

### End View

### Top View

### Side View

Top Rail  
#1100 series

Line Post  
#1650  
see Post  
Spacing  
Tables.

Connection  
details at  
top and  
bottom  
shown on  
608275-C.

Sono Tube  
below grade  
with smooth  
domed  
concrete  
surface to  
shed water.

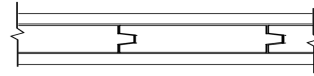
Bottom Rail  
#1100 series

Average Grade

Sono Tube \*  
length is as  
per "C". This  
encourages a  
flanging of the  
concrete base at  
the bottom at full  
depth. Use of Sono  
Tube, or other base  
design attributes may  
be altered by the  
project GEOTECH  
official.

300mm \*  
450mm \*

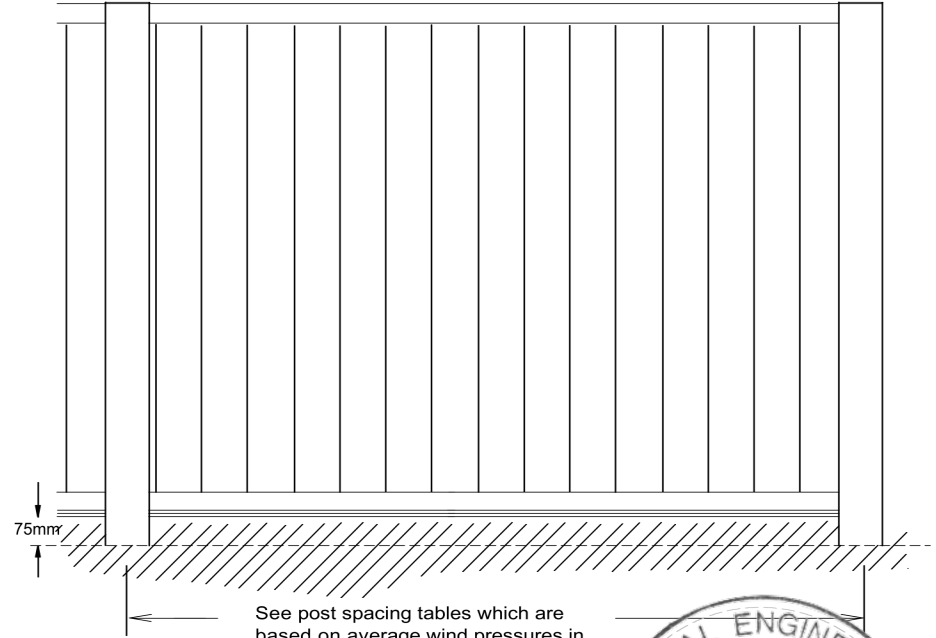
Various Infills fit into the Horizontal Rails  
which match their thicknesses.



Example: Wood infill, the widths range  
from 5" to 7" of premium grade tongue  
and groove wood.

Rail sizes, dimensions, and infill options  
are found on 608275-B. Infill openings  
range as follows; .75" and 1".

2-10M closed circular ties @ 75mm o/c  
@ top of pier.



See post spacing tables which are  
based on average wind pressures in  
your region on drawing 608275-G.



ENGINEERING BY:

**blp** BUCHAN, LAWTON, PARENT LTD  
Consulting Engineers  
5-5370 Canotek Road, Ottawa, Ontario K1J 9E6  
www.blp.ca

Feb. 16, 2024

This drawing set consists of parts A to G.

FENCE HEIGHT (mm)	POST DEPTH IN FOOTING (mm)	SONO TUBE LENGTH (mm)	FOOTING DEPTH (mm)
"A" 1800 (6'-0")	"B" 800	"C" 1200	"D" 1520
"A" 2130 (7'-0")	"B" 800	"C" 1500	"D" 1800

NOTES:

Concrete strength @ 28 days: F<sub>c</sub>=25 MPa  
Exposure 6% +/-1% Air Entrainment.

\* Footing dimensions shown are a minimum typical size for optimum Eastern Canadian soil conditions.

\* Consult the Geotechnical Engineer for your specific site for confirmation of our minimum design above, or alternate foundation design.

## Alcuf DP1 Privacy

DATE: 2023-06-15

DRAWING NUMBER:

REV: 3.3

SCALE: none

**608275-A**



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designs@alcuf.com

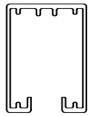
Optional Project Details:

# DP1 Frameworks and Infill Options (up to 7' high)

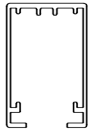
This drawing set consists of parts A to G.

## END VIEW

(basic dimensions)



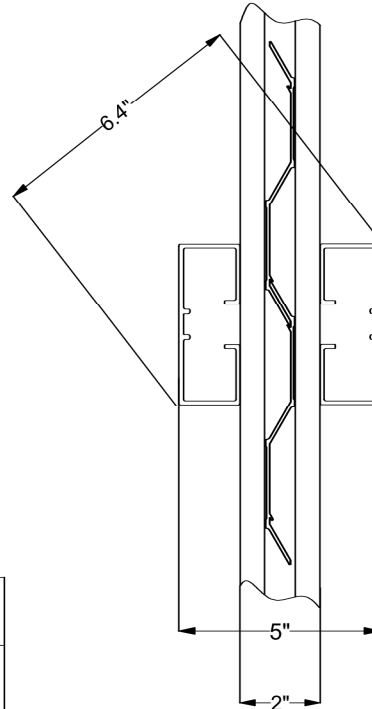
#1177 Rail for .75" infill



#1179 Rail for 1" infill

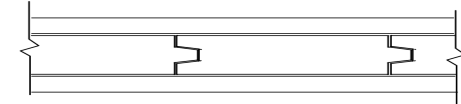
## TOP VIEW

(basic dimensions)

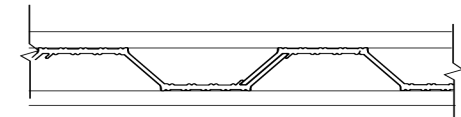


Shown: #1177 Rail with .75" #8000 Aluminum Panel infill  
#1650 Post (2pc) for #1177/79 Rails

Various Infills can fit into the Horizontal Rails.



For Wood infill, the widths range from 5" to 6" of premium grade tongue and groove wood, with a moisture content of 19% or less.



Alcuf Extruded Panels (AEP) are aluminum panels locked together forming a continuous infill. AEP in DP1 requires a .75" rail infill opening (#1177).

## Infill Options

Infill can range in scope from wood, to composite panels, to high strength extruded 6005 aluminum alloy panel, our premium infill.

**Wood:** For minimum maintenance using wood, it is best to leave it unstained. This provides a naturally weathered (and dry) wood infill, in a modern looking framework.

**The Alcuf Extruded Panel (AEP):** The Alcuf Extruded Panels are available in virtually any colour. These are extruded like the post and rails and other aluminum elements in the system. Because the AEP is extruded, it is extremely strong and very resistant to dents.

Stock framework colour is Black, other colours are available.



## Alcuf DP1 Privacy

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.2

SCALE: none

**608275-B**



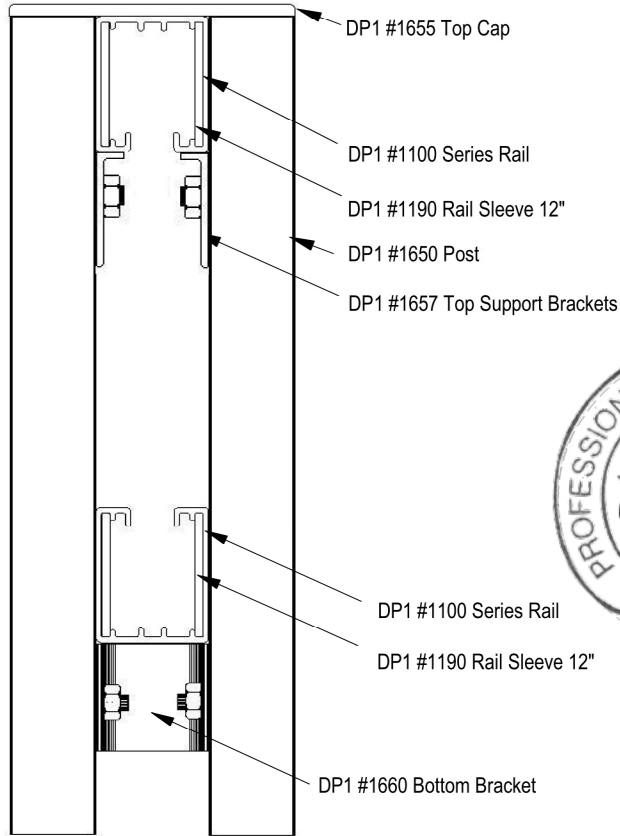
**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

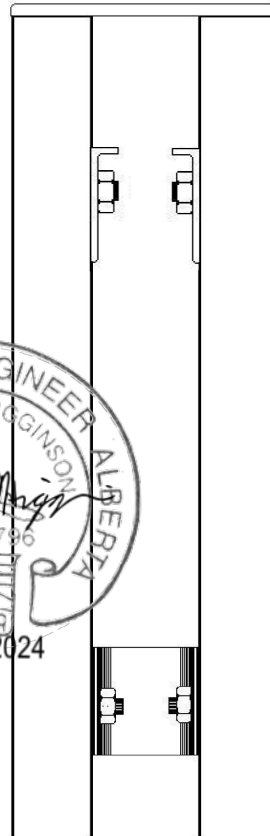
# DP1 Connections and Assembly Details

This drawing set consists of parts A to G.

