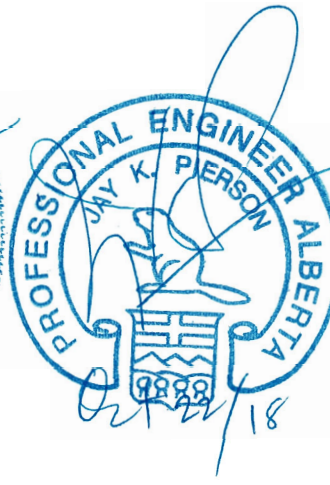


lang  
structural  
engineering  
inc.

October 22, 2018

To Whom It May Concern

Re: VISTA Railing Systems Inc.  
Vista Aluminum Glass and Glass Wind Wall Railing Systems



Dear Madam/Sir:

Lang Structural Engineering Inc. has reviewed the load testing program for the Vista Aluminum Glass and Glass Wind Wall Railing Systems provided by VISTA Railing Systems Inc. Results of the test program identified in this report show that the Vista Aluminum Glass and Glass Wind Wall Railing Systems complied with the following requirements for guards within dwelling units and in exterior guards serving not more than 2 dwelling units, as specified in the following building codes:

- 2015 National Building Code of Canada (NBC)
  - Section 9.8.8.2, Loads On Guards
  - Section 9.8.8.3, Height of Guards
  - Section 9.8.8.5, Openings in Guards
  - Section 9.8.8.6, Design of Guards Not to Facilitate Climbing
- 2012 Ontario Building Code (OBC)
  - Section 9.8.8.2, Loads On Guards
  - Section 9.8.8.3, Height of Guards
  - Section 9.8.8.5, Openings in Guards
  - Section 9.8.8.6, Design of Guards Not to Facilitate Climbing



Identical requirements are specified in the 2012 British Columbia Building Code (BCBC) and these same requirements are applicable for the provinces of Alberta, Saskatchewan, and Manitoba.

Furthermore, all fastener connections represented on the VISTA Railing Systems Vista Aluminum Glass and Glass Wind Wall Railing Systems sealed drawings included in this report, dated October 2, 2018, are in compliance with the aforementioned building codes load requirements. For additional details for acceptable guardrail mounting configurations, layouts, and the effects of wind loading and guardrail height variations on allowable post spacing, refer to the 8th edition of the Vista Aluminum Design Guide.

The seals applied are current for the details and tables assembled for the codes indicated above.

Annual resealing of these documents is not necessary.

Additionally, the tempered glass specified and used as part of the Vista Aluminum Glass and Vista Aluminum Glass Wind Wall Railing Systems in residential home applications has been determined to be in conformance with Ontario MMAH Supplementary Standard SB-13, Glass In Guards, September 14, 2012.

Regards,

Jay K. Pierson, P.Eng.  
Lang Structural Engineering Inc





## LOADS ON GUARDS TEST REPORT

Test	Loads On Guards NBC 2015 / OBC 2012 Section 9.8.8.2
Date	July 31, 2018
Product	Vista Aluminum 5 ft Glass Railing System Sample #1
Post Spacing (o/c)	1575mm (62")
Height of Guard	1070mm (42")
Opening in Guard	76mm (3") openings @ posts
Method	NBC 2015 / OBC 2012 Section 9.8.8.2 Loads On Guards
Safety Factor	1.67 (based on a resistance factor $\phi = 0.9$ )
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 1372mm (54") x 914mm (36") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail. Posts to sub-structure fastener evaluation is beyond the scope of this report.

Test	Design Load (Inward/Outward) (lbf)	Factored Load (lbf)	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Pass/Fail
Individual Elements (12inx12in)	112	187			187	<b>Pass</b>
Vertical Uniform Load (per ft)	103	171	572	443	885	<b>Pass</b>
Horizontal Uniform Load(per ft)	34	57	191	148	295	<b>Pass</b>
Midspan Horizontal Concentrated Load	225	375			375	<b>Pass</b>
Rail Adjacent to Connection Concentrated Load	225	375			375	<b>Pass</b>
Top Of Post Concentrated Load	225	375			375	<b>Pass *</b>

\*Top of Post ultimate load: 2.06 kN (462 lbs)  
Out of Stroke

Test	Design Load (Inward/Outward) (kN)	Factored Load (kN)	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Pass/Fail
Individual Elements (300mm x300mm)	0.5	0.83			0.83	<b>Pass</b>
Vertical Uniform Load (per m)	1.5	2.50	0.78	1.97	3.94	<b>Pass</b>
Horizontal Uniform Load (per m)	0.5	0.83	0.26	0.66	1.31	<b>Pass</b>
Midspan Horizontal Concentrated Load	1.0	1.67			1.67	<b>Pass</b>
Rail Adjacent to Connection Concentrated Load	1.0	1.67			1.67	<b>Pass</b>
Top Of Post Concentrated Load	1.0	1.67			1.67	<b>Pass *</b>



## DIMENSIONAL CHECKS TEST REPORT

Test	Dimensional Checks
Date	July 31, 2018
Company	Vista Railing Systems Inc.
Product	Vista Aluminum 5 ft Glass Railing System Sample #1
Opening in Guard	76mm (3") openings @ posts
Post Spacing	1575mm (62")
Height of Guard	1070mm (42")
Method	NBC 2015 / OBC 2012
	9.8.8.3 Height Of Guards
	9.8.8.5 Openings In Guards
	9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 1372mm (54") x 914mm (36") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail.

Description	Measured Dimension (mm)	Requirement (mm)	Pass / Fail	
9.8.8.3 Height of Guards	1070	1070	Pass	
9.8.8.5 Openings in Guards	@ Posts	76	<100	Pass
	Under Bottom Rail	61	<100	Pass

Description	Result	Requirement	Pass / Fail
9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	Pass



## LOADS ON GUARDS TEST REPORT

Test	Loads On Guards NBC 2015 / OBC 2012 Section 9.8.8.2
Date	August 1, 2018
Product	Vista Aluminum 5 ft Glass Railing System Sample #2
Post Spacing (o/c)	1575mm (62")
Height of Guard	1070mm (42")
Opening in Guard	76mm (3") openings @ posts
Method	NBC 2015 / OBC 2012 Section 9.8.8.2 Loads On Guards
Safety Factor	1.67 (based on a resistance factor $\phi = 0.9$ )
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 1372mm (54") x 914mm (36") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail. Posts to sub-structure fastener evaluation is beyond the scope of this report.

Test	Design Load (Inward/Outward) (lbf)	Factored Load (lbf)	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Pass/Fail
Individual Elements (12inx12in)	112	187			187	<b>Pass</b>
Vertical Uniform Load (per ft)	103	171	572	443	885	<b>Pass</b>
Horizontal Uniform Load(per ft)	34	57	191	148	295	<b>Pass</b>
Midspan Horizontal Concentrated Load	225	375			375	<b>Pass</b>
Rail Adjacent to Connection Concentrated Load	225	375			375	<b>Pass</b>
Top Of Post Concentrated Load	225	375			375	<b>Pass *</b>

\*Top of Post ultimate load: 2.23 kN (502 lbs)  
Out of Stroke

Test	Design Load (Inward/Outward) (kN)	Factored Load (kN)	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Pass/Fail
Individual Elements (300mm x300mm)	0.5	0.83			0.83	<b>Pass</b>
Vertical Uniform Load (per m)	1.5	2.50	0.78	1.97	3.94	<b>Pass</b>
Horizontal Uniform Load (per m)	0.5	0.83	0.26	0.66	1.31	<b>Pass</b>
Midspan Horizontal Concentrated Load	1.0	1.67			1.67	<b>Pass</b>
Rail Adjacent to Connection Concentrated Load	1.0	1.67			1.67	<b>Pass</b>
Top Of Post Concentrated Load	1.0	1.67			1.67	<b>Pass *</b>



## DIMENSIONAL CHECKS TEST REPORT

Test	Dimensional Checks
Date	August 1, 2018
Company	Vista Railing Systems Inc.
Product	Vista Aluminum 5 ft Glass Railing System Sample #2
Post Spacing	1575mm (62")
Height of Guard	1070mm (42")
Opening in Guard	76mm (3") openings @ posts
Method	NBC 2015 / OBC 2012
	9.8.8.3 Height Of Guards
	9.8.8.5 Openings In Guards
	9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 1372mm (54") x 914mm (36") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail.

