 (BS 8110)	754.999	49.315	0	3	-49.391	0	1
32	401 FACTORED LOAD 301 (BS 8110)	1000	50.816	1000	1	-50.783	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	65.514	1000	3	-65.481	1000	1
33	401 FACTORED LOAD 301 (BS 8110)	755.001	32.057	0	1	-32.121	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755.001	41.341	0	3	-41.405	0	1
34	401 FACTORED LOAD 301 (BS 8110)	1000	24.352	1000	1	-24.331	1000	3
	402 FACTOREDLOAD 302 (BS 8110)	1000	31.395	1000	3	-31.374	1000	1
35	401 FACTORED LOAD 301 (BS 8110)	755.001	21.968	0	1	-22.023	0	3
	402 FACTOREDLOAD 302 (BS 8110)	755.001	28.332	0	3	-28.388	0	1
36	401 FACTORED LOAD 301 (BS 8110)	552.5	80.022	460.417	1	-80.023	460.417	3
	402 FACTOREDLOAD 302 (BS 8110)	552.5	103.175	460.417	3	-103.176	460.417	1
37	401 FACTORED LOAD 301 (BS 8110)	797.5	79.728	0	1	-79.733	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.5	102.797	0	3	-102.802	0	1
38	401 FACTORED LOAD 301 (BS 8110)	552.5	78.318	460.416	1	-78.319	460.416	3

	402 FACTOREDLOAD 302 (BS 8110)	552.5	100.979	460.416	3	-100.98	460.416	1
39	401 FACTORED LOAD 301 (BS 8110)	772.5	78.134	0	1	-78.139	0	3
	402 FACTOREDLOAD 302 (BS 8110)	772.5	100.742	0	3	-100.747	0	1
40	401 FACTORED LOAD 301 (BS 8110)	552.501	78.374	460.417	1	-78.375	460.417	3
	402 FACTOREDLOAD 302 (BS 8110)	552.501	101.051	460.417	3	-101.052	460.417	1
41	401 FACTORED LOAD 301 (BS 8110)	797.5	78.178	0	1	-78.183	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.5	100.799	0	3	-100.804	0	1
42	401 FACTORED LOAD 301 (BS 8110)	577.5	77.96	481.25	1	-77.961	481.25	3
	402 FACTOREDLOAD 302 (BS 8110)	577.5	100.517	481.25	3	-100.518	481.25	1
43	401 FACTORED LOAD 301 (BS 8110)	797.5	77.756	0	1	-77.761	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.5	100.255	0	3	-100.259	0	1
44	401 FACTORED LOAD 301 (BS 8110)	615.001	83.059	512.501	1	-83.058	512.501	3
	402 FACTOREDLOAD 302 (BS 8110)	615.001	107.091	512.501	3	-107.091	512.501	1
45	401 FACTORED LOAD 301 (BS 8110)	735	82.728	0	1	-82.731	0	3
	402 FACTOREDLOAD 302 (BS 8110)	735	106.665	0	3	-106.668	0	1
46	401 FACTORED LOAD 301 (BS 8110)	827.501	73.761	689.584	1	-73.762	689.584	3
	402 FACTOREDLOAD 302 (BS 8110)	827.501	95.103	689.584	3	-95.105	689.584	1
47	401 FACTORED LOAD 301 (BS 8110)	947.498	73.251	0	1	-73.258	0	3
	402 FACTOREDLOAD 302 (BS 8110)	947.498	94.446	0	3	-94.453	0	1
48	401 FACTORED LOAD 301 (BS 8110)	122.499	60.939	10.208	1	-60.942	10.208	3
	402 FACTOREDLOAD 302 (BS 8110)	122.499	78.572	10.208	3	-78.574	10.208	1
49	401 FACTORED LOAD 301 (BS 8110)	1387.501	60.771	0	1	-60.785	0	3
	402 FACTOREDLOAD 302 (BS 8110)	1387.501	78.357	0	3	-78.37	0	1
50	401 FACTORED LOAD 301 (BS 8110)	552.5	46.006	138.125	1	-45.999	138.125	3
	402 FACTOREDLOAD 302 (BS 8110)	552.5	59.316	138.125	3	-59.309	138.125	1
51	401 FACTORED LOAD 301 (BS 8110)	797.501	39.279	0	1	-39.29	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.501	50.645	0	3	-50.656	0	1
52	401 FACTORED LOAD 301 (BS 8110)	552.5	80.202	460.416	1	-80.216	460.416	3
	402 FACTOREDLOAD 302 (BS 8110)	552.5	103.409	460.416	3	-103.424	460.416	1
53	401 FACTORED LOAD 301 (BS 8110)	797.501	79.934	0	1	-79.953	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.501	103.065	0	3	-103.084	0	1
54	401 FACTORED LOAD 301 (BS 8110)	552.502	74.039	460.418	1	-74.04	460.418	3
	402 FACTOREDLOAD 302 (BS 8110)	552.502	95.461	460.418	3	-95.462	460.418	1
55	401 FACTORED LOAD 301 (BS 8110)	797.497	73.572	0	1	-73.577	0	3
	402 FACTOREDLOAD 302 (BS 8110)	797.497	94.859	0	3	-94.864	0	1
56	401 FACTORED LOAD 301 (BS 8110)	552.502	29.188	552.502	1	-29.198	552.502	3
	402 FACTOREDLOAD 302 (BS 8110)	552.502	37.635	552.502	3	-37.644	552.502	1
57	401 FACTORED LOAD 301 (BS 8110)	797.497	29.228	66.458	1	-29.24	66.458	3
	402 FACTOREDLOAD 302 (BS 8110)	797.497	37.686	66.458	3	-37.699	66.458	1
58	401 FACTORED LOAD 301 (BS 8110)	755	15.815	755	3	-15.831	755	1
	402 FACTOREDLOAD 302 (BS 8110)	755	20.394	755	1	-20.41	755	3

The maximum stress issued from the result is located on the Beam 44 = 107.09 N/mm² = 107.09 MPa whichever is less than the maximum Stress allowed for Extruded Aluminum Grade 6061-T6 (152 MPa) So, the result is accepted.