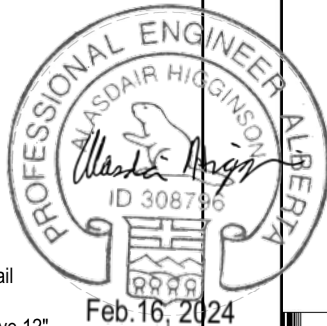
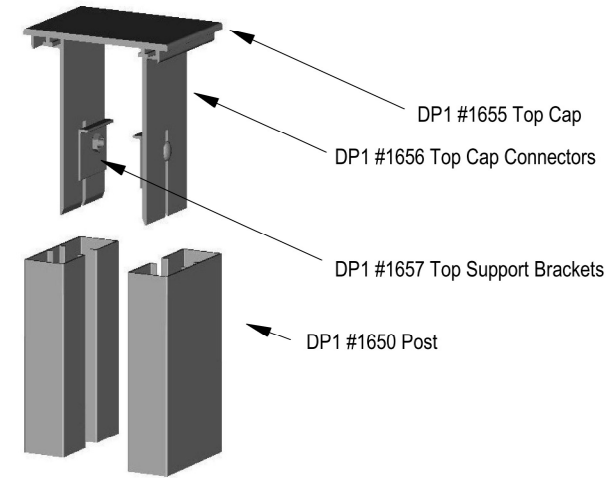
**Figure 1** End View of assembled post with rails in place ready for infill.



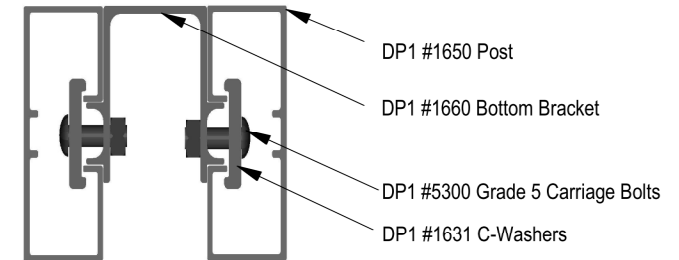
**Figure 2** End View of assembled post ready to set in concrete



**Figure 3** Post Cap slides down into top of posts




**Figure 4** Top view of posts connected with Bottom Bracket



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 secured in place, you're ready to insert infill.

All nuts and bolts are 5/16" Grade 5 Carriage Bolts with a YELLOW ZINC RICH CHROMATE coating ASTM B-117.

<h2>Alcuf DP1 Privacy</h2>		DRAWING NUMBER: <b>608275-C</b>
DATE: 2022-06-10	REV: 3.1	
SCALE: none	DRAWN BY: designs@alcuf.com	
 <b>Alcuf International Inc.</b> Ottawa, Ontario, Canada www.alcuf.com		

# DP1 Other Rail Connections

This drawing set consists of parts A to G.

Figure 1



Connections: 2 way

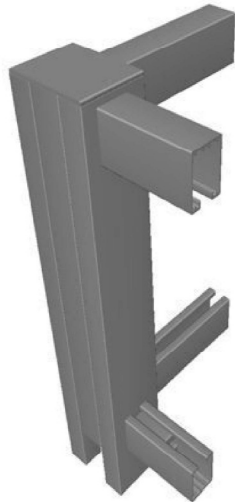


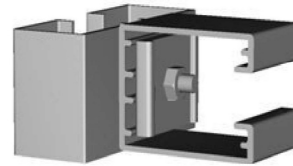
Figure 2



3 way



Figure 3



4 way

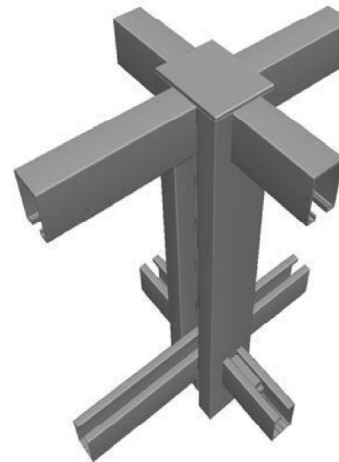
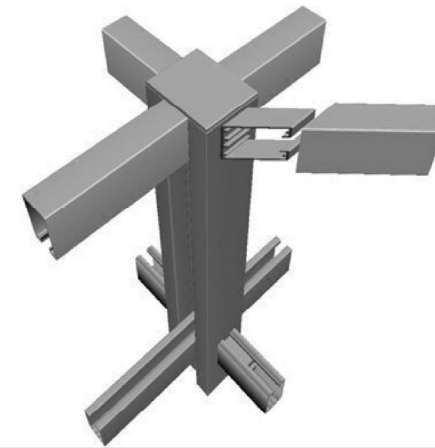


Figure 4




4 way on an angle



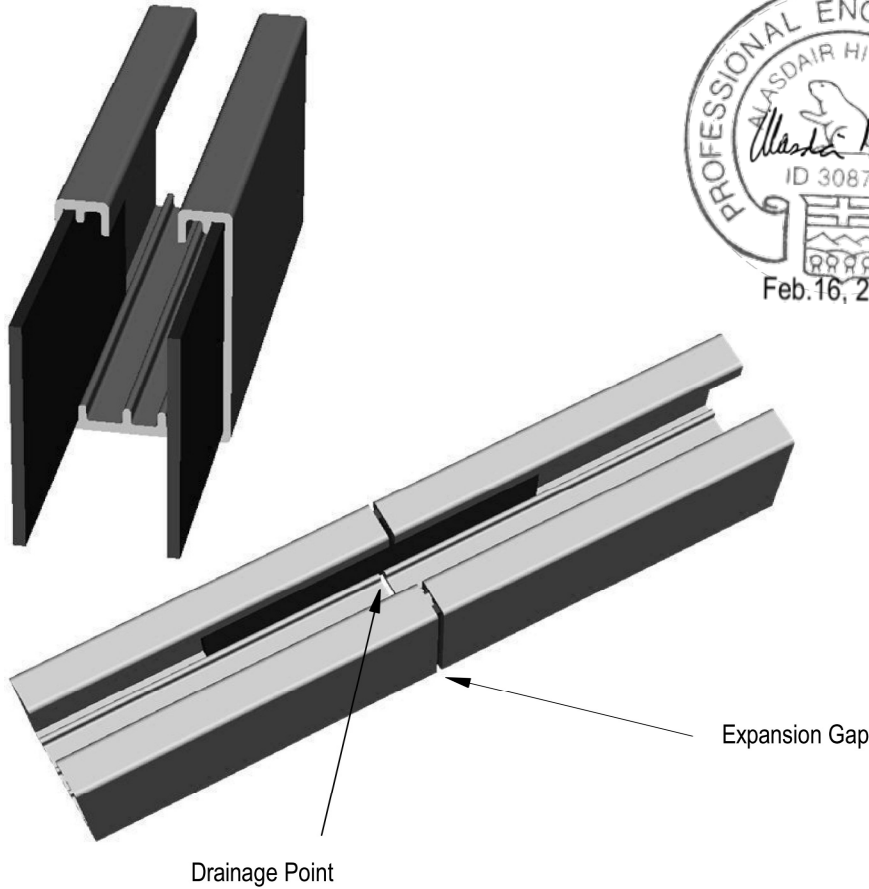
3 Way Connections and 4 Way Connections are easy because the rails are designed to fit inside themselves and act as mounting brackets (F1 and F2). The Post and Rail both have two fins right at the point where a hole can be drilled, reinforcing the shape walls avoiding weakness which would result otherwise (F4). The grade 5 bolt head would reside inside the Post where it will not interfere with the Post Cap, and the nut would be supported by a C-Washer inside the rail (F3).

Note these brackets can be mitred for angle connections.

<b>Alcuf DP1 Privacy</b>		<b>DRAWING NUMBER:</b> <b>608275-D</b>
DATE: 2022-06-10	SCALE: none	
REV: 3.1		<b>DRAWN BY:</b> designs@alcuf.com
 <b>Alcuf International Inc.</b> Ottawa, Ontario, Canada www.alcuf.com		

# DP1 Sleeve Details and Expansion Gap Table

This drawing set consists of parts A to G.



## Expansion Gap Table

Installation Temperature		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

### 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 temperatures of the year. The Expansion Gap Table provides the Gap required depending on the temperature at the time of installation.