Description	Measured Dimension (mm)	Requirement (mm)	Pass / Fail	
9.8.8.3 Height of Guards	1070	1070	Pass	
9.8.8.5 Openings in Guards	@ Posts	76	<100	Pass
	Under Bottom Rail	61	<100	Pass

Description	Result	Requirement	Pass / Fail
9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	Pass





Test: Individual Elements



Test: Vertical Uniform Load



Test: Top Of Post Concentrated Load



SCALE  
 Drawn: 1:1  
 Displayed: 1:16

DIMENSION UNITS  
**Millimeters**

# GLASS RAILING TEST ASSEMBLY

PRODUCT FAMILY  
**Vista**

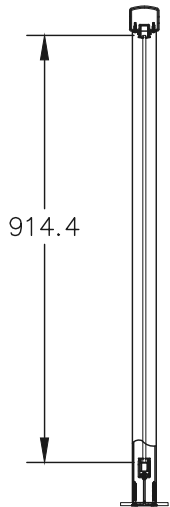
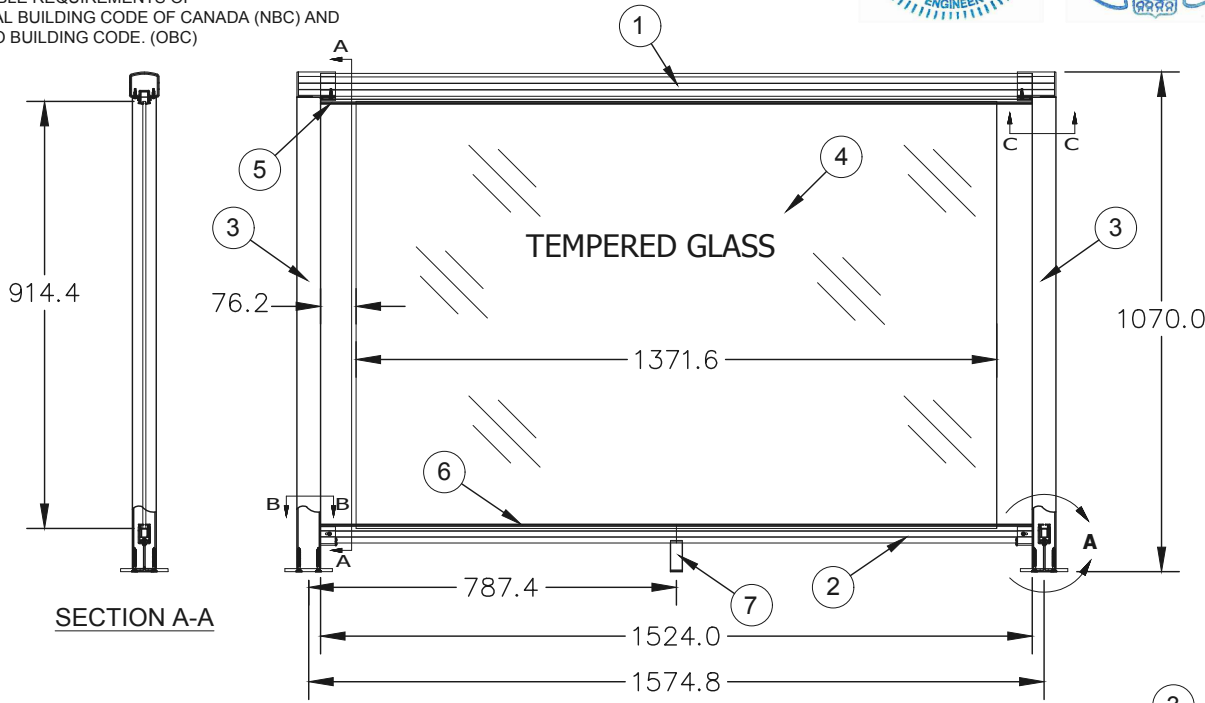
DRAWING #  
**Test Assembly**

**NOTES:**

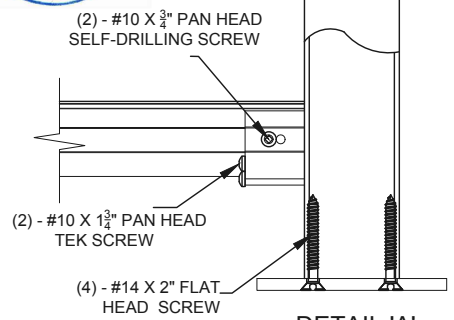
- (1) BUILDING GENERAL CONTRACTOR AND DESIGNER ARE RESPONSIBLE FOR PROVIDING ADEQUATE BACKING AND BACKING CONNECTION IN DECK AND STAIR STRUCTURE FOR CONNECTION OF THE ALUMINUM GUARDRAIL SYSTEM DETAILED IN THESE DRAWINGS.
- (2) WHEN MOUNTING TO ACQ TREATED WOOD, ENSURE THAT ACQ COMPATIBLE FASTENERS ARE USED.
- (3) REFER TO THE 8TH EDITION PROBUILT DESIGN MANUAL FOR ACCEPTABLE GUARDRAIL MOUNTING CONFIGURATIONS AND LAYOUTS.
- (4) THE ALUMINUM GUARDRAIL CONFIGURATION REPRESENTED ON THIS DRAWING IS IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF 2015 NATIONAL BUILDING CODE OF CANADA (NBC) AND 2012 ONTARIO BUILDING CODE. (OBC)



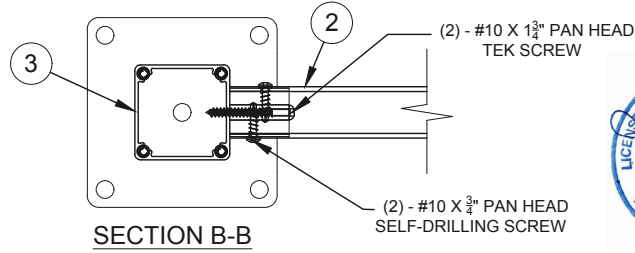
PARTS LIST	
ITEM	DESCRIPTION
1	TOP RAIL
2	BOTTOM RAIL
3	2" END POST ASSY C/W (2) - #10 X 3/4" SCREWS TO TOP & BOTTOM RAIL RESPECTIVELY
4	TEMPERED GLASS PANEL
5	TOP GLASS GASKET
6	BOTTOM GLASS GASKET
7	LEG SUPPORT