SECTION 5
Opening Members Analysis (Transom)
(File SRB-E12-C33-CN/SC-UCW03)

5.1 INPUT DATA

Nodes

Node	X (mm)	Y (mm)	Z (mm)
1	0.000	0.000	0.000
2	120.000	0.000	0.000
3	556.000	0.000	0.000
4	992.000	0.000	0.000
5	1.11E 3	0.000	0.000
6	0.000	1E 3	0.000
7	120.000	1E 3	0.000
8	556.000	1E 3	0.000
9	992.000	1E 3	0.000
10	1.11E 3	1E 3	0.000
11	0.000	2.78E 3	0.000
12	120.000	2.78E 3	0.000
13	556.000	2.78E 3	0.000
14	992.000	2.78E 3	0.000
15	1.11E 3	2.78E 3	0.000
16	0.000	3.8E 3	0.000
17	120.000	3.8E 3	0.000
18	556.000	3.8E 3	0.000
19	992.000	3.8E 3	0.000
20	1.11E 3	3.8E 3	0.000
21	1.23E 3	0.000	0.000
22	1.67E 3	0.000	0.000
23	2.1E 3	0.000	0.000
24	2.22E 3	0.000	0.000
25	1.23E 3	1E 3	0.000
26	1.67E 3	1E 3	0.000
27	2.1E 3	1E 3	0.000
28	2.22E 3	1E 3	0.000
29	1.23E 3	2.78E 3	0.000
30	1.67E 3	2.78E 3	0.000
31	2.1E 3	2.78E 3	0.000
32	2.22E 3	2.78E 3	0.000
33	1.23E 3	3.8E 3	0.000
34	1.67E 3	3.8E 3	0.000
35	2.1E 3	3.8E 3	0.000
36	2.22E 3	3.8E 3	0.000
37	1.38E 3	2.78E 3	0.000
38	1.95E 3	2.78E 3	0.000

Beams

Beam	Node A	Node B	Length (mm)	Property	β (degrees)
5	6	7	120.000	2	90
6	7	8	436.000	2	90
7	8	9	436.000	2	90
8	9	10	120.000	2	90
13	16	17	120.000	1	90
14	17	18	436.000	1	90
15	18	19	436.000	1	90
16	19	20	120.000	1	90
17	16	11	1020.000	7	270
18	11	6	1780.000	7	270
19	6	1	1000.000	7	270
20	20	15	1020.000	7	270
21	15	10	1780.000	7	270
22	10	5	1000.000	7	270
27	10	25	120.000	4	90
28	25	26	436.000	4	90
29	26	27	436.000	4	90
30	27	28	120.000	4	90
31	15	29	120.000	6	90
34	31	32	120.000	6	90
35	20	33	120.000	1	90
36	33	34	436.000	1	90
37	34	35	436.000	1	90
38	35	36	120.000	1	90
39	36	32	1020.000	7	270
40	32	28	1780.000	7	270
41	28	24	1000.000	7	270
42	11	12	120.000	3	90
43	12	13	436.000	3	90
44	13	14	436.000	3	90
45	14	15	120.000	3	90
46	1	2	120.000	5	90
47	2	3	436.000	5	90
48	3	4	436.000	5	90
49	4	5	120.000	5	90
50	5	21	120.000	5	90
51	21	22	436.000	5	90
52	22	23	436.000	5	90
53	23	24	120.000	5	90
54	29	37	150.000	6	90
55	37	30	286.000	6	90
56	30	38	286.000	6	90
57	38	31	150.000	6	90

Section Properties

Prop	Section	Area (cm^2)	I_{yy} (cm^4)	I_{zz} (cm^4)	J (cm^4)	Material
1	STACKING	16.380	83.317	312.932	396.140	ALUMINUM
2	1501	4.510	24.724	16.109	40.803	ALUMINUM
3	1502	7.970	47.186	156.587	203.720	ALUMINUM
4	1505	4.700	17.959	12.389	30.316	ALUMINUM
5	1401	7.510	10.740	132.207	142.897	ALUMINUM
6	1503	8.510	43.796	157.077	200.806	ALUMINUM
7	1201AR	21.510	106.521	332.769	439.147	ALUMINUM

Materials

Mat	Name	E (kN/mm^2)	ν	Density (kg/m^3)	α (1/°K)
1	ALUMINUM	68.948	0.330	2.71E 3	23E -6

Supports

There is no data of this type.

Releases

There is no data of this type.

Basic Load Cases

Number	Name
101	SELF WEIGHT
102	LOWER GLAZING WEIGHT
103	INTERMEDIATE GLAZING WEIGHT
104	UPPER INFILLS WEIGHT
105	OPENING WEIGHT
201	WIND PRESSURE (STACKING JOINT)
202	WIND SUCTION (STACKING JOINT)
203	WIND PRESSURE INTERMEDIATE TRANSOM
204	WIND SUCTION INTERMEDIATE TRANSOM
205	WIND PRESSURE UPPER TRANSOM
206	WIND SUCTION UPPER TRANSOM

Combination Load Cases

Primary	Primary L/C Name
7	COMBINED WEIGHT UPPER OPENING TRANSOM
201	WIND PRESSURE (STACKING JOINT)
202	WIND SUCTION (STACKING JOINT)
203	WIND PRESSURE INTERMEDIATE TRANSOM
204	WIND SUCTION INTERMEDIATE TRANSOM
205	WIND PRESSURE UPPER TRANSOM
206	WIND SUCTION UPPER TRANSOM
104	UPPER INFILLS WEIGHT
105	OPENING WEIGHT

Selfweight :

Direction	Factor
Y	-1.000

Node Loads: 102 LOWER GLAZING WEIGHT

Calculated from dead weight of Glazing (30kg/m²) with a height = 1000-25 = 975 mm and a width = 1175-25 = 1150mm

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
2	-	-0.165	-	-	-	-
4	-	-0.165	-	-	-	-
21	-	-0.165	-	-	-	-
23	-	-0.165	-	-	-	-

Node Loads: 103 INTERMEDIATE GLAZING WEIGHT

Calculated from dead weight of Glazing (30kg/m²) with a height = 1780-25 = 1755 mm and a width = 1175-25 = 1150mm

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
7	-	-0.300	-	-	-	-
9	-	-0.300	-	-	-	-

Node Loads : 104 UPPER INFILLS WEIGHT

Calculated from dead weight of Glazing (30.75kg/m²) with a height = 1025-25 = 1000 mm and a width = 1175-25 =1150mm

Node	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
12	-	-0.175	-	-	-	-
14	-	-0.175	-	-	-	-
29	-	-0.175	-	-	-	-
31	-	-0.175	-	-	-	-

Beam Loads: 105 OPENING WEIGHT

Calculated from dead weight of Glazing (30kg/m²) and dead weight of sash with a height = 1780-25 = 1755 mm and a width = 1175-25 = 1150mm. Uniform Load applied on beams 53 and 54 which represents the hinge system according SRB-E12-C33-7017-001.

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
54	UNI kN/m	GY	-2.240	0.000	-	0.000	52.000
57	UNI kN/m	GY	-2.240	0.000	-	0.000	52.000

Beam Loads: 201 WIND SUCTION (STACKING JOINT)

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
13	UNI kN/m	GZ	-2.133	-	-	-	-
14	UNI kN/m	GZ	-2.133	-	-	-	-
15	UNI kN/m	GZ	-2.133	-	-	-	-
16	UNI kN/m	GZ	-2.133	-	-	-	-
35	UNI kN/m	GZ	-2.133	-	-	-	-
36	UNI kN/m	GZ	-2.133	-	-	-	-
37	UNI kN/m	GZ	-2.133	-	-	-	-
38	UNI kN/m	GZ	-2.133	-	-	-	-

Beam Loads: 202 WIND PRESSURE (STACKING JOINT)

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
13	UNI kN/m	GZ	1.925	-	-	-	-
14	UNI kN/m	GZ	1.925	-	-	-	-
15	UNI kN/m	GZ	1.925	-	-	-	-
16	UNI kN/m	GZ	1.925	-	-	-	-
35	UNI kN/m	GZ	1.925	-	-	-	-
36	UNI kN/m	GZ	1.925	-	-	-	-
37	UNI kN/m	GZ	1.925	-	-	-	-
38	UNI kN/m	GZ	1.925	-	-	-	-