## Alcuf DP1 Privacy

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608275-E**



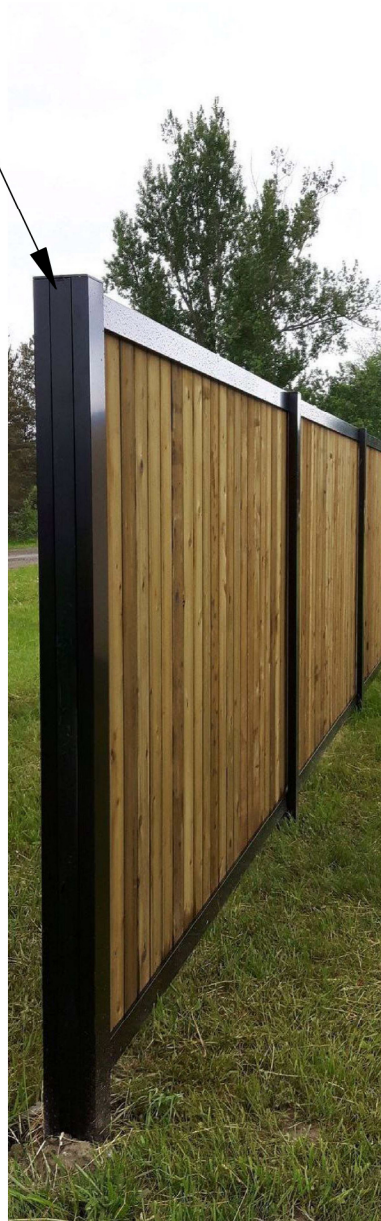
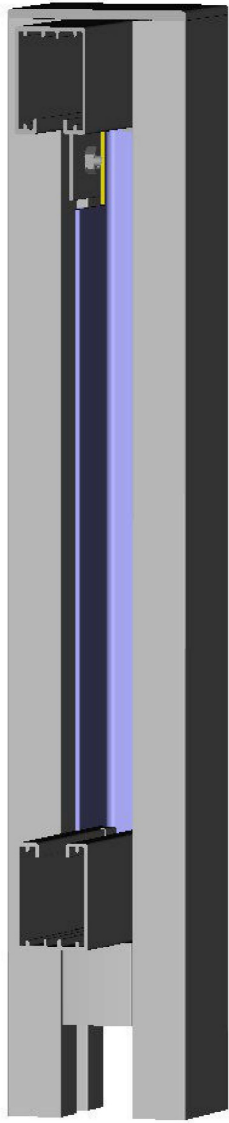
**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com


DRAWN BY:  
designs@alcuf.com

# DP1 Post Finishing

This drawing set consists of parts A to G.

Post Edge Caps are used at Terminal Posts to terminate and retain the continuous flow of Infill.



<b>Alcuf DP1 Privacy</b>	
DATE: 2022-06-10	DRAWING NUMBER:
REV: 3.1	SCALE: none
<b>608275-F</b>	
 <b>Alcuf International Inc.</b> Ottawa, Ontario, Canada www.alcuf.com	DRAWN BY: designs@alcuf.com

# DP1 Post Spacing Table

This drawing set consists of parts A to G.

Location	Hourly Wind Pressure (kPa)	Design Wind Pressure (kPa)	DP1 Series						
			Minimum Rail/Post	5'=1.5m		6'=1.8m		7'=2.1m	
				Meter	Feet	Meter	Feet	Meter	Feet
Calgary	0.48	1.57	1100/1650	3.05	10	2.74	9	1.98	6.5
Edmonton	0.45	1.47	1100/1650	3.05	10	3.05	10	2.13	7
Halifax (Region)	0.58	1.9	1100/1650	3.05	10	2.29	7.5	1.68	5.5
Montreal (Region)	0.42	1.38	1100/1650	3.05	10	3.05	10	2.29	7.5
Ottawa (Metropolitan)	0.41	1.34	1100/1650	3.05	10	3.05	10	2.44	8
Quebec city (region)	0.41	1.34	1100/1650	3.05	10	3.05	10	2.44	8
Saskatoon	0.43	1.41	1100/1650	3.05	10	3.05	10	2.29	7.5
Toronto (Metropolitan)	0.44	1.44	1100/1650	3.05	10	3.05	10	2.29	7.5
Toronto (Scarborough)	0.47	1.54	1100/1650	3.05	10	2.90	9.5	2.13	7
Vancouver (Burnaby)	0.47	1.54	1100/1650	3.05	10	2.90	9.5	2.13	7
Vancouver (Cloverdale, Haney, Langley, New Westminster, Surrey)	0.44	1.44	1100/1650	3.05	10	3.05	10	2.29	7.5
Vancouver (Ladner)	0.46	1.51	1100/1650	3.05	10	2.90	9.5	2.13	7
Vancouver (North Vancouver, Richmond, City Hall, Granville & 41 ave)	0.45	1.47	1100/1650	3.05	10	3.05	10	2.13	7
Vancouver (West Vancouver)	0.48	1.57	1100/1650	3.05	10	2.74	9	1.98	6.5
Winnipeg	0.45	1.47	1100/1650	3.05	10	3.05	10	2.13	7

**Note: For more post spacing detail, consult our provincial charts. These are available on request from [design@alculf.com](mailto:design@alculf.com).**

**If you know the kPa Hourly Wind Pressure value in a specific area, we can tell you what the post spacing should be for DP1, 2, or 3 anywhere in Canada.**

- 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.
- Fence infill material has been assumed to have a max surface density of 24 kg/m<sup>2</sup> and 100% solid coverage.
- The design wind pressure are calculated using a load factor of 1.4, a gust effect factor of 2.5, a open terrain exposure factor of 0.9, a force coefficient of 1.3, and an importance factor of 0.8.
- Post and rail sections are extruded Aluminum shapes using alloy 6005, with a minimum yield strength of 240 MPa.
- 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.
- Structural Engineering by: Alasdair Higginson P.Eng. [ahigginson@blp.ca](mailto:ahigginson@blp.ca)
- Reference: <https://nrc-publications.canada.ca/eng/view/object/?id=c8876272-9028-4358-9b42-6974ba258d99>

ENGINEERING BY:

**blp** BUCHAN, LAWTON, PARENT LTD  
 Consulting Engineers  
 5-5370 Canotek Road, Ottawa, Ontario K1J 9E6  
[www.blp.ca](http://www.blp.ca)



## Alcuf DP1 Privacy

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608275-G**



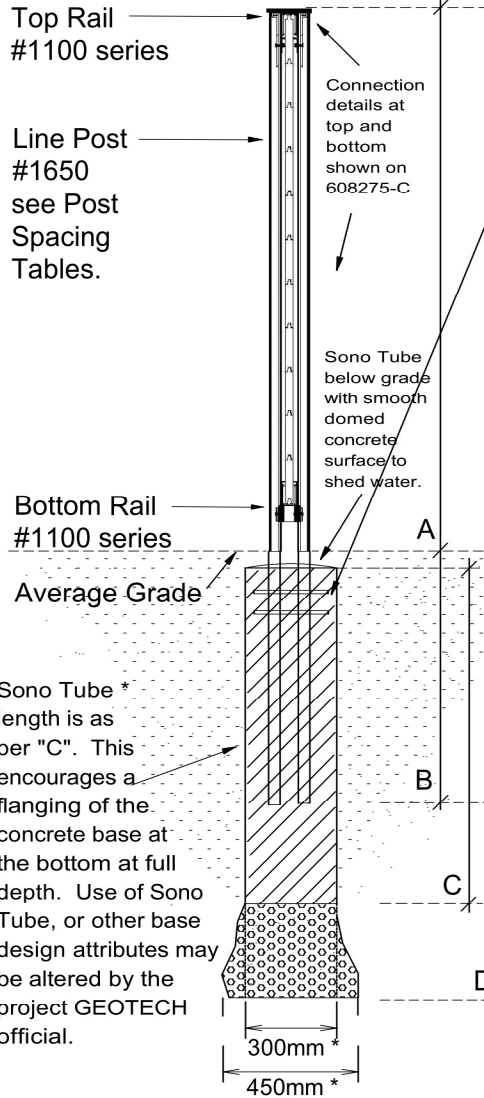
**Alcuf International Inc.**  
 Ottawa, Ontario, Canada  
[www.alcuf.com](http://www.alcuf.com)

DRAWN BY:  
[designs@alculf.com](mailto:designs@alculf.com)