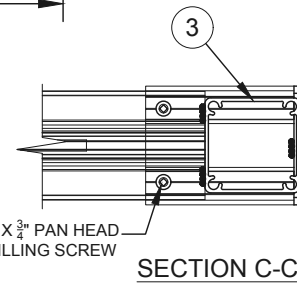
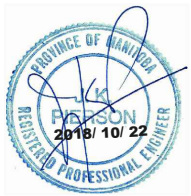
SECTION A-A



DETAIL 'A'  
 BOTTOM RAIL & END POST



SECTION B-B



SECTION C-C



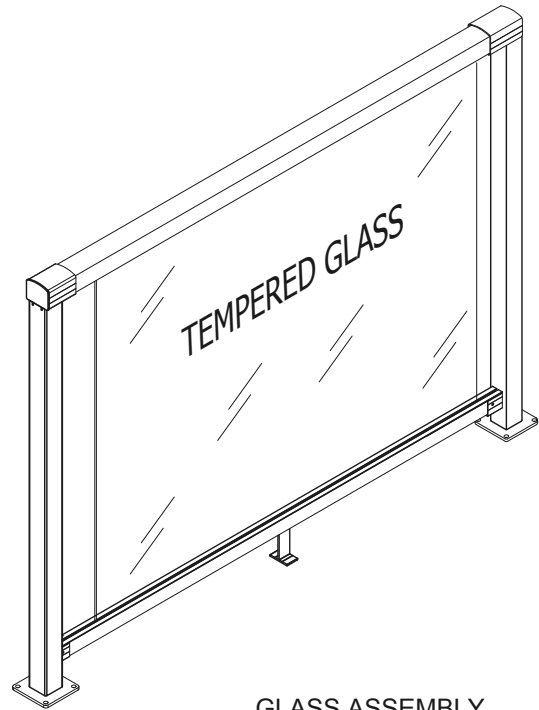
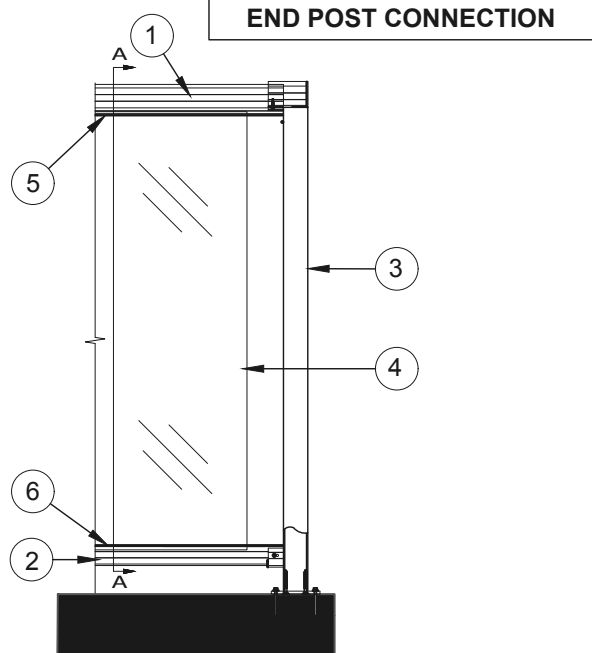
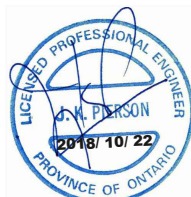
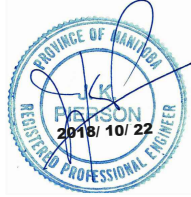
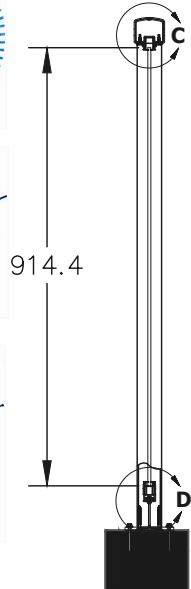
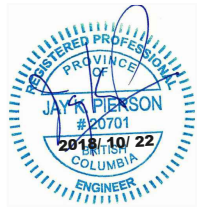
No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	
1	PB2104	Top Rail	1	1524.0		6	PB1465	Channel Glass Gasket	1	1524.0		11						
2	PB2102	Bottom Rail	1	1524.0		7	PB7408	Support Leg	1	25.4		12						
3	PB7468	42 in. End Post	2	1070.0		8						13						
4	PB1465	54" X36" X 1/4" Tempered Glass	1			9						14						
5	PB2108	Top Rail Glass Gasket	1	1524.0		10						15						

DWN BY:  
 DATE: August 8, 2018  
 PART NAME:  
**Vista Aluminum Glass Railing System**

Vista  
 Glass Rail  
 Cad File

The recipient of this information hereby acknowledges and agrees that information obtained herein is proprietary to Vista Railing Systems Inc. and shall not be used, disclosed and / or duplicated except in accordance with the expressed written authorization of VRS. EST. WEIGHT: Lbs. N/A Kg. N/A

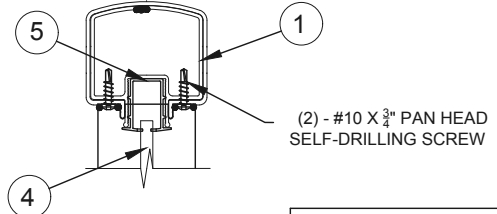
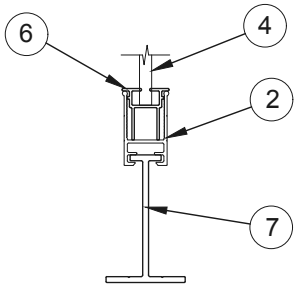
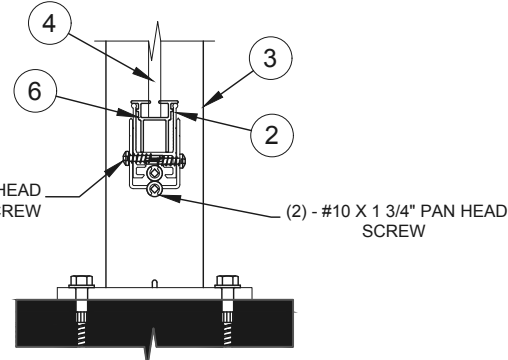




**SECTION A-A**

**POST END CONDITION**

**GLASS ASSEMBLY**



**DETAIL 'D'  
BOTTOM RAIL & END POST**

**LEG CONNECTION**

**DETAIL 'C'  
TOP RAIL & END POST**



No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	
1	PB2104	Top Rail	1	1524.0		6	PB1465	Channel Glass Gasket	1	1524.0		11						
2	PB2102	Bottom Rail	1	1524.0		7	PB7408	Support Leg	1	25.4		12						
3	PB7468	42 in. End Post	2	1070.0		8						13						
4	PB1465	54" X36" X 1/4" Tempered Glass	2	1070.0		9						14						
5	PB2108	Top Rail Glass Gasket	1	1524.0		10						15						

DWN BY: DATE: June 4, 2018 PART NAME:	<b>Vista Aluminum Glass Railing System</b>
---	--

Vista  
 Glass Rail  
 Cad File

SCALE  
 Drawn: 1:1  
 Displayed: 1:20

DIMENSION UNITS  
**Millimeters**

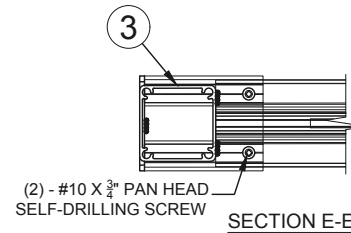
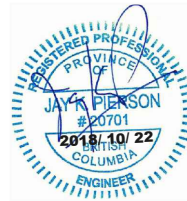
# ASSEMBLY DRAWING