Beam Loads: 203 WIND SUCTION INTERMEDIATE TRANSOM

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
5	UNI kN/m	GZ	-2.950	-	-	-	-
6	UNI kN/m	GZ	-2.950	-	-	-	-
7	UNI kN/m	GZ	-2.950	-	-	-	-
8	UNI kN/m	GZ	-2.950	-	-	-	-
27	UNI kN/m	GZ	-2.950	-	-	-	-
28	UNI kN/m	GZ	-2.950	-	-	-	-
29	UNI kN/m	GZ	-2.950	-	-	-	-
30	UNI kN/m	GZ	-2.950	-	-	-	-

Beam Loads: 204 WIND PRESSURE INTERMEDIATE TRANSOM

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
5	UNI kN/m	GZ	2.655	-	-	-	-
6	UNI kN/m	GZ	2.655	-	-	-	-
7	UNI kN/m	GZ	2.655	-	-	-	-
8	UNI kN/m	GZ	2.655	-	-	-	-
27	UNI kN/m	GZ	2.655	-	-	-	-
28	UNI kN/m	GZ	2.655	-	-	-	-
29	UNI kN/m	GZ	2.655	-	-	-	-
30	UNI kN/m	GZ	2.655	-	-	-	-

Beam Loads: 205 WIND SUCTION UPPER TRANSOM

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
31	UNI kN/m	GZ	-2.970	-	-	-	-
34	UNI kN/m	GZ	-2.970	-	-	-	-
42	UNI kN/m	GZ	-2.970	-	-	-	-
43	UNI kN/m	GZ	-2.970	-	-	-	-
44	UNI kN/m	GZ	-2.970	-	-	-	-
45	UNI kN/m	GZ	-2.970	-	-	-	-
54	UNI kN/m	GZ	-2.970	-	-	-	-
55	UNI kN/m	GZ	-2.970	-	-	-	-
56	UNI kN/m	GZ	-2.970	-	-	-	-
57	UNI kN/m	GZ	-2.970	-	-	-	-

Beam Loads: 206 WIND PRESSURE UPPER TRANSOM

Beam	Type	Direction	Fa	Da (mm)	Fb	Db	Ecc. (mm)
31	UNI kN/m	GZ	2.680	-	-	-	-
34	UNI kN/m	GZ	2.680	-	-	-	-
42	UNI kN/m	GZ	2.680	-	-	-	-
43	UNI kN/m	GZ	2.680	-	-	-	-
44	UNI kN/m	GZ	2.680	-	-	-	-
45	UNI kN/m	GZ	2.680	-	-	-	-
54	UNI kN/m	GZ	2.680	-	-	-	-
55	UNI kN/m	GZ	2.680	-	-	-	-
56	UNI kN/m	GZ	2.680	-	-	-	-
57	UNI kN/m	GZ	2.680	-	-	-	-

5.2 OUTPUT DATA

5.2.1. Infill dead load impact

		Horizontal	Vertical	Horizontal	Resultant	Rotational		
Node	L/C	X mm	Y mm	Z mm	mm	rX rad	rY rad	rZ rad
1	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
2	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	-0.011	0	0.011	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
3	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	-0.038	0	0.038	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
4	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	-0.011	0	0.011	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
5	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
6	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
7	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	-0.008	0	0.008	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
8	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	-0.03	0	0.03	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
9	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	-0.008	0	0.008	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
10	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
11	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
12	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.003	0	0.003	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0

	104 UPPER INFILLS WEIGHT	0	-0.003	0	0.003	0	0	0
13	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.009	0	0.009	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.009	0	0.009	0	0	0
14	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.003	0	0.003	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.003	0	0.003	0	0	0
15	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
16	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
17	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
18	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
19	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
20	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
21	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	-0.011	0	0.011	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
22	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	-0.038	0	0.038	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
23	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	-0.011	0	0.011	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
24	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
25	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
26	7 COMBINED WEIGHT UPPER OPENING	0	0	0	0	0	0	0

	TRANSOM							
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
27	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
28	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
29	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.012	0	0.012	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.003	0	0.003	0	0	0
30	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.056	0	0.056	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.01	0	0.01	0	0	0
31	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.012	0	0.012	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.003	0	0.003	0	0	0
32	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
33	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
34	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
35	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
36	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	0	0	0	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	0	0	0	0	0	0
37	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.036	0	0.036	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.007	0	0.007	0	0	0
38	7 COMBINED WEIGHT UPPER OPENING TRANSOM	0	-0.036	0	0.036	0	0	0
	102 LOWER GLAZING WEIGHT	0	0	0	0	0	0	0
	103 INTERMEDIATE GLAZING WEIGHT	0	0	0	0	0	0	0
	104 UPPER INFILLS WEIGHT	0	-0.007	0	0.007	0	0	0

According to the width (W=1175mm) and the I_y of each profile, the dead load of glass has an insignificant impact on profiles. So, the result is accepted

5.2.2 Wind load impact

		Horizontal	Vertical	Horizontal	Resultant	Rotational		
Node	L/C	X mm	Y mm	Z mm	mm	rX rad	rY rad	rZ rad
1	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
2	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
3	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
4	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
5	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
6	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0

7	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	-0.157	0.157	0	0.002	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0.141	0.141	0	-0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
8	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	-1.058	1.058	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0.952	0.952	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
9	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	-0.157	0.157	0	-0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0.141	0.141	0	0.002	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
10	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
11	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
12	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.016	0.016	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.015	0.015	0	0	0
13	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.11	0.11	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.099	0.099	0	0	0
14	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0

	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.016	0.016	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.015	0.015	0	0	0
15	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
16	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
17	201 WIND PRESSURE (STACKING JOINT)	0	0	-0.006	0.006	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0.005	0.005	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
18	201 WIND PRESSURE (STACKING JOINT)	0	0	-0.039	0.039	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0.036	0.036	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
19	201 WIND PRESSURE (STACKING JOINT)	0	0	-0.006	0.006	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0.005	0.005	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
20	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
21	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0

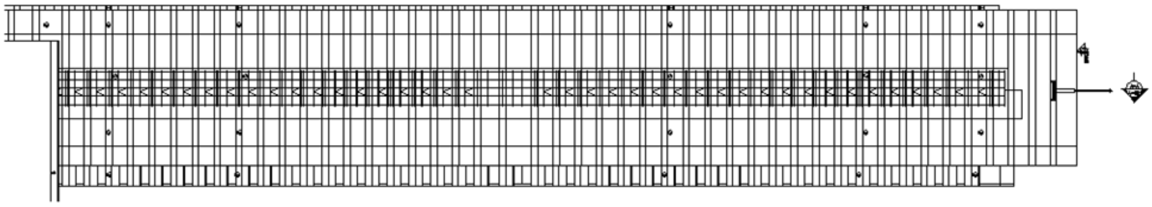
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
22	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
23	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
24	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
25	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	-0.204	0.204	0	0.003	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0.184	0.184	0	-0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
26	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	-1.375	1.375	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	1.238	1.238	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
27	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	-0.204	0.204	0	-0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0.184	0.184	0	0.003	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
28	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0