End View

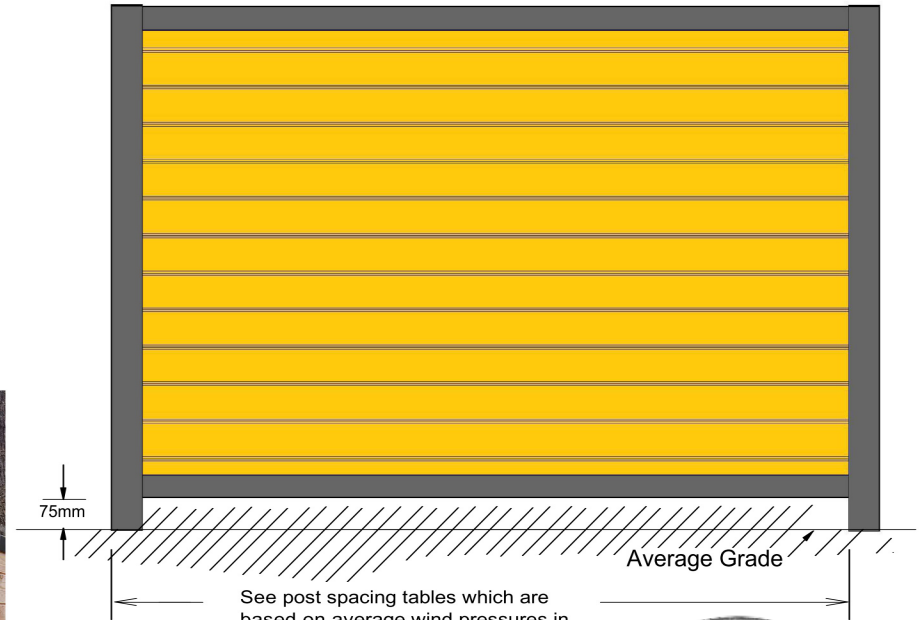
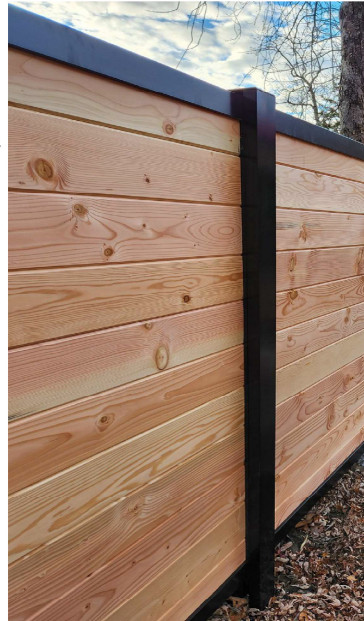
Top View

Side View

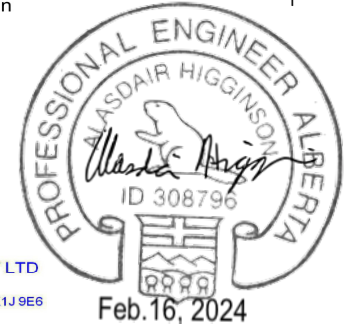


Horizontal orientation of oversized Douglas Fir boards with a heavy tongue and groove provides a solid, sturdy, and long lasting result. The Douglas Fir boards are a full 1" thick.

2-10M closed circular ties @ 75mm o/c @ top of pier, when 300mm base used.



See post spacing tables which are based on average wind pressures in your region on drawing 608275-G.




ENGINEERING BY:

**blp** BUCHAN, LAWTON, PARENT LTD  
Consulting Engineers  
5-5370 Canotek Road, Ottawa, Ontario K1J 9E6  
www.blp.ca

This drawing set consists of parts A to H.

FENCE HEIGHT (mm)	POST DEPTH IN FOOTING (mm)	SONO TUBE LENGTH (mm)	FOOTING DEPTH (mm)	NOTES:
"A" 1800 (6'-0")	"B" 800	"C" 1200	"D" 1520	Concrete strength @ 28 days: Fc=25 MPa Exposure 6% +/-1% Air Entrainment.
"A" 2130 (7'-0")	"B" 800	"C" 1500	"D" 1800	

\* Footing dimensions shown are a minimum typical size for optimum Eastern Canadian soil conditions.  
\* Consult the Geotechnical Engineer for your specific site for confirmation of our minimum design above, or alternate foundation design.

<h2>Alcuf DP1 Horizontal</h2>	
DATE: 2023-06-10	DRAWING NUMBER:
REV: 3.3	SCALE: none
<h1>608275-H</h1>	
	<b>Alcuf International Inc.</b> Ottawa, Ontario, Canada www.alcuf.com
DRAWN BY: designs@alcuf.com	

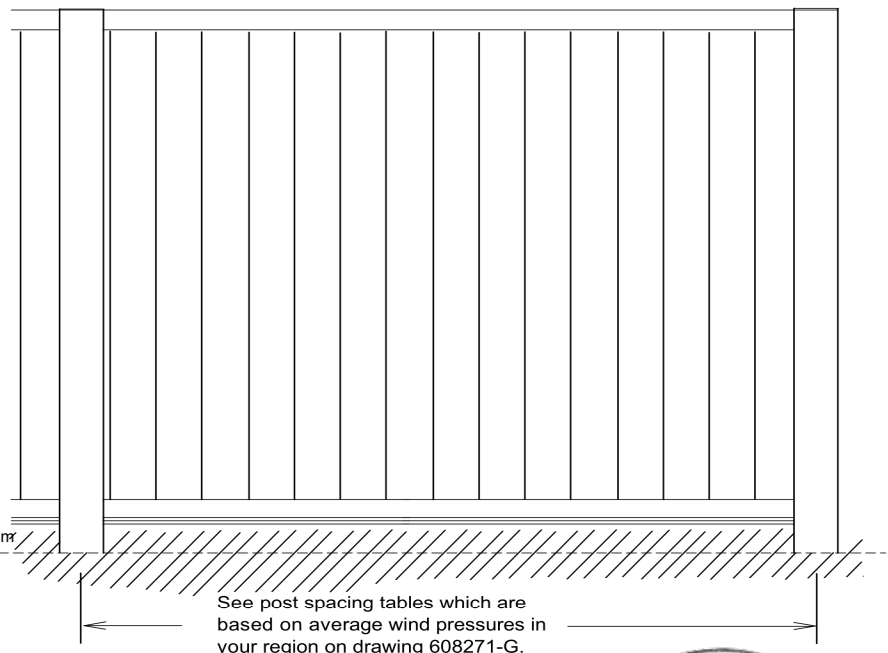
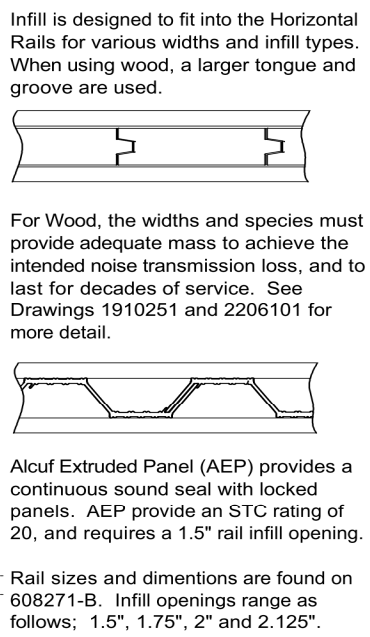
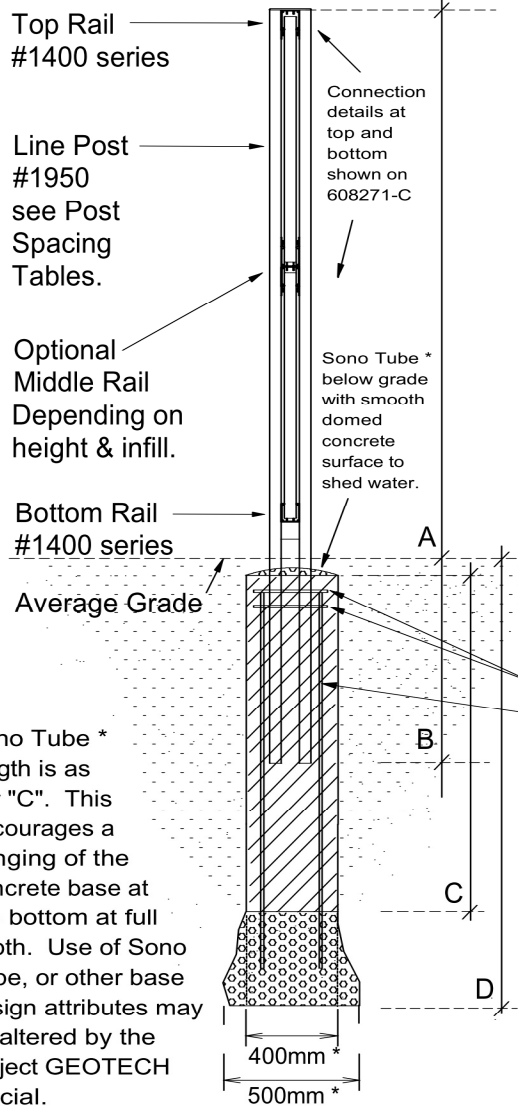
Project Details:



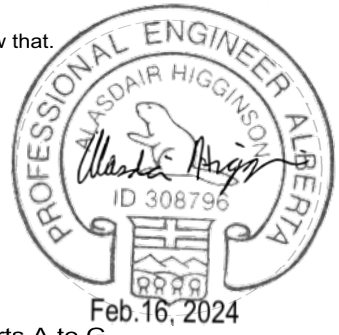
**End View**

**Top View**

**Side View**



2-10mm closed circular tie o/c. One at approx. 75mm depth at top of pier, the other .75mm below that.  
 4-15mm vertical rebar from inside circular tie at approx. 50mm depth at top of pier.



This drawing set consists of parts A to G.