PRODUCT FAMILY  
**Vista**

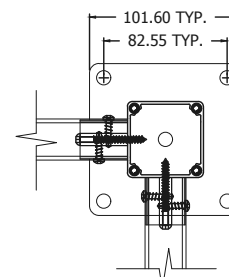
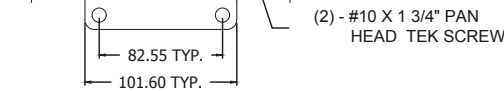
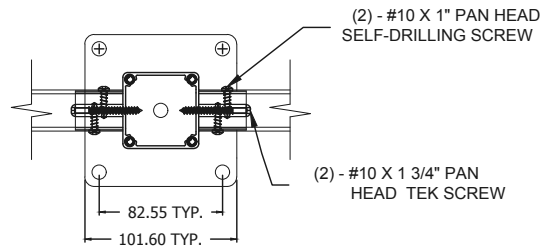
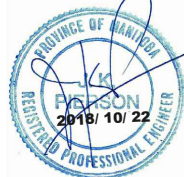
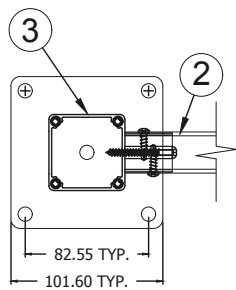
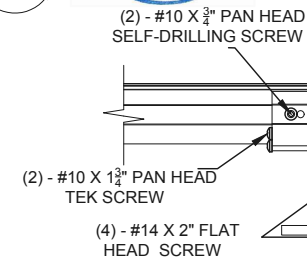
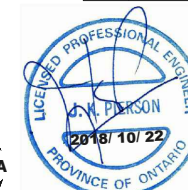
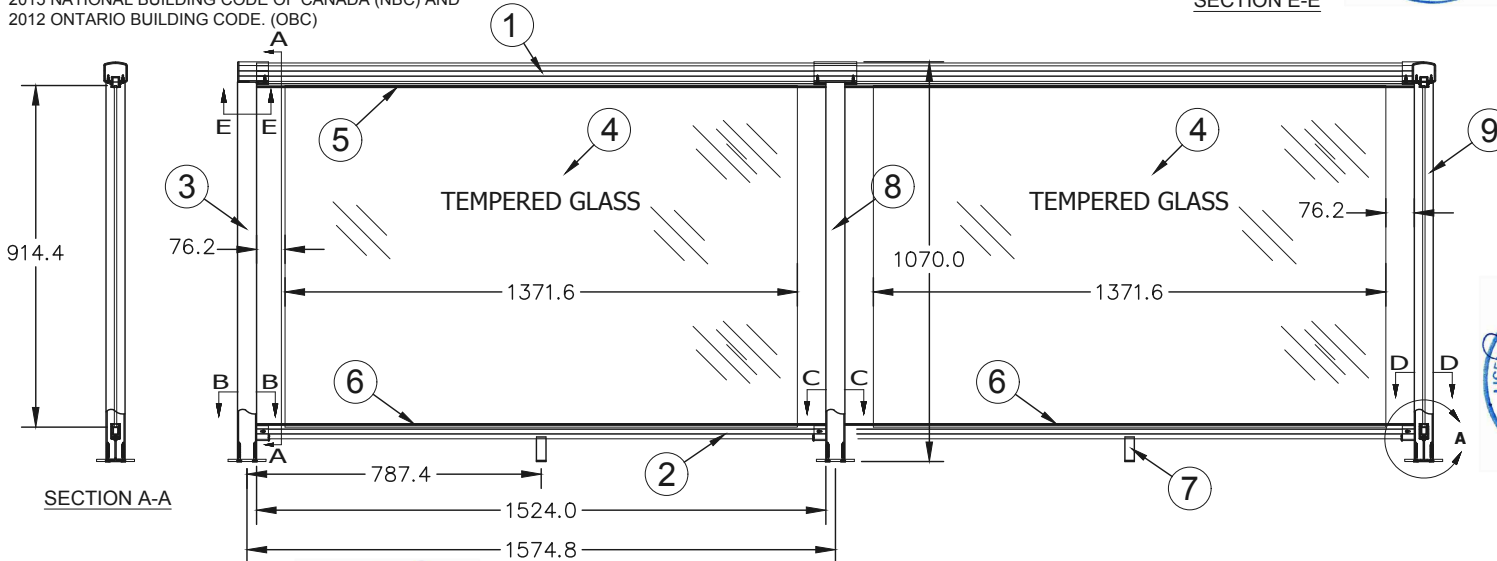
DRAWING #  
**ASSEMBLY**

**NOTES:**

- (1) BUILDING GENERAL CONTRACTOR AND DESIGNER ARE RESPONSIBLE FOR PROVIDING ADEQUATE BACKING AND BACKING CONNECTION IN DECK AND STAIR STRUCTURE FOR CONNECTION OF THE ALUMINUM GUARDRAIL SYSTEM DETAILED IN THESE DRAWINGS.
- (2) WHEN MOUNTING TO ACQ TREATED WOOD, ENSURE THAT ACQ COMPATIBLE FASTENERS ARE USED.
- (3) REFER TO THE 8TH EDITION PROBUILT DESIGN MANUAL FOR ACCEPTABLE GUARDRAIL MOUNTING CONFIGURATIONS AND LAYOUTS.
- (4) THE ALUMINUM GUARDRAIL CONFIGURATION REPRESENTED ON THIS DRAWING IS IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF 2015 NATIONAL BUILDING CODE OF CANADA (NBC) AND 2012 ONTARIO BUILDING CODE. (OBC)



PARTS LIST	
ITEM	DESCRIPTION
1	TOP RAIL
2	BOTTOM RAIL
3	2" END POST ASSY C/W (2) - #10 X 3/4" SCREWS TO TOP & BOTTOM RAIL RESPECTIVELY
4	TEMPERED GLASS PANEL
5	TOP GLASS GASKET
6	BOTTOM GLASS GASKET
7	LEG SUPPORT
8	2" MID POST ASSY C/W (2) - #10 X 3/4" SCREWS TO TOP & BOTTOM RAIL RESPECTIVELY
9	2" CORNER POST ASSY C/W (2) - #10 X 3/4" SCREWS TO TOP & BOTTOM RAIL RESPECTIVELY



**vista**

No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	
1	PB2104	Top Rail	1	1524.0		6	PB1465	Channel Glass Gasket	1	1524.0		11						
2	PB2102	Bottom Rail	1	1524.0		7	PB7408	Support Leg	1	25.4		12						
3	PB7468	42 in. End Post	1	1070.0		8	PB7470	42 in. Mid Post	1	1070.0		13						
4	PB1465	54" X 36" X 1/4" Tempered Glass	2			9	PB7469	42 in. Corner Post	1	1070.0		14						
5	PB2108	Top Rail Glass Gasket	1	1524.0		10						15						

DWN BY:  
 DATE: August 8, 2018  
 PART NAME:  
**Vista Aluminum Glass Railing System**

Cad File  
**Vista  
 Glass Rail**

The recipient of this information hereby acknowledges and agrees that information obtained herein is proprietary to Vista Railing Systems Inc. and shall not be used disclosed and / or duplicated except in accordance with the expressed written authorization of VRS. EST. WEIGHT. Lbs. N/A Kg. N/A



## LOADS ON GUARDS TEST REPORT

Test	Loads On Guards NBC 2015 / OBC 2012 Section 9.8.8.2
Date	July 16, 2018
Product	Vista Aluminum Glass Wind Wall Railing System Sample #1
Post Spacing (o/c)	972mm (38.25")
Height of Guard	1524mm (60")
Opening in Guard	6.35mm (0.25") openings @ posts
Method	NBC 2015 / OBC 2012 Loads On Guards Section 9.8.8.2 Loads On Guards
Safety Factor	1.67 (based on a resistance factor $\phi = 0.9$ )
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Wind Wall System was assembled as follows : top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 914mm (36") x 1372mm (54") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail. Glass support brackets mechanically fastened to post using (2) #10 x 3/4" pan head self drilling screws. Posts to sub-structure fastener evaluation is beyond the scope of this report.