29	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.016	0.016	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.015	0.015	0	0	0
30	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.109	0.109	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.099	0.099	0	0	0
31	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.016	0.016	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.015	0.015	0	0	0
32	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
33	201 WIND PRESSURE (STACKING JOINT)	0	0	-0.006	0.006	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0.005	0.005	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
34	201 WIND PRESSURE (STACKING JOINT)	0	0	-0.039	0.039	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0.036	0.036	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
35	201 WIND PRESSURE (STACKING JOINT)	0	0	-0.006	0.006	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0.005	0.005	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
36	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0

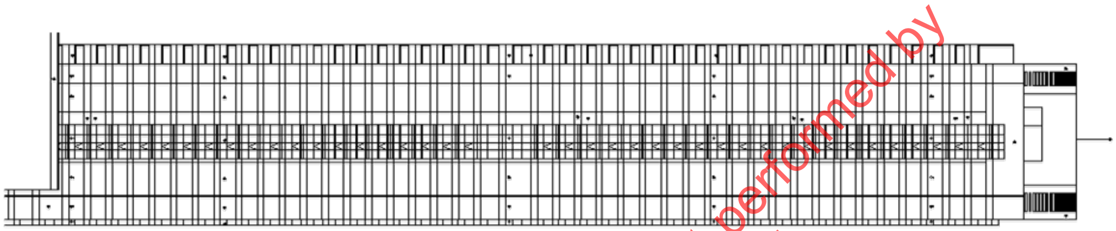
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	0	0	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0	0	0	0	0
37	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.059	0.059	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.053	0.053	0	0	0
38	201 WIND PRESSURE (STACKING JOINT)	0	0	0	0	0	0	0
	202 WIND SUCTION (STACKING JOINT)	0	0	0	0	0	0	0
	203 WIND PRESSURE INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	204 WIND SUCTION INTERMEDIATE TRANSOM	0	0	0	0	0	0	0
	205 WIND PRESSURE UPPER TRANSOM	0	0	-0.059	0.059	0	0	0
	206 WIND SUCTION UPPER TRANSOM	0	0	0.053	0.053	0	0	0

According to the previous results, the maximum deflection is (node 26) equal 1.4mm which is less than the maximum deflection allowed by standard (1175/240 = 4.8 mm)
So the result is accepted.