**Alcuf DP2 Noise Barrier**

DATE: 2023-06-10		DRAWING NUMBER:	
REV: 3.3		SCALE: none	
		<b>608271-A</b>	
<b>Alcuf International Inc.</b> Ottawa, Ontario, Canada www.alcuf.com		DRAWN BY:	
		designs@alcuf.com	

FENCE HEIGHT (mm)	POST DEPTH IN FOOTING (mm)	TOP OF FOOTING (mm)	FOOTING DEPTH (mm)
"A" 1800 (6'-0")	"B" 750	"C" 1500	"D" 1800
"A" 2400 (8'-0")	"B" 800	"C" 1500	"D" 1800
"A" 3048 (10'-0")	"B" 800	"C" 1500	"D" 1800

NOTES:  
 Concrete strength @ 28 days: Fc=32 MPa - Class C2  
 Exposure 6% +/-1% Air Entrainment.  
 Reinforcing Steel: G30.18M - Grade 400

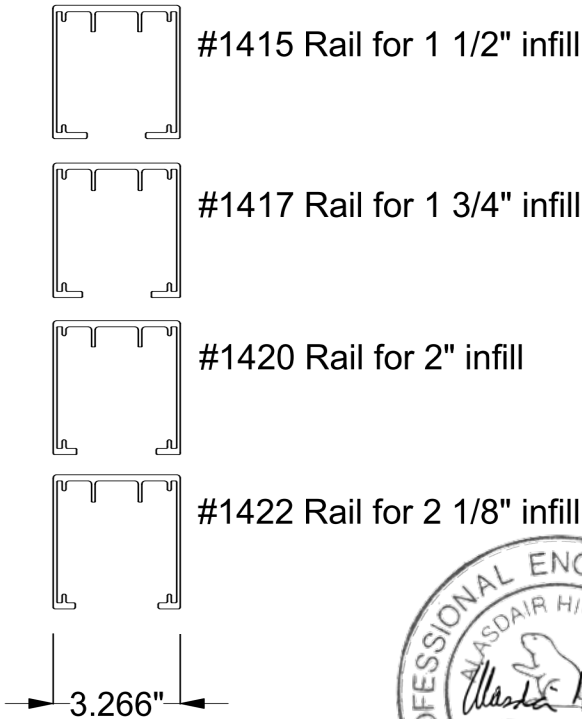
\* Footing dimensions shown are a minimum typical size for optimum Eastern Canadian soil conditions.  
 \* Consult the Geotechnical Engineer for your specific site for confirmation of our minimum design above, or alternate foundation design.

Optional Project Details:

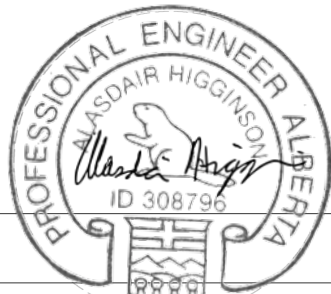
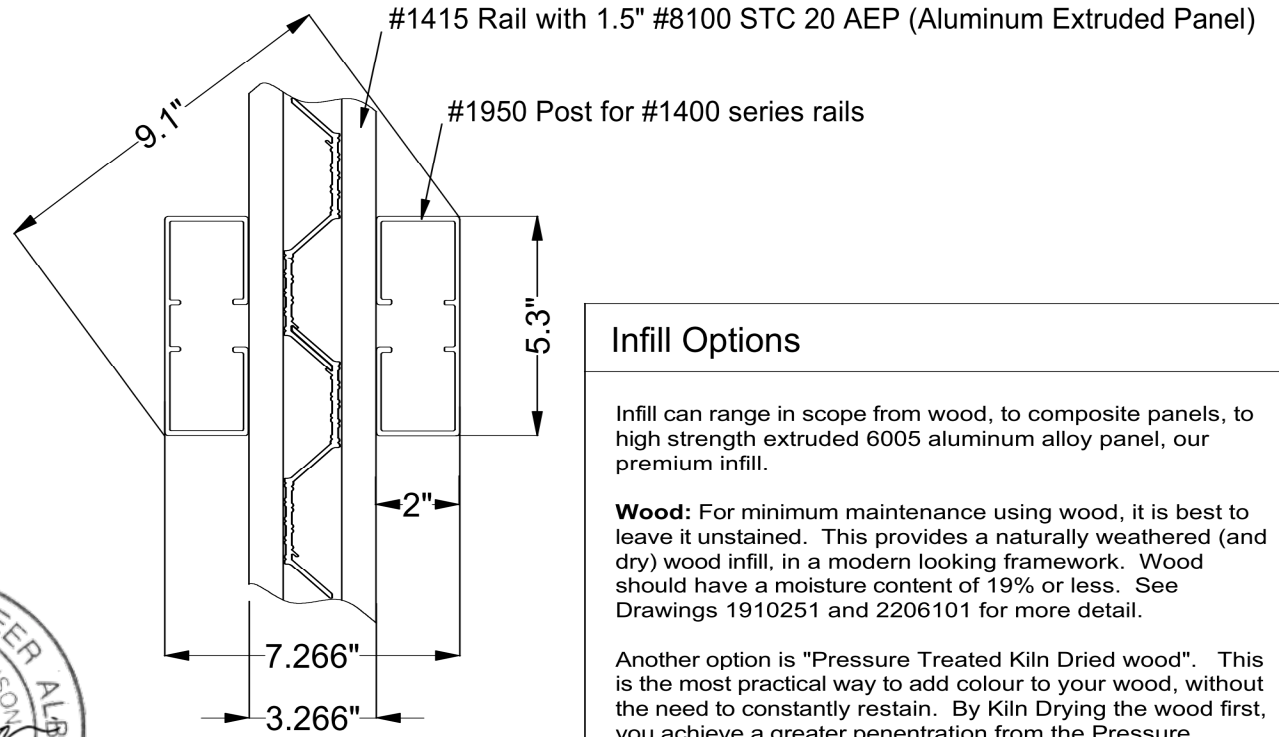
# DP2 Frameworks and Infill Options (up to 12' high)

This drawing set consists of parts A to G.

## END VIEW

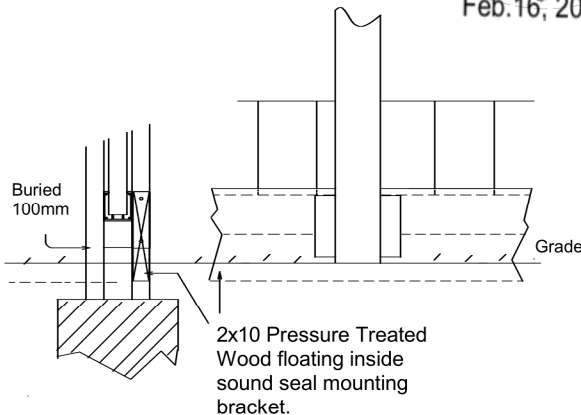


## TOP VIEW



Feb. 16, 2024

## Optional Sound Seal



The OPTIONAL SOUND SEAL is used between posts and to the side of the bottom rail, where a 2x8 or 10 board is attached in such a way that it is free to float with ground movement without adding stress to the bottom rail. This does not interfere with the adjustable elevation of the bottom rail. The average grade is typically filled to meet the Sound Seal. The Sound Seal board in this case is considered a sacrificial element that can be easily and economically replaced. However, this method is the most practical way to provide an effective sound seal between the earth, and the noise barrier.

## Infill Options

Infill can range in scope from wood, to composite panels, to high strength extruded 6005 aluminum alloy panel, our premium infill.

**Wood:** For minimum maintenance using wood, it is best to leave it unstained. This provides a naturally weathered (and dry) wood infill, in a modern looking framework. Wood should have a moisture content of 19% or less. See Drawings 1910251 and 2206101 for more detail.

Another option is "Pressure Treated Kiln Dried wood". This is the most practical way to add colour to your wood, without the need to constantly restain. By Kiln Drying the wood first, you achieve a greater penetration from the Pressure Treatment. This is an important step to making Pressure Treating effective.

**The Alcuf Extruded Panel (AEP):** The Alcuf Extruded Panels are available in virtually any colour. These are extruded like the post and rails and other aluminum elements in the system. Because the AEP is extruded, it is extremely strong and very resistant to dents.

Stock framework colour is Black, other colours are available.