Test	Design Load (Inward/Outward) (lbf)	Factored Load (lbf)	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Pass/Fail
Individual Elements (4inx4in)	112	187			187	<b>Pass 187</b>
Vertical Uniform Load (per ft)	103	171	218	273	546	<b>Pass 546</b>
Horizontal Uniform Load(per ft)	34	57	73	91	127**	<b>Pass 127**</b>
Midspan Horizontal Concentrated Load	225	375			263**	<b>Pass 263**</b>
Rail Adjacent to Connection Concentrated Load	225	375			263**	<b>Pass 263**</b>
Top Of Post Concentrated Load	225	375			263**	<b>Pass 339 * **</b>

\*\*The required proof load was multiplied by 42/60 for horizontal loads that were applied at 1524mm (60") in height above deck level.

\*Top of Post ultimate load: 1.51 kN (339 lbs) Out of Stroke

Test	Design Load (Inward/Outward) (kN)	Factored Load (kN)	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Pass/Fail
Individual Elements (100mm x100mm)	0.5	0.83			0.83	<b>Pass 0.83</b>
Vertical Uniform Load (per m)	1.5	2.50	0.29	1.21	2.43	<b>Pass 2.43</b>
Horizontal Uniform Load (per m)	0.5	0.83	0.10	0.40	0.57**	<b>Pass 0.57**</b>
Midspan Horizontal Concentrated Load	1.0	1.67			1.17**	<b>Pass 1.17**</b>
Rail Adjacent to Connection Concentrated Load	1.0	1.67			1.17**	<b>Pass 1.17**</b>
Top Of Post Concentrated Load	1.0	1.67			1.17**	<b>Pass 1.51* **</b>



## DIMENSIONAL CHECKS TEST REPORT

Test	Dimensional Checks
Date	July 16, 2018
Company	Vista Railing Systems Inc.
Product	Vista Aluminum Glass Wind Wall Railing System. Assembly #1
Post Spacing (o/c)	972mm (38.25")
Height of Guard	1524mm (60")
Opening in Guard	25mm (1") openings @ posts
Method	NBC 2015 / OBC 2012
	9.8.8.3 Height Of Guards
	9.8.8.5 Openings In Guards
	9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 914mm (36") x 1372mm (54") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail. Glass support brackets mechanically fastened to post using (2) #10 x 3/4" pan head self drilling screws.

Description	Measured Dimension (mm)	Requirement (mm)	Pass / Fail	
9.8.8.3 Height of Guards	1524	1070	Pass	
9.8.8.5 Openings in Guards	@ Posts	25	<100	Pass
	Under Bottom Rail	61	<100	Pass

Description	Result	Requirement	Pass / Fail
9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	Pass





## LOADS ON GUARDS TEST REPORT

Test	Loads On Guards NBC 2015 / OBC 2012 Section 9.8.8.2
Date	July 17, 2018
Product	Vista Aluminum Glass Wind Wall Railing System Sample #2
Post Spacing (o/c)	972mm (38.25")
Height of Guard	1524mm (60")
Opening in Guard	6.35mm (0.25") openings @ posts
Method	NBC 2015 / OBC 2012 Section 9.8.8.2 Loads On Guards
Safety Factor	1.67 (based on a resistance factor $\phi = 0.9$ )
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Wind Wall Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self-drilling screws. 914mm (36") x 1372mm (54") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail. Glass support brackets mechanically fastened to post using (2) #10 x 3/4" pan head self drilling screws. Posts to sub-structure fastener evaluation is beyond the scope of this report.

Test	Design Load (Inward/Outward) (lbf)	Factored Load (lbf)	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Pass/Fail
Individual Elements (4inx4in)	112	187			187	<b>Pass 187</b>
Vertical Uniform Load (per ft)	103	171	218	273	546	<b>Pass 546</b>
Horizontal Uniform Load(per ft)	34	57	73	91	127**	<b>Pass 127**</b>
Midspan Horizontal Concentrated Load	225	375			263**	<b>Pass 263**</b>
Rail Adjacent to Connection Concentrated Load	225	375			263**	<b>Pass 263**</b>
Top Of Post Concentrated Load	225	375			263**	<b>Pass 378* **</b>

\*\*The required proof load was multiplied by 42/60 for horizontal loads that were applied at 1524mm (60") in height above deck level.

\*Top of Post ultimate load: 1.68 kN (378 lbs) Out of Stroke

Test	Design Load (Inward/Outward) (kN)	Factored Load (kN)	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Pass/Fail
Individual Elements (100mm x100mm)	0.5	0.83			0.83	<b>Pass 0.83</b>
Vertical Uniform Load (per m)	1.5	2.50	0.29	1.21	2.43	<b>Pass 2.43</b>
Horizontal Uniform Load (per m)	0.5	0.83	0.10	0.40	0.57**	<b>Pass 0.57 **</b>
Midspan Horizontal Concentrated Load	1.0	1.67			1.17**	<b>Pass 1.17**</b>
Rail Adjacent to Connection Concentrated Load	1.0	1.67			1.17**	<b>Pass 1.17**</b>
Top Of Post Concentrated Load	1.0	1.67			1.17**	<b>Pass 1.68* **</b>



## DIMENSIONAL CHECKS TEST REPORT

Test	Dimensional Checks
Date	July 17, 2018
Company	Vista Railing Systems Inc.
Product	Vista Aluminum Glass Wind Wall Railing System. Assembly #2
Post Spacing	972mm (38.25")
Height of Guard	1524mm (60")
Opening in Guard	25mm (1") openings @ posts
Method	NBC 2015 / OBC 2012
	9.8.8.3 Height Of Guards
	9.8.8.5 Openings In Guards
	9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing
Equipment	Revere 3000lb load cell Serial # M 850441 Rice Lake 3000lb scale Serial # 1393800055
Sample & Assembly Description	Vista Aluminum Glass Railing System was assembled as follows: top and bottom rails were mechanically fastened to posts using (2) #10 x 3/4" pan head self- drilling screws. 1372mm (54") x 914mm (36") x 6.35mm (1/4") tempered glass infill panel assembled into top and bottom rail. Glass support brackets mechanically fastened to post using (2) #10 x 3/4" pan head self drilling screws.