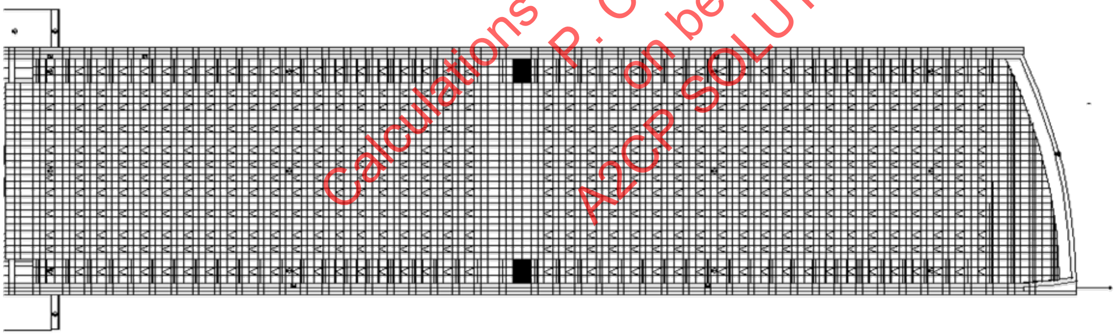
APPENDIX A



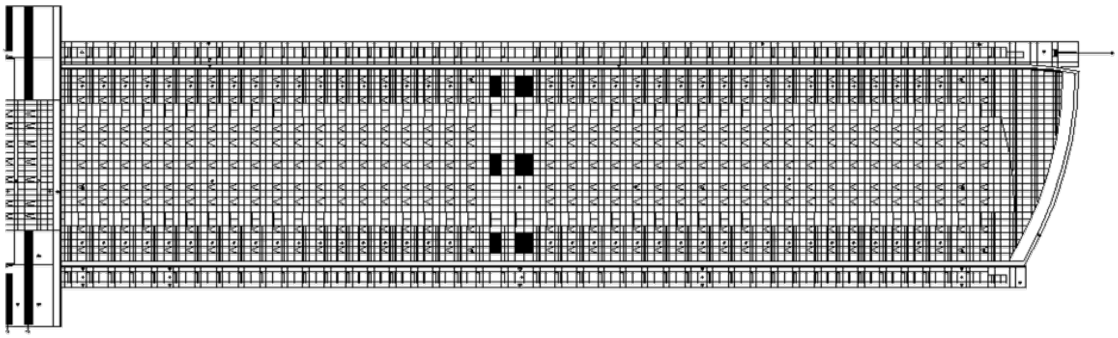
FACADE NORTH-EAST



FACADE SOUTH-WEST



FACADE NORTH-WEST

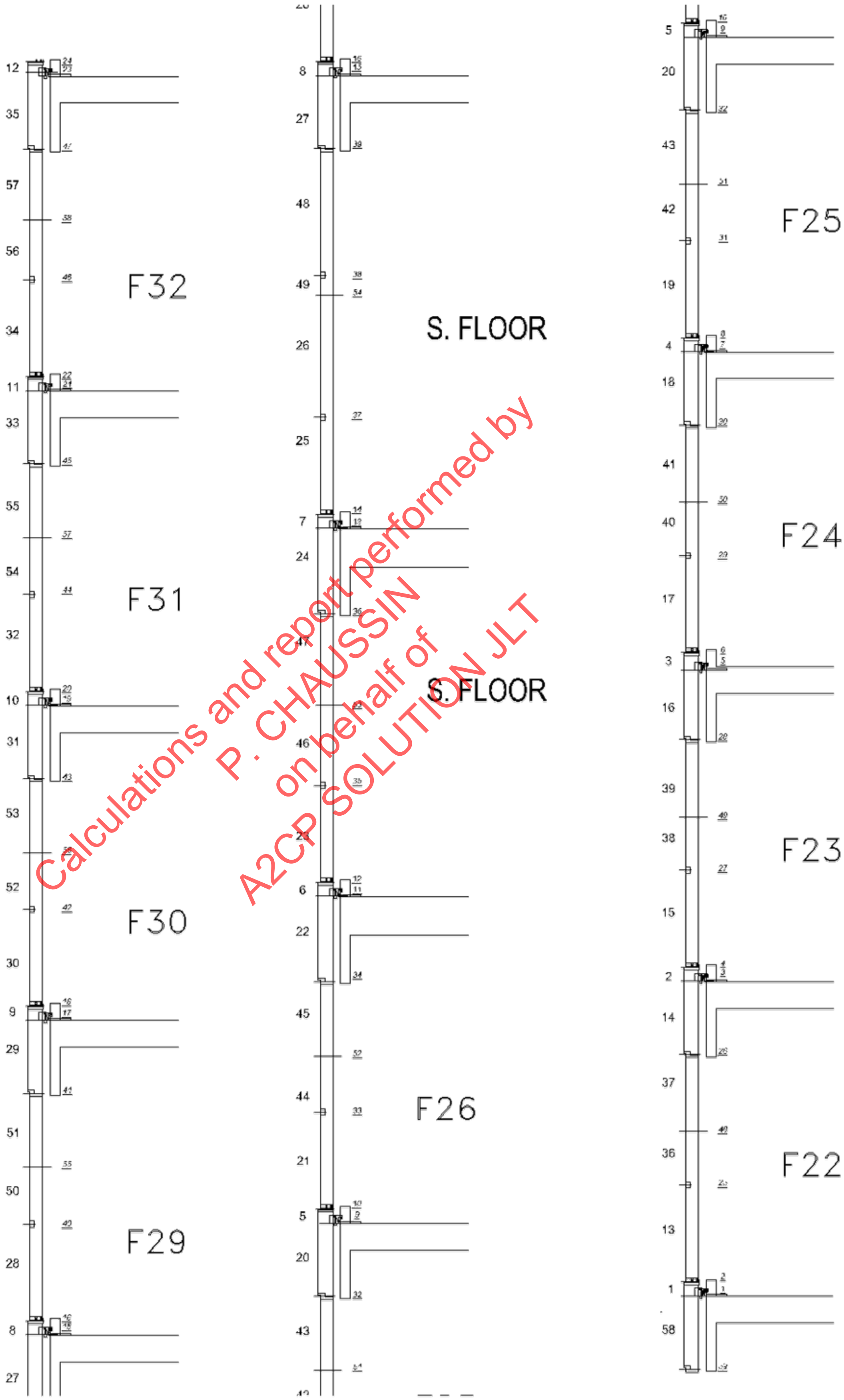


FACADE SOUTH-EAST

APPENDIX B

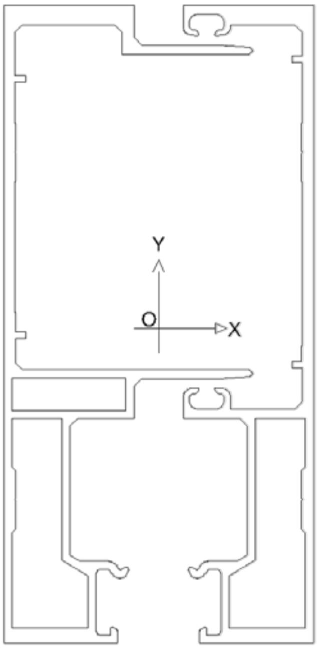

UNITIZED
CURTAIN WALL
UNITIZED CURTAIN WALL
UNITIZED CURTAIN WALL
UNITIZED
CURTAIN WALL
BEDROOM
LIVING ROOM
KITCHEN
BALCONY
STUDIO
CORRIDOR
W.M.C.
TEL. R.
ELE. R.
Calculations and report performed by
P. CHAUSSIN
on behalf of
A2CP SOLUTION JLT

APPENDIX C



APPENDIX D

MULLION 1201



-------------- SOLIDES --------------

Masse: 1335.3018
Volume: 1335.3018
Zone de contour: X: -31.4965 -- 31.5034
Y: -64.0970 -- 65.9041

Centre de gravité: X: 0.0000
Y: 0.0000

Moments d'inertie: X: 2633850.0545
Y: 752472.0419

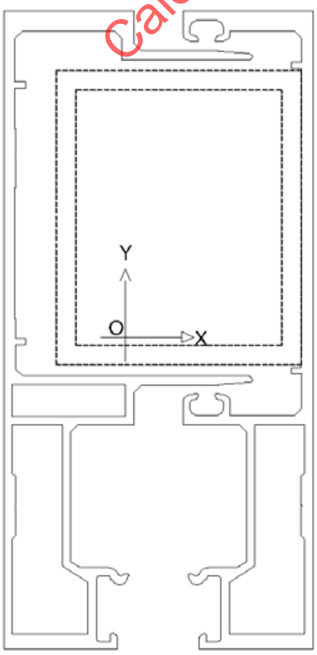
Produits d'inertie: XY: 6001.9324

Rayon de giration: X: 44.4126
Y: 23.7386

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 2633535.3761 le long de [1.0000 -0.0032 0.0000]
J: 752119.0694 le long de [0.0032 1.0000 0.0000]
K: 3385431.8953 le long de [0.0000 0.0000 1.0000]

MULLION 1201 AR



---------------- SOLIDES ---------------

Masse: 2151.2734
Volume: 2151.2734
Zone de contour: X: -33.0536 -- 29.9463
Y: -73.1056 -- 56.8955

Centre de gravité: X: 0.0000
Y: 0.0000

Moments d'inertie: X: 3327686.4165
Y: 1065214.1885

Produits d'inertie: XY: 55376.2886

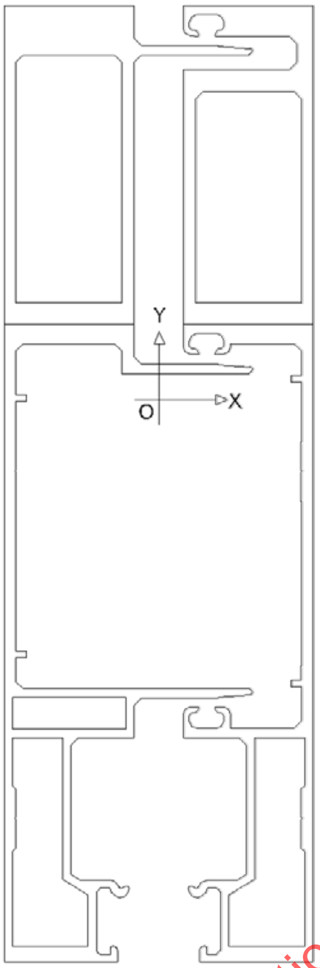
Rayon de giration: X: 39.3300
1

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 3328503.1776 le long de [0.9997 -0.0245 0.0000]
J: 1063321.7906 le long de [0.0245 0.9997 0.0000]
K: 4391466.4227 le long de [0.0000 0.0000 1.0000]

APPENDIX D

MULLION 1201AP



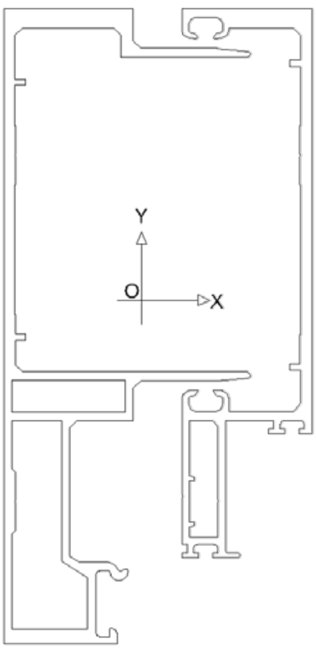
---------------- SOLIDES ----------------

Masse:	2620.6366
Volume:	2620.6366
Zone de contour:	X: -31.6734 -- 31.3267 Y: -114.6273 -- 80.3738
Centre de gravité:	X: 0.0000 Y: 0.0000
Moments d'inertie:	X: 10270317.5086 Y: 1293606.4570
Produits d'inertie:	XY: 24686.0669
Rayon de giration:	X: 62.6020 Y: 22.2176