## Alcuf DP2 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608271-B**



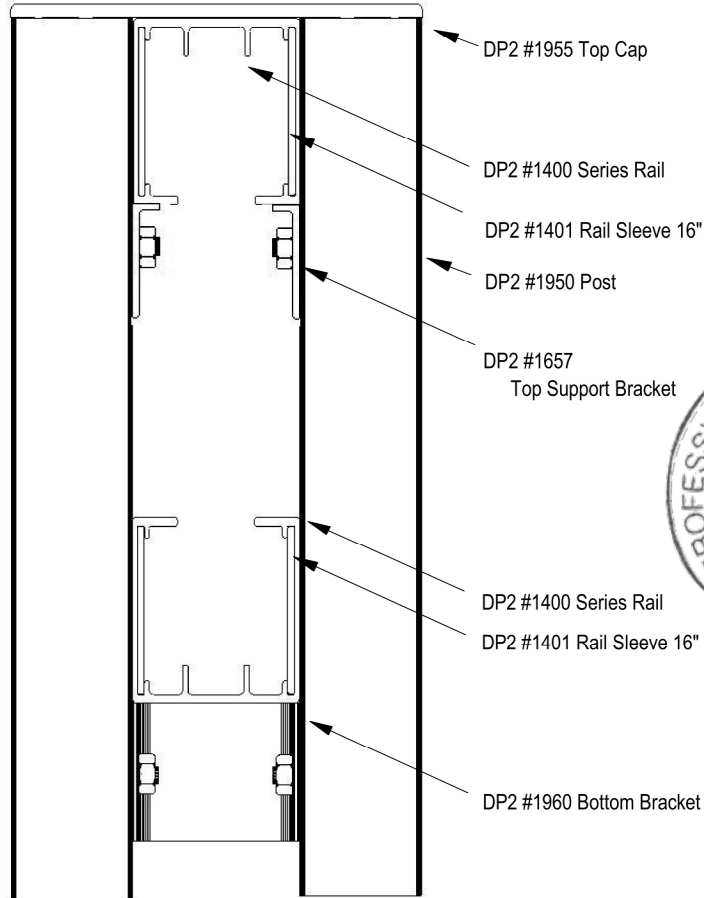
**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

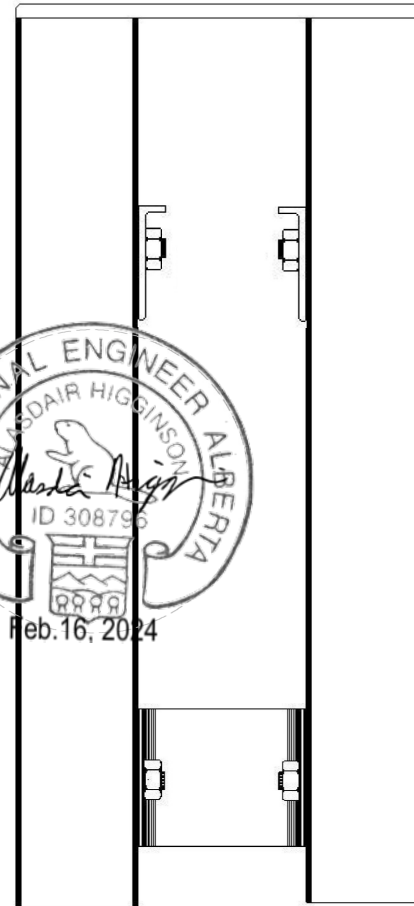
# DP2 Connections and Assembly Details

This drawing set consists of parts A to G.

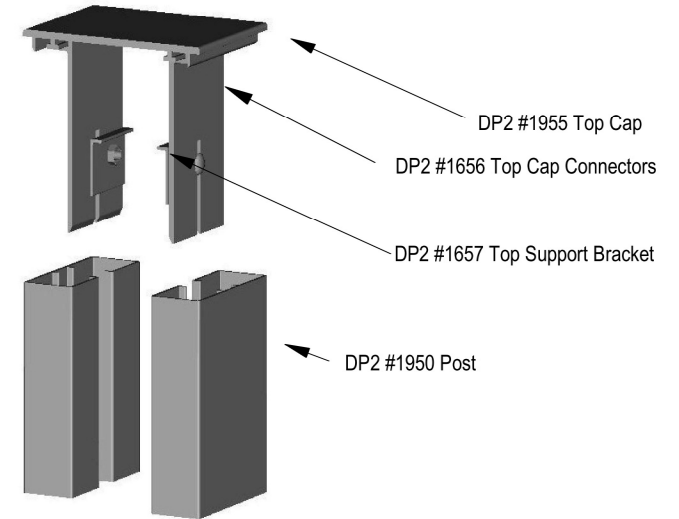
**Figure 1** End View of assembled post with rails in place ready for infill.



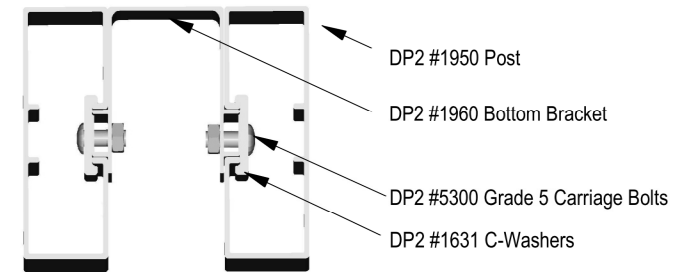
**Figure 2** End View of assembled post ready to set in concrete



**Figure 3** Post Cap slides down into top of posts



**Figure 4** Top view of posts connected with Bottom Bracket



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 brackets 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 secured in place, you're ready to insert infill.

All nuts and bolts are 5/16" Grade 5 Carriage Bolts with a YELLOW ZINC RICH CHROMATE coating ASTM B-117.

## Alcuf DP2 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608271-C**



**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

# DP2 Other Rail Connections

This drawing set consists of parts A to G.

Figure 1



Figure 2



Figure 3

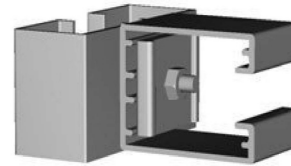
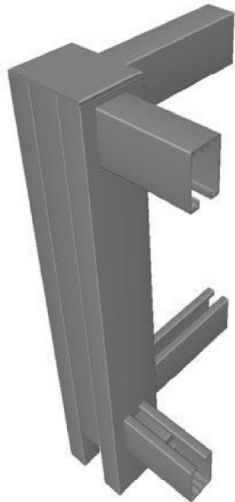


Figure 4



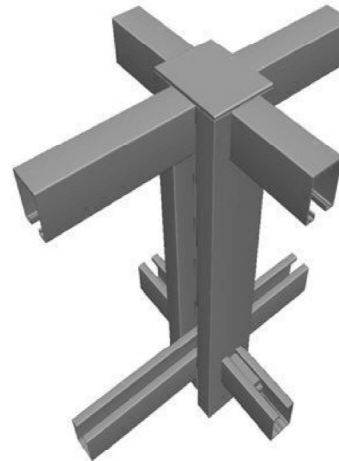
Connections: 2 way



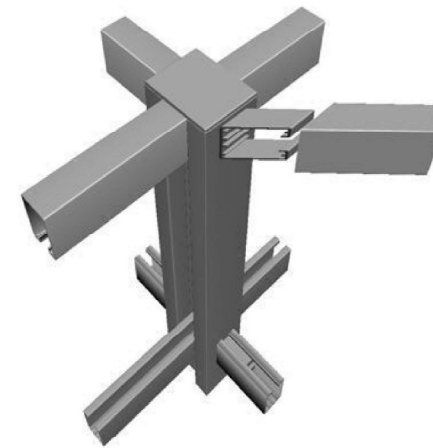
3 way



4 way



4 way on an angle



3 Way Connections and 4 Way Connections are easy. Brackets of the same high strength 6005 alloy can be cut from various reused waste shapes providing secure mounting points for rails to connect to the side of posts (F1 and F2). The Post and Rails both have two fins right at the point where a hole can be drilled, reinforcing the shape walls avoiding weakness which would result otherwise (F4). The bolt head would reside inside the Post where it will not interfere with the Post Cap, and the nut would be supported by a C-Washer inside the rail (F3).

Note these brackets can be mitred for angle connections.

## Alcuf DP2 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608271-D**

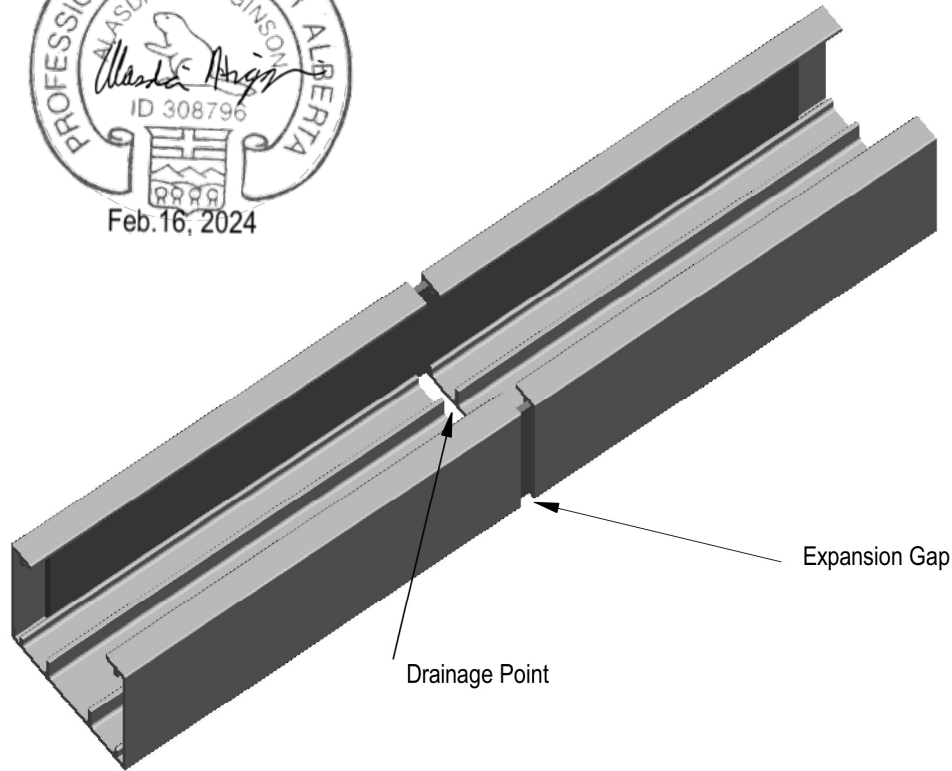


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DRAWN BY:  
designs@alcuf.com

# DP2 Sleeve Details and Expansion Gap Table

This drawing set consists of parts A to G.