Description	Measured Dimension (mm)	Requirement (mm)	Pass / Fail	
9.8.8.3 Height of Guards	1524	1070	Pass	
9.8.8.5 Openings in Guards	@ Posts	25	<100	Pass
	Under Bottom Rail	61	<100	Pass

Description	Result	Requirement	Pass / Fail
9.8.8.6 Design of Guards to Not Facilitate Climbing/ Guards Designed Not to Facilitate Climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	No elements protruding from the vertical between 140mm and 900mm that facilitate climbing	Pass



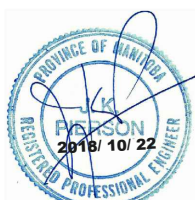
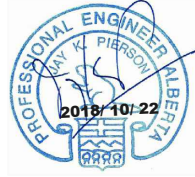
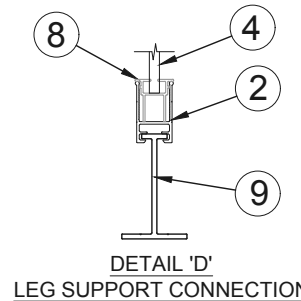
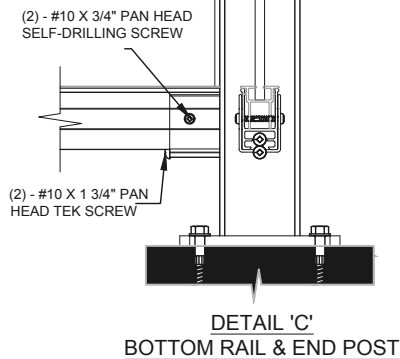
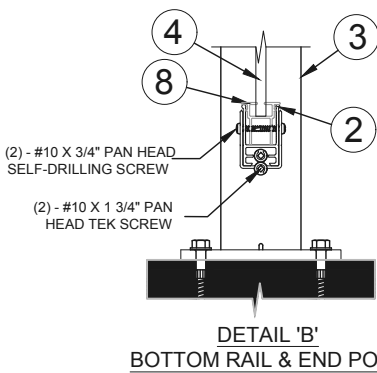
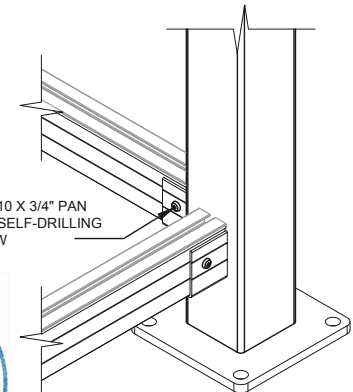
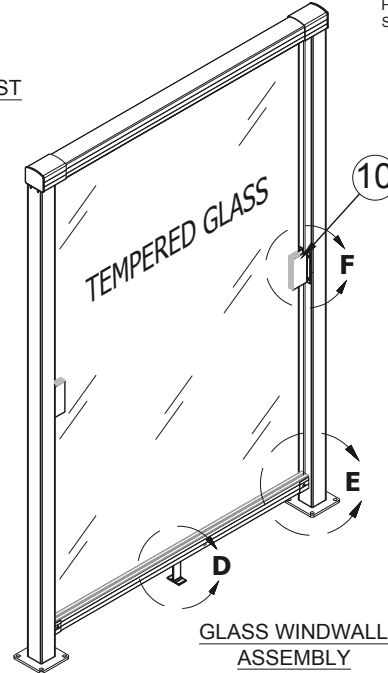
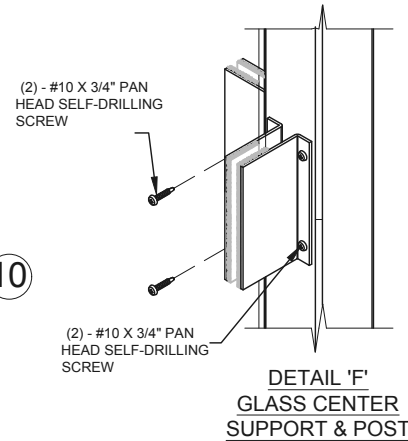
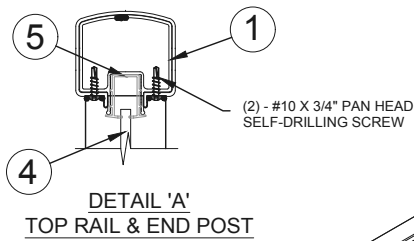
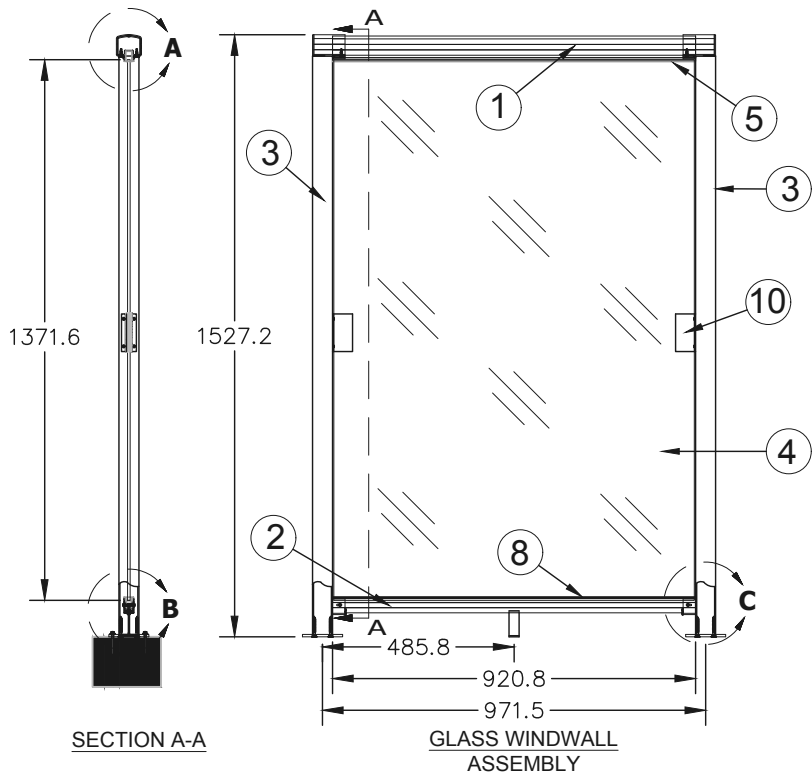
Test: Individual Elements



Test: Top Of Post Concentrated Load



# GLASS WIND WALL TEST ASSEMBLY



No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	
1	PB2104	Top Rail	1	920.8		6	PB7708	Not Shown	N/A			11						
2	PB2102	Bottom Rail	1	920.8		7	PB7707	Not Shown	N/A			12						
3	PB7706	60 in. End Post	2	1527.2		8	PB1465	Channel Glass Gasket	1	920.8		13						
4	PB1465	36" X 54" X 1/4" Tempered Glass	1			9	PB7408	Support Leg	1	25.4		14						
5	PB2108	Top Rail Glass Gasket	1	920.8		10	PB1990	Glass Center Support	1			15						