Moments principaux et directions X-Y-Z autour du centre de gravité:
:

I: 10269730.2359 le long de [1.0000 -0.0027 0.0000]
J: 1292883.4114 le long de [0.0027 1.0000 0.0000]
K: 11562176.8745 le long de [0.0000 0.0000 1.0000]

MULLION 1202



---------------- SOLIDES ----------------

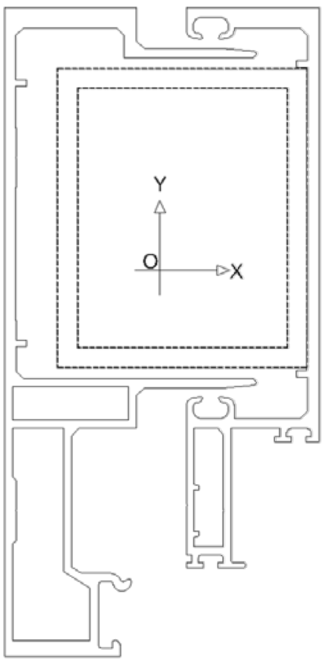
Masse:	1208.9539
Volume:	1208.9539
Zone de contour:	X: -28.1778 -- 34.8221 Y: -70.3525 -- 59.6486
Centre de gravité:	X: 0.0000 Y: 0.0000
Moments d'inertie:	X: 2143050.7088 Y: 627614.5136
Produits d'inertie:	XY: 233928.2124
Rayon de giration:	X: 42.1028 Y: 22.7846

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 2178036.7560 le long de [0.9888 -0.1492 0.0000]
J: 592023.9894 le long de [0.1492 0.9888 0.0000]
K: 2769859.2531 le long de [0.0000 0.0000 1.0000]

APPENDIX D

MULLION 1202 AR

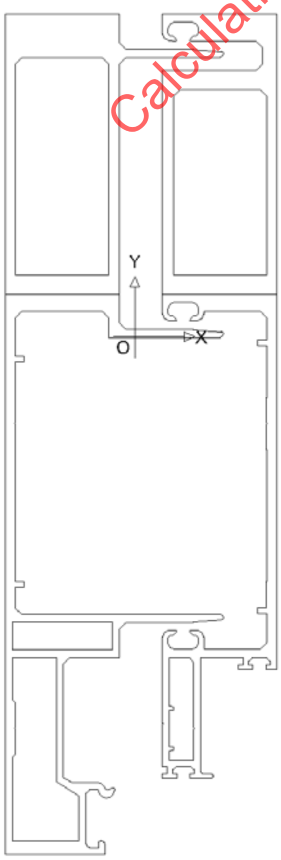


--------------- SOLIDES ---------------

Masse:	2024.9131
Volume:	2024.9131
Zone de contour:	X: -31.1692 -- 31.8307 Y: -77.4025 -- 52.5986
Centre de gravité:	X: 0.0000 Y: 0.0000
Moments d'inertie:	X: 2700298.2449 Y: 958660.1682
Produits d'inertie:	XY: 297200.8534
Rayon de giration:	X: 36.5176 Y: 21.7585

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 2749111.0901 le long de [0.9865 -0.1637 0.0000]
J: 908834.8665 le long de [0.1637 0.9865 0.0000]
K: 3657608.4711 le long de [0.0000 0.0000 1.0000]



MULLION 1202AP

--------------- SOLIDES ---------------

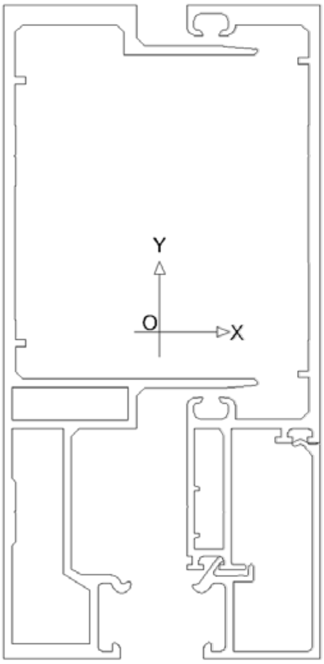
Masse:	2494.2885
Volume:	2494.2885
Zone de contour:	X: -30.0738 -- 32.9263 Y: -120.2189 -- 74.7822
Centre de gravité:	X: 0.0000 Y: 0.0000
Moments d'inertie:	X: 8661956.4160 Y: 1177096.9266
Produits d'inertie:	XY: 450095.7193
Rayon de giration:	X: 58.9298 Y: 21.7236

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 8688301.7979 le long de [0.9982 -0.0598 0.0000]
J: 1149504.4003 le long de [0.0598 0.9982 0.0000]
K: 9837390.4835 le long de [0.0000 0.0000 1.0000]

APPENDIX D

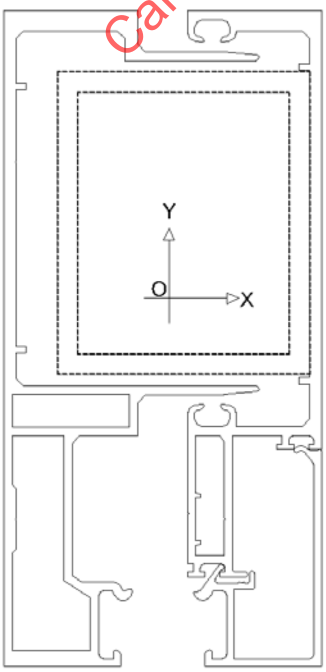
MULLION 1202F



--------------- SOLIDES ---------------

Masse:	1362.0474
Volume:	1362.0474
Zone de contour:	X: -31.0368 -- 31.9631
	Y: -64.9970 -- 65.0040
Centre de gravité:	X: 0.0000
	Y: -0.8975
Moments d'inertie:	X: 2589720.6858
	Y: 727375.6608
Produits d'inertie:	XY: 48812.0276
Rayon de giration:	X: 43.6044
	Y: 23.1091

MULLION 1202FRA



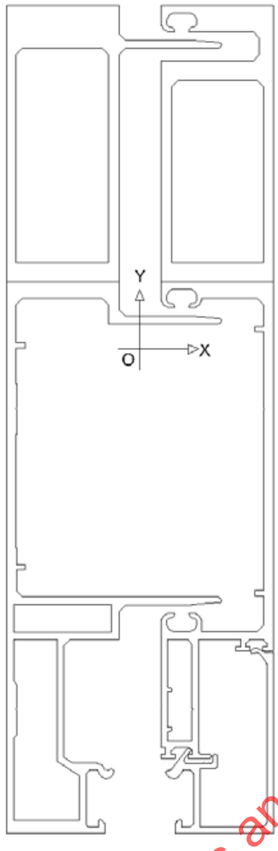
--------------- SOLIDES ---------------

Masse:	2178.0065
Volume:	2178.0065
Zone de contour:	X: -32.7468 -- 30.2531
	Y: -72.9966 -- 57.0045
Centre de gravité:	X: 0.0000
	Y: 0.0000
Moments d'inertie:	X: 3284541.0606
	Y: 1042205.7271
Produits d'inertie:	XY: 104126.6336
Rayon de giration:	X: 38.8336
	Y: 21.8750

