

## DP2 Frameworks and Infill Options (up to 12' high)

This drawing set consists of parts A to G.



### DP2 Connections and Assembly Details

This drawing set consists of parts A to G.



In Figure 1 we see an end view of the basic framework. Posts are assembled using the Post Cap shown in Figure 3, and the Bottom Bracket shown in Figure 4. Top Caps and Bottom Brackets are secured in place using grade 5 bolts and square washers shown in Figure 4. In Figure 4 we can see the Bottom Bracket in a top down view. Both the Bottom Bracket and the Post Cap insure that the two pieces are assembled at the right distance apart for setting in concrete, and then receiving top and bottom rails.

In Figure 2 we show an end view of the post assembly. Posts are assembled before they are set in concrete. Once set, the top cap is removed, and rails are mounted. Once the top cap is replaced and nuts are tightened using the C-Washer brackets that hold the rails in place locking the cap down, you're ready to insert infill. The bottom rail sits on the Bottom Bracket, and is held in place with the weight of the infill.

All bolts are 5/16" Grade 5 Carriage Bolts with a YELLOWTRICHCHROMATE coating ASTM B-117, with Stainless Steel Nuts.





## DP2 Sleeve Details and Expansion Gap Table

This drawing set consists of parts A to G.



#### **Sleeve location and Rail Expansion**

Rail sleeves must be no more than 12 inches from a post. The slip-fit between one half of the sleeve and the adjoining rail allows for the expansion and contraction that will occur. This is why the sleeve is fastened (riveted) to only one rail, and not both. The sleeve connection also provides an additional drainage point.

It is important to leave an expansion gap at each sleeve connection, to allow for expansion and contraction of the framework at different times of the year. The Expansion Gap Table provides the Gap required depending on the temperature at the time of installation.

## Expansion Gap Table

Installation		
		Gap in inches
Celsius	Fahrenheit	(for 20' rails)
-20	-5	3/8
-15	0	3/8
-10	10	5/16
-5	20	5/16
0	30	1/4
5	40	1/4
10	50	1/4
15	60	3/16
20	70	3/16
25	80	3/16
30	90	1/8
35	100	1/8



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## **DP2 Post Finishing**



Bracket shape is also used as an End Post Spacer. This basically covers the post at an end, where it terminates and the end post is visible. If the end post were butting up to a wall, this is not necessary. This option is for aesthetics, but this piece is also used to mount gate hinges - see Figure 8. Note that the End Post Spacer will need to be notched at the top and bottom allowing the rails to be inserted well into the post.



DP2 Post Spacing Table This drawing set consists of parts A to G.											
FEB 2018	Hourly	Design	DP2 Series								
J.C.CUFF 第 100187411	Wind Pressure	Wind Pressure	Minimum	8'=2.44m 10'=3.		.05m	n 12'=3.66m				
Location	(kPa)	(kPa)	Rail/Post	Meter	Feet	Meter	Feet	Meter	Feet		
Calgary	0.48	1.57	1400/1950	2.74	9	1.82	6	1.22	4		
Edmonton CUNLIFFE & ASSOCIATES	0.45	1.47	1400/1950	3.05	10	1.98	6.5	1.37	4.5		
Halifax (Region)	0.58	1.9	1400/1950	2.44	8	1.52	5	1.07	3.5		
Montreal (Region)	0.42	1.38	1400/1950	3.05	10	2.28	7.5	1.52	5		
Ottawa (Metropolitan)	0.41	1.34	1400/1950	3.05	10	2.28	7.5	1.52	5		
Quebec city (Region)	0.41	1.34	1400/1950	3.05	10	2.28	7.5	1.52	5		
Saskatoon	0.43	1.41	1400/1950	3.05	10	2.13	7	1.52	5		
Toronto (Metropolitan)	0.44	1.44	1400/1950	3.05	10	2.13	7	1.37	4.5		
Toronto (Scarborough)	0.47	1.54	1400/1950	2.9	9.5	1.82	6	1.37	4.5		
Vancouver (Burnaby)	0.47	1.54	1400/1950	2.9	9.5	1.82	6	1.37	4.5		
Vancouver (Cloverdale, Haney, Langley, New Westminster, Surrey)	0.44	1.44	1400/1950	3.05	10	2.13	7	1.37	4.5		
Vancouver (Ladner)	0.46	1.51	1400/1950	3.05	10	1.98	6.5	1.37	4.5		
Vancouver (North Vancouver, Richmond, City Hall, Granville & 41 ave)	0.45	1.47	1400/1950	3.05	10	2.13	7	1.37	4.5		
Vancouver (West Vancouver)	0.48	1.57	1400/1950	2.74	9	1.82	6	1.22	4		
Winnipeg	0.45	1.47	1400/1950	3.05	10	2.13	7	1.37	4.5		

1. Hourly average wind pressure, in kPa are listed in the supplement to the National Building Code of Canada (2015) Climatic Information for building design in Canada, using the hourly wind pressure 1/50.

2. Fence cover material has been assumed to be 2 1/8" wood panel, 100% solid infill.

3. The design wind pressures are calculated using a load factor of 1.4, a gust effect factor of 2.5, an open terrain exposure factor of 0.9, a force coefficient of 1.3, and an importance factor of 0.8.

4. Post and rail sections are extruded Aluminum shapes using alloy 6005, with a minimum yield strength of 240 MPa.

5. Post (DP1 1650 series) and Rail (DP1 1100 series) sections checked for strength in accordance with S157-05/S157.1-05 (reaffirmed 2015), Strength design in Aluminum.

6. Structural Engineering for the Alcuf Double Post Fence System (DP1 and DP2) to prepare these tables was performed by Cunliffe & Associates, Consulting Structural Engineers, Ottawa, Ontario, Canada (cunliffe.ca).

# Alcuf DP2 Noise Barrier

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REV: 3.0



SCALE: none Alcuf International Inc.