**vista**

**Vista Aluminum Glass Wind Wall System**

DWN BY: \_\_\_\_\_  
 DATE: July 30, 2018  
 PART NAME: \_\_\_\_\_

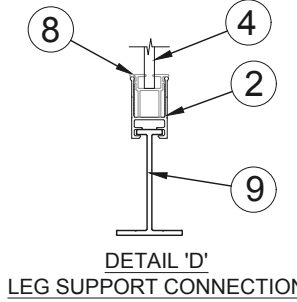
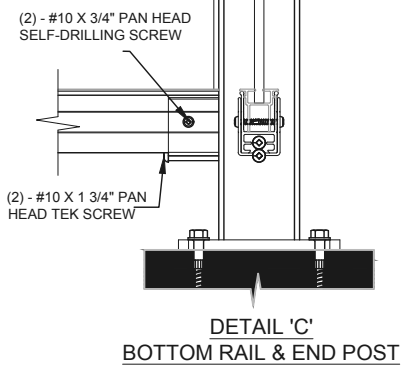
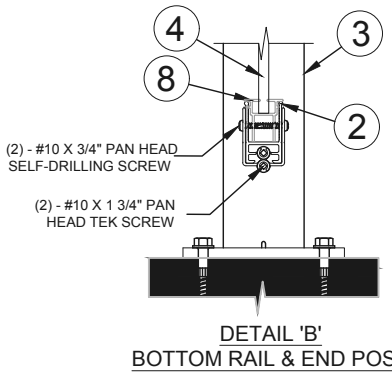
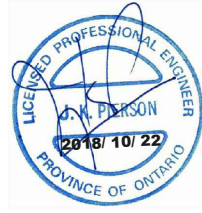
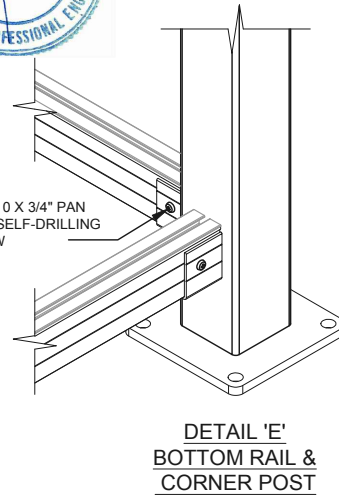
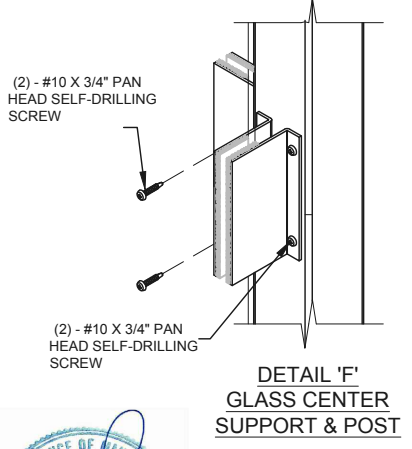
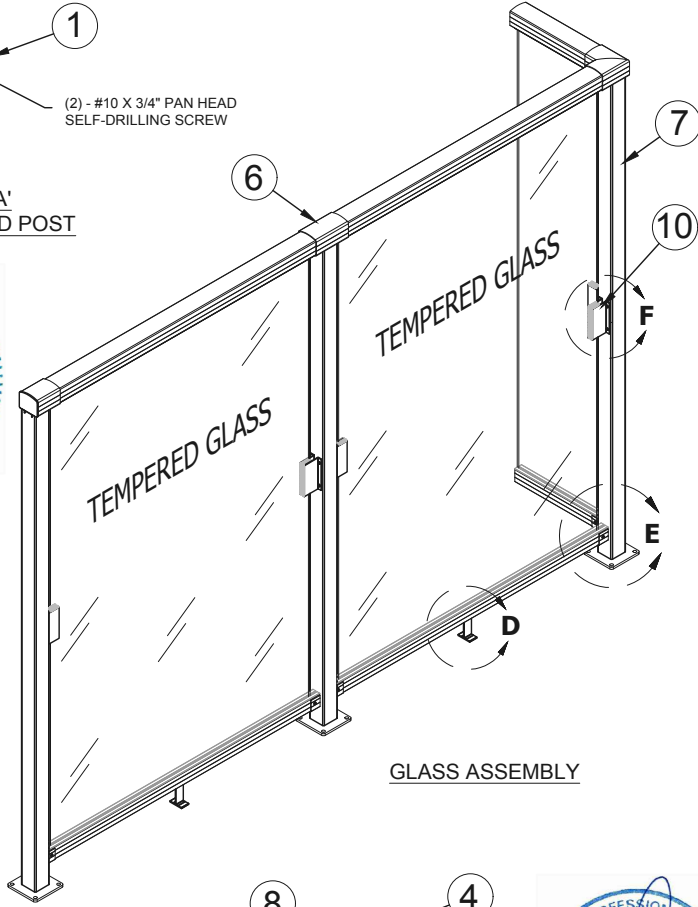
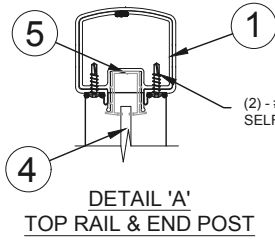
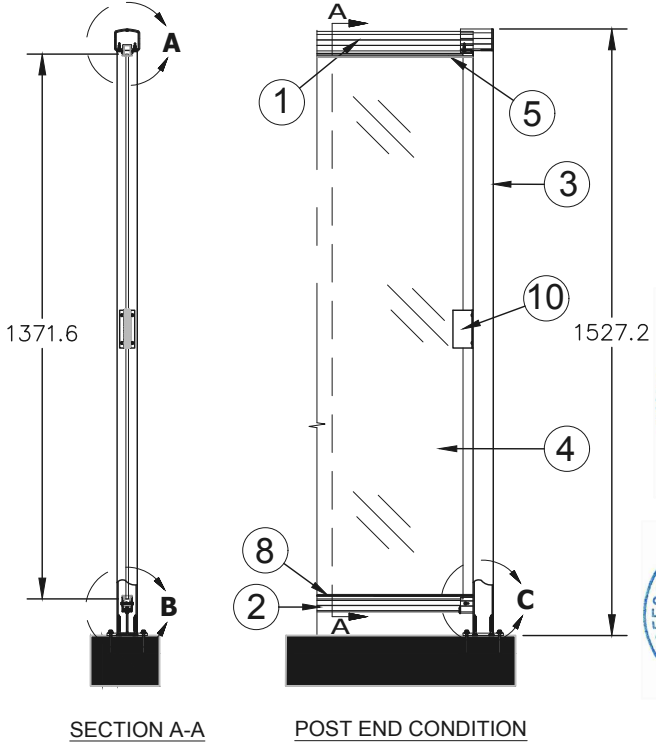
EST. WEIGHT: Lbs. N/A Kg. N/A

Glass Rail  
 Vista  
 Cad File

The recipient of this information hereby acknowledges and agrees that information obtained herein is proprietary to Vista Railing Systems Inc. and shall not be used, disclosed and / or duplicated except in accordance with the expressed written authorization of VRS.



# CONNECTIONS DRAWING



No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	No.	PART	BILL OF MATERIALS	Qty.	Cut Length	±	
1	PB2104	Top Rail	N/A			6	PB7708	60 in. Mid Post	N/A			11						
2	PB2102	Bottom Rail	N/A			7	PB7707	60 in. 90° Corner Post	N/A			12						
3	PB7706	60 in. End Post	N/A			8	PB1465	Channel Glass Gasket	N/A			13						
4	PB1465	36" X 54" X 1/4" Tempered Glass	N/A			9	PB7408	Support Leg	N/A			14						
5	PB2108	Top Rail Glass Gasket	N/A			10	PB1990	Glass Center Support	N/A			15						

DWN BY:  
 DATE: July 30, 2018  
 PART NAME:  
**Vista Aluminum Glass Wind Wall System**

EST. WEIGHT: Lbs. N/A Kg. N/A

The recipient of this information hereby acknowledges and agrees that information obtained herein is proprietary to Vista Railing Systems Inc. and shall not be used, disclosed and / or duplicated except in accordance with the expressed written authorization of VRS.