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 3288821.4734 le long de [0.9989 -0.0463 0.0000]
J: 1036836.3110 le long de [0.0463 0.9989 0.0000]
K: 4325294.7834 le long de [0.0000 0.0000 1.0000]

APPENDIX D



MULLION 1202FAP

---------------- SOLIDES ----------------

Masse:	2647.3823
Volume:	2647.3823
Zone de contour:	X: -31.4351 -- 31.5650 Y: -114.1182 -- 80.8829
Centre de gravité:	X: 0.0000 Y: 0.0000
Moments d'inertie:	X: 10292342.5944 Y: 1268870.0101
Produits d'inertie:	XY: 99050.9215
Rayon de giration:	X: 62.3518 Y: 21.8927

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 10292767.9027 le long de [0.9999 -0.0110 0.0000]
J: 1267121.0106 le long de [0.0110 0.9999 0.0000]
K: 11559447.6829 le long de [0.0000 0.0000 1.0000]

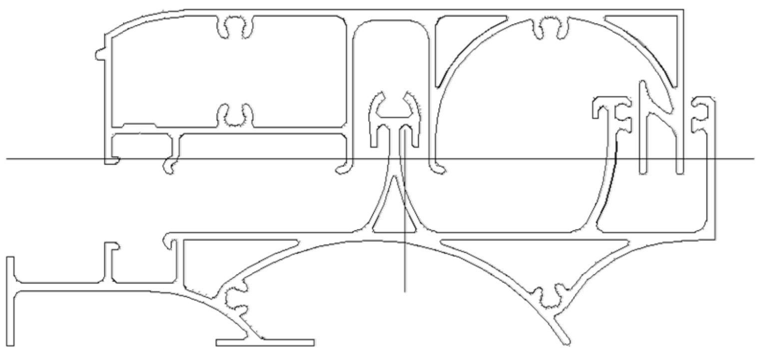
EY13011401

---------------- SOLIDES ---------------

Masse:	1638.8726
Volume:	1638.8726
Zone de contour:	X: -89.4161 -- 69.5811 Y: -41.9691 -- 33.5223
Centre de gravité:	X: 0.0000 Y: 0.0000
Moments d'inertie:	X: 833172.6571
Produits d'inertie:	XY: 337871.7517 YZ: 0.0292
Rayon de giration:	X: 22.5473 Y: 43.6971

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 784078.3871 le long de [0.9898 0.1426 0.0000]
J: 3177599.5713 le long de [-0.1426 0.9898 0.0000]
K: 3961404.8130 le long de [0.0000 0.0000 1.0000]



APPENDIX D

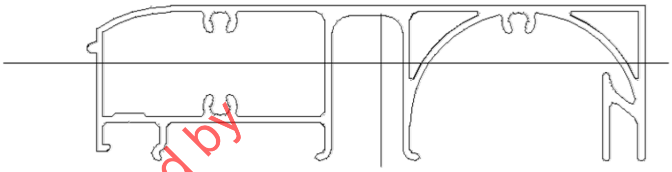
---------------- SOLIDES ---------------

Masse:	751.1843
Volume:	751.1843
Zone de contour:	X: -69.6806 -- 62.5163
	Y: -23.1576 -- 13.8356
Centre de gravité:	X: 0.0000
	Y: 0.0000
Moments d'inertie:	X: 107404.8805
	Y: 1322065.9367
Produits d'inertie:	XY: 47156.8453
Rayon de giration:	X: 11.9575
	Y: 41.9521

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 105389.0630 le long de [0.9992 0.0387 0.0000]
J: 1323706.1620 le long de [-0.0387 0.9992 0.0000]
K: 1428970.0277 le long de [0.0000 0.0000 1.0000]

FRAME 1301



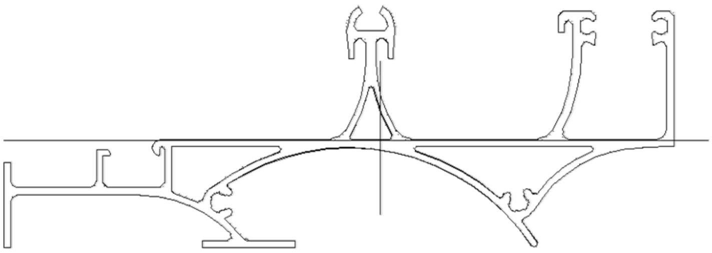
---------------- SOLIDES ---------------

Masse:	887.6839
Volume:	887.6839
Zone de contour:	X: -89.3580 -- 69.6392
	Y: -25.3097 -- 31.8127
Centre de gravité:	X: 0.0000
	Y: 0.0000
Moments d'inertie:	X: 188269.7982
	Y: 1807251.3540
Produits d'inertie:	XY: 288839.3167
Rayon de giration:	X: 14.5633
	Y: 45.1211

Moments principaux et directions X-Y-Z autour du centre de gravité:

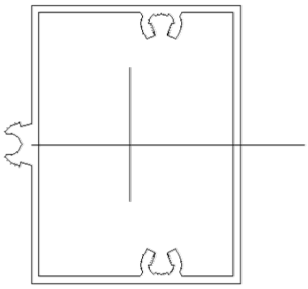
I: 138060.0513 le long de [0.9854 0.1705 0.0000]
J: 1857017.2590 le long de [-0.1705 0.9854 0.0000]
K: 1994929.3630 le long de [0.0000 0.0000 1.0000]

FRAME 1401



APPENDIX D

TRANSOM 1501



---------------- SOLIDES ---------------

Masse: 450.4876
Volume: 450.4876
Zone de contour: X: -28.3867 -- 24.9954
Y: -31.3670 -- 31.6326

Centre de gravité: X: 0.0000
Y: 0.0000

Moments d'inertie: X: 247241.3228
Y: 161092.5309

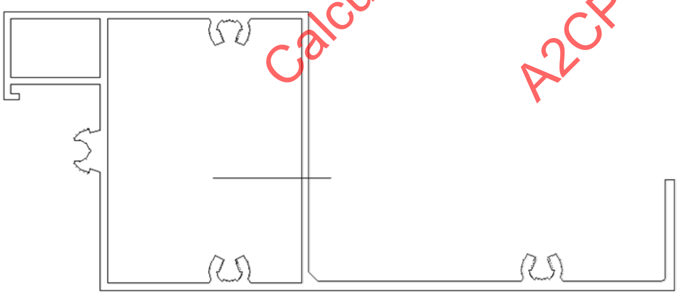
Produits d'inertie: XY: -781.8784

Rayon de giration: X: 23.4271
Y: 18.9102

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 247135.7966 le long de [1.0000 0.0091 0.0000]
J: 160972.8134 le long de [-0.0091 1.0000 0.0000]
K: 408033.5287 le long de [0.0000 0.0000 1.0000]

TRANSOM 1502



---------------- SOLIDES ---------------

Masse: 796.9593
Volume: 796.9593
Zone de contour: X: -63.3012 -- 88.6999
Y: -25.4362 -- 37.5634