## Expansion Gap Table

Installation Temperature		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

### 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 temperatures of the year. The Expansion Gap Table provides the Gap required depending on the temperature at the time of installation.

## Alcuf DP2 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608271-E**

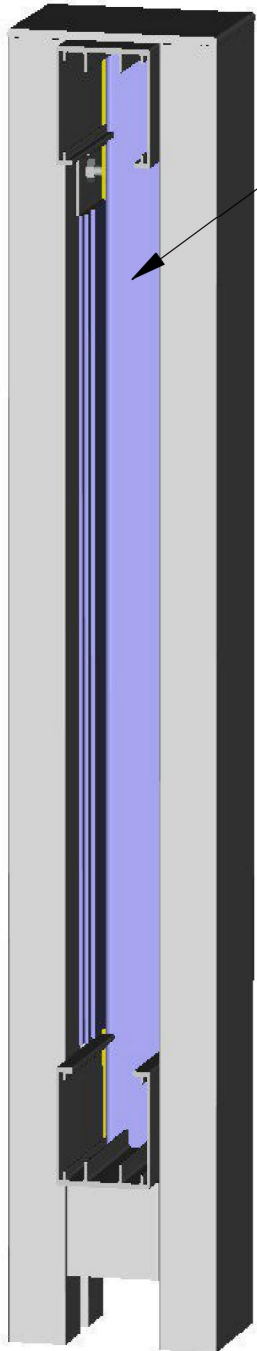


**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

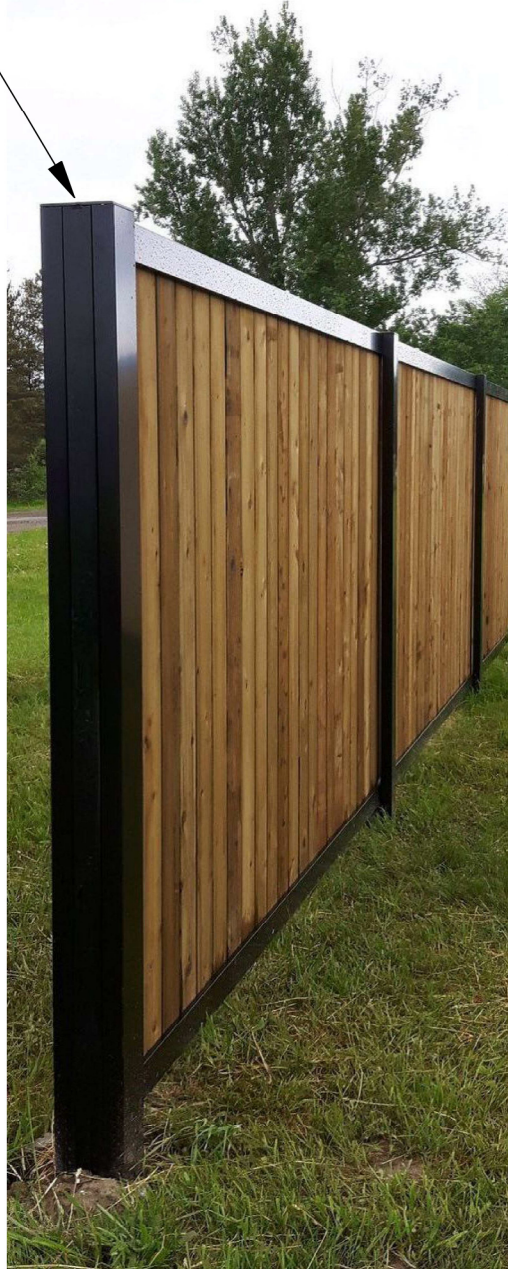
DRAWN BY:  
designs@alcuf.com

# DP2 Post Finishing

This drawing set consists of parts A to G.



Post Edge Caps are used at Terminal Posts to terminate and retain the continuous flow of Infill.



## Alcuf DP2 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608271-F**



**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

# DP2 Post Spacing Table

This drawing set consists of parts A to G.

Location	Hourly Wind Pressure (kPa)	Design Wind Pressure (kPa)	DP2 Series								
			Minimum Rail/Post	7'=2.13m		8'=2.44m		10'=3.05m		12'=3.66m	
				Meter	Feet	Meter	Feet	Meter	Feet	Meter	Feet
Calgary	0.48	1.57	1400/1950	3.05	10	3.05	10	2.90	9.5	1.98	6.5
Edmonton	0.45	1.47	1400/1950	3.05	10	3.05	10	3.05	10	2.13	7
Halifax (Region)	0.58	1.9	1400/1950	3.05	10	3.05	10	2.44	8	1.68	5.5
Montreal (Region)	0.42	1.38	1400/1950	3.05	10	3.05	10	3.048	10	2.286	7.5
Ottawa (Metropolitan)	0.41	1.34	1400/1950	3.05	10	3.05	10	3.05	10	2.29	7.5
Quebec city (region)	0.41	1.34	1400/1950	3.05	10	3.05	10	3.05	10	2.29	7.5
Saskatoon	0.43	1.41	1400/1950	3.05	10	3.05	10	3.05	10	2.13	7
Toronto (Metropolitan)	0.44	1.44	1400/1950	3.05	10	3.05	10	3.05	10	2.13	7
Toronto (Scarborough)	0.47	1.54	1400/1950	3.05	10	3.05	10	2.90	9.5	1.98	6.5
Vancouver (Burnaby)	0.47	1.54	1400/1950	3.05	10	3.05	10	2.90	9.5	1.98	6.5
Vancouver (Cloverdale, Haney, Langley, New Westminster, Surrey)	0.44	1.44	1400/1950	3.05	10	3.05	10	3.05	10	2.13	7
Vancouver (Ladner)	0.46	1.51	1400/1950	3.05	10	3.05	10	2.90	9.5	1.98	6.5
Vancouver (North Vancouver, Richmond, City Hall, Granville & 41 ave)	0.45	1.47	1400/1950	3.05	10	3.05	10	3.05	10	2.13	7
Vancouver (West Vancouver)	0.48	1.57	1400/1950	3.05	10	3.05	10	2.90	9.5	1.98	6.5
Winnipeg	0.45	1.47	1400/1950	3.05	10	3.05	10	3.05	10	2.13	7

**Note:** For more post spacing detail, consult our provincial charts. These are available on request from [design@alcuf.com](mailto:design@alcuf.com).

If you know the kPa Hourly Wind Pressure value in a specific area, we can tell you what the post spacing should be for DP1, 2, or 3 anywhere in Canada.

- 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.
- Fence infill material has been assumed to have a max surface density of 24 kg/m<sup>2</sup> and 100% solid coverage.
- The design wind pressure are calculated using a load factor of 1.4, a gust effect factor of 2.5, a open terrain exposure factor of 0.9, a force coefficient of 1.3, and an importance factor of 0.8.
- Post and rail sections are extruded Aluminum shapes using alloy 6005, with a minimum yield strength of 240 MPa.
- 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.
- Structural Engineering by: Alasdair Higginson P.Eng. [ahigginson@blp.ca](mailto:ahigginson@blp.ca)
- Reference: <https://nrc-publications.canada.ca/eng/view/object/?id=c8876272-9028-4358-9b42-6974ba258d99>

**blp** BUCHAN, LAWTON, PARENT LTD  
 Consulting Engineers  
 5-5370 Canotek Road, Ottawa, Ontario K1J 9E6  
[www.blp.ca](http://www.blp.ca)



## Alcuf DP2 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**608271-G**



**Alcuf International Inc.**  
 Ottawa, Ontario, Canada  
[www.alcuf.com](http://www.alcuf.com)

DRAWN BY:  
[designs@alcuf.com](mailto:designs@alcuf.com)

### End View

### Side View

Top Rail  
#3300 series

Line Post  
#3350  
see Post  
Spacing  
Tables.

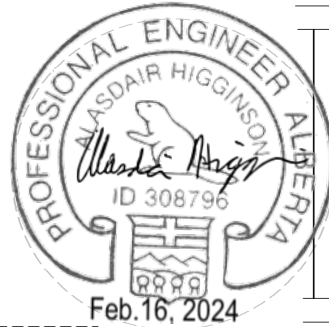
Bottom Rail  
#3300 series

Average Grade

Rebar

Sono Tube \*  
length is as  
per "C". This  
encourages a  
flanging of the  
concrete base at  
the bottom at full  
depth. Use of Sono  
Tube, or other base  
design attributes may  
be altered by the  
project GEOTECH  
official.

Sono Tube \*  
below grade  
with smooth  
domed  
concrete  
surface to  
shed water.