Card File  
**Vista  
 Glass Rail**

SCALE  
 Drawn: 1:1  
 Displayed: 1:20

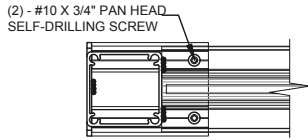
DIMENSION UNITS  
**Millimeters**

# ASSEMBLY DRAWING

PRODUCT FAMILY  
**Vista**

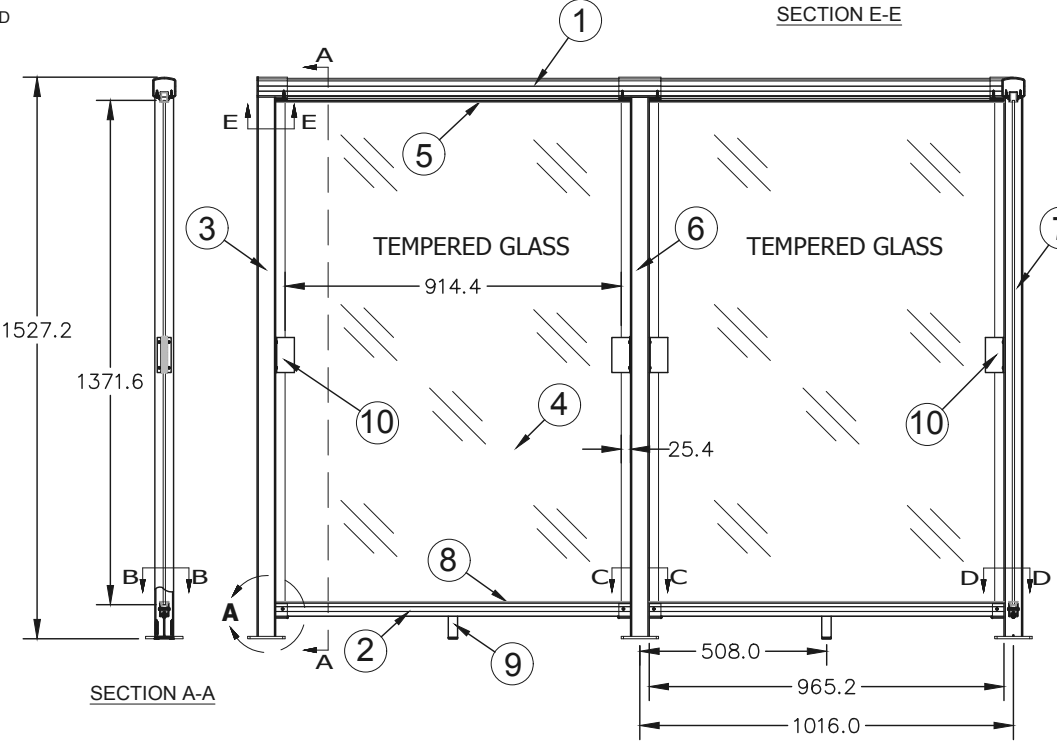
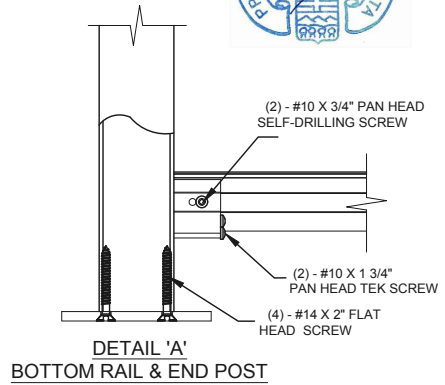
DRAWING #  
**ASSEMBLY**

**NOTES:**  
 (1) BUILDING GENERAL CONTRACTOR AND DESIGNER ARE RESPONSIBLE FOR PROVIDING ADEQUATE BACKING AND BACKING CONNECTION IN DECK AND STAIR STRUCTURE FOR CONNECTION OF THE ALUMINUM GUARDRAIL SYSTEM DETAILED IN THESE DRAWINGS.  
 (2) WHEN MOUNTING TO ACQ TREATED WOOD, ENSURE THAT ACQ COMPATIBLE FASTENERS ARE USED.  
 (3) REFER TO THE 8TH EDITION PROBUILT DESIGN MANUAL FOR ACCEPTABLE GUARDRAIL MOUNTING CONFIGURATIONS AND LAYOUTS.  
 (4) THE ALUMINUM GUARDRAIL CONFIGURATION REPRESENTED ON THIS DRAWING IS IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF 2015 NATIONAL BUILDING CODE OF CANADA (NBC) AND 2012 ONTARIO BUILDING CODE. (OBC)

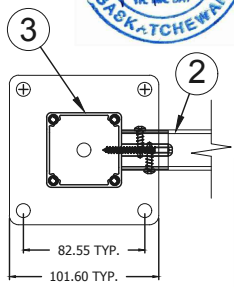
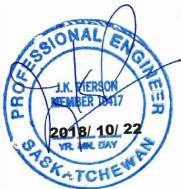


SECTION E-E

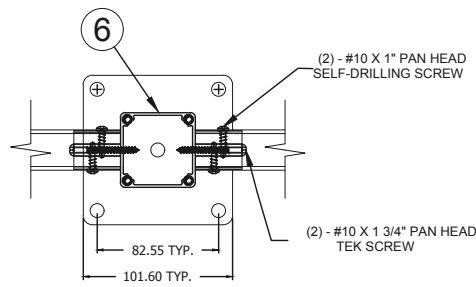
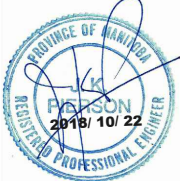
PARTS LIST	
ITEM	DESCRIPTION
1	SQUARE TOP RAIL
2	BOTTOM RAIL
3	2" END POST ASSEMBLY REFER TO THE VISTA 8TH EDITION DESIGN MANUAL FOR ACCEPTABLE GUARDRAIL MOUNTING CONFIGURATIONS AND TO TOP CHANNEL W/ (2) - #10 X 3/4" SCREWS AND TO BOTTOM CHANNEL W/ (2) - #10 X 3/4" PAN HEAD SCREWS
4	TEMPERED GLASS PANEL
5	TOP GLASS GASKET
6	2" MID POST ASSEMBLY REFER TO THE PROBUILT 8TH EDITION DESIGN MANUAL FOR ACCEPTABLE GUARDRAIL MOUNTING CONFIGURATIONS AND TO TOP RAIL W/ (4) - #10 X 3/4" SCREWS AND TO BOTTOM CHANNEL W/ (4) - #10 X 3/4" PAN HEAD SCREWS
7	2" CORNER POST ASSEMBLY REFER TO THE PROBUILT 8TH EDITION DESIGN MANUAL FOR ACCEPTABLE GUARDRAIL MOUNTING CONFIGURATIONS AND TO TOP RAIL W/ (4) - #10 X 3/4" SCREWS AND TO BOTTOM CHANNEL W/ (4) - #10 X 3/4" PAN HEAD SCREWS
8	BOTTOM GLASS GASKET
9	SUPPORT LEG
10	GLASS CENTER SUPPORT TO POST W/ (2) - #10 X 3/4" PAN HEAD SELF-DRILLING SCREWS



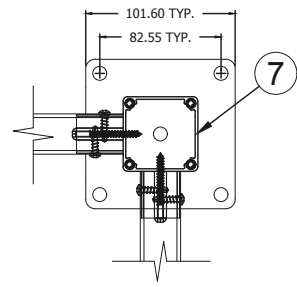
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

**vista**

DWN BY:  
 DATE: July 30, 2018  
 PART NAME:

**Vista Aluminum Glass Wind Wall System**

Cad File  
**Vista Glass Rail**