Centre de gravité: X: 0.0000
Y: 0.0000

Moments d'inertie: X: 471860.1289
Y: 1565870.9733

Produits d'inertie: XY: -486569.3020

Rayon de giration: X: 24.3326
Y: 44.3261

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 286570.2673 le long de [0.9347 -0.3555 0.0000]
J: 1750762.3552 le long de [0.3555 0.9347 0.0000]
K: 2037199.7960 le long de [0.0000 0.0000 1.0000]

APPENDIX D

TRANSOM 1503

---------------- SOLIDES ---------------

Masse: 851.3526
Volume: 851.3526
Zone de contour: X: -62.4407 -- 89.5602
Y: -30.0794 -- 32.9203

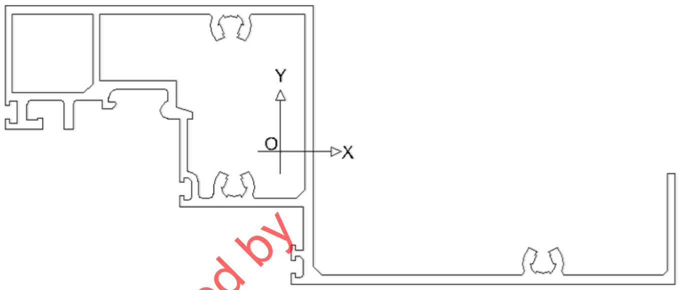
Centre de gravité: X: 0.0000
Y: 0.0000

Moments d'inertie: X: 437960.9526
Y: 1570770.6297

Produits d'inertie: XY: -599587.5214

Rayon de giration: X: 22.6810
Y: 42.9538

Moments principaux et directions X-Y-Z autour du centre de gravité:
:
I: 179338.0422 le long de [0.9183 -0.3958 0.0000]
J: 1828967.8637 le long de [0.3958 0.9183 0.0000]
K: 2008164.0139 le long de [0.0000 0.0000 1.0000]



TRANSOM 1505

---------------- SOLIDES ---------------

Masse: 470.1273
Volume: 470.1273
Zone de contour: X: -29.4844 -- 19.5160
Y: -25.9075 -- 37.0921

Centre de gravité: X: 0.0000
Y: 0.0000

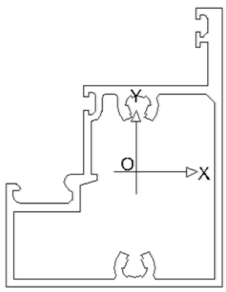
Moments d'inertie: X: 179587.0854
Y: 123888.4737

Produits d'inertie: XY: 63013.9273

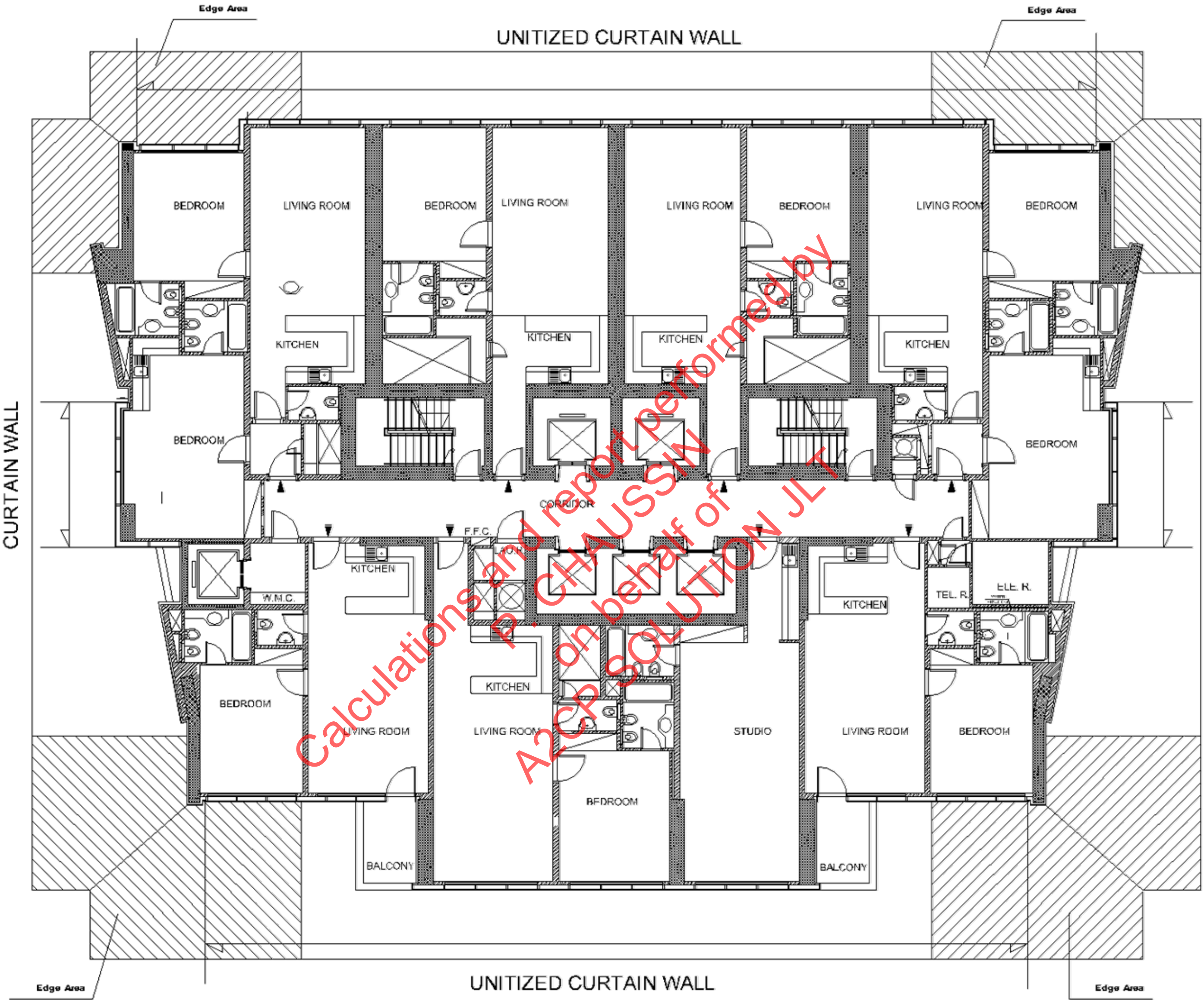
Rayon de giration: X: 19.5447
Y: 16.2333

Moments principaux et directions X-Y-Z autour du centre de gravité:

I: 220513.9257 le long de [0.8379 -0.5458 0.0000]
J: 82726.5698 le long de [0.5458 0.8379 0.0000]
K: 303162.1409 le long de [0.0000 0.0000 1.0000]



APPENDIX E


Edge Area
Edge Area
UNITIZED CURTAIN WALL
UNITIZED CURTAIN WALL
UNITIZED CURTAIN WALL
UNITIZED CURTAIN WALL
BEDROOM
LIVING ROOM
KITCHEN
CORRIDOR
STUDIO
BALCONY
W.M.C.
F.F.C.
TEL. R.
ELE. R.
Edge Area
Edge Area