A 75mm

75mm

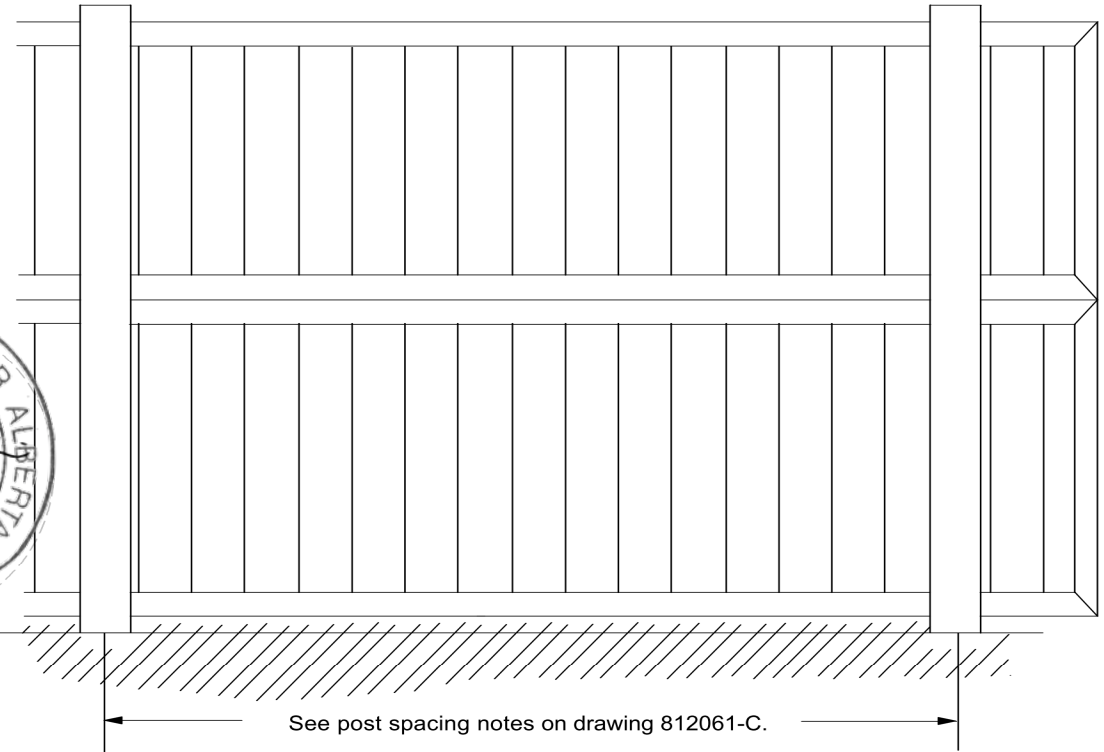
B

C

D

E

Note: Minimum (C) Depth is 75% of (D).  
Minimum (D) Depth is 50% of fence height,  
Minimum (E) Diameter is 24".



See post spacing notes on drawing 812061-C.

2-10mm closed circular tie o/c. One at approx. 75mm depth at top of pier, the other .75mm below that.  
4-15mm vertical rebar from inside circular tie at approx. 50mm depth at top of pier.

**NOTES:**

Consult the project Geotechnical \* Engineer for site specific foundation design. The base design, depth and diameter requirements A B C D and E should be designed based on the geotechnical site reports. This is intended to show a typical base for normal conditions.

There are to be no continuous gaps below the barrier except with approval by the Acoustic Consultant. There are optional sound seals that can seal gaps under the barrier when required.

Typical post depth (B) into base is 5' when height is 16' or under, and 6' between heights of 16.5' and 20'.

Typical Concrete strength @ 28 days: F'c=32 MPa -  
Class C2 Exposure 6% +/-1% Air Entrainment.  
Reinforcing Steel: G30.18M - Grade 400.

This drawing set consists of parts A to E.

## Alcuf DP3 Noise Barrier

DATE: 2022-08-02

DRAWING NUMBER:

REV: 3.1

SCALE: none

# 812061-A



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Ottawa, Ontario, Canada  
www.alcuf.com

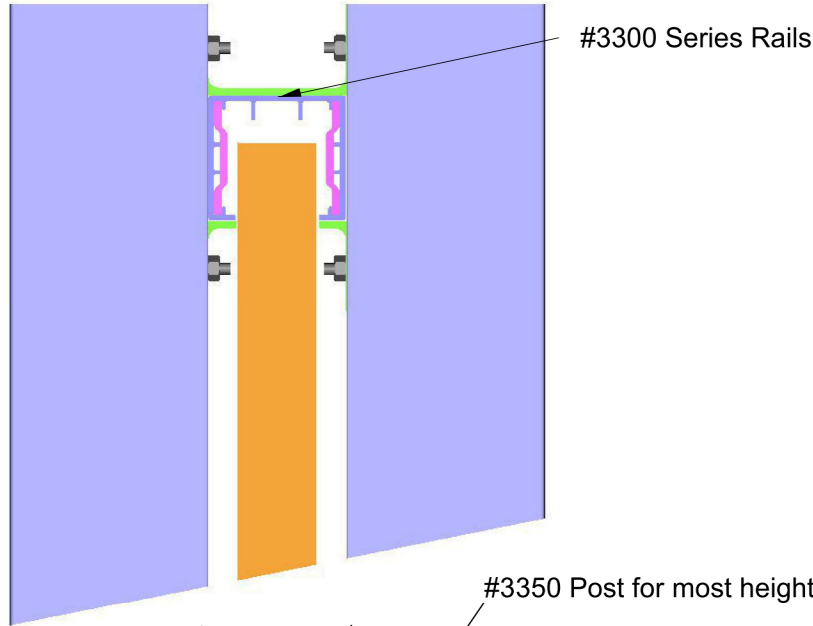
DRAWN BY:  
designs@alcuf.com



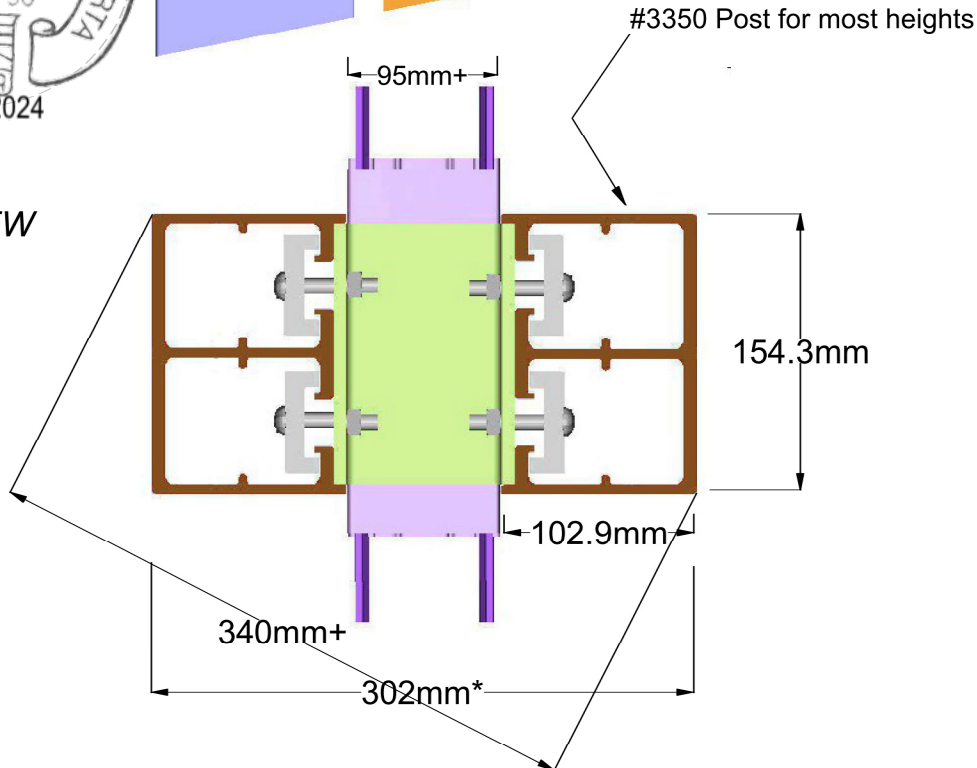
# DP3 Frameworks and Infill Options up to 20' (6.2m) high

This drawing set consists of parts A to E.

END VIEW



TOP VIEW



## Rail Options

Various rail sizes are available to accommodate your project, depending on your infill selection and your noise reduction requirements.

## Infill Options

Noise Barrier Infill can range in scope from wood, to composite panels, to high strength extruded aluminum alloy panels depending on your STC requirements.

To date, wood has been the most common material used in our sound barrier fences. It offers a very reasonably priced alternative. To be effective, the wood must be stable and dried to a moisture content less than 17%. Our large tongue and groove specification, allows wood to move without presenting any gaps. This, along with our carefully designed aluminum rails, insures that the material is protected on the top and dries out quickly in other areas, delivering 20-30 years of excellent noise reduction performance after which time the infill can be replaced easily and economically.

Our high strength extruded 6005-T61 aluminum alloy panels provide an even longer lasting, highly durable alternative. These self-locking panels will provide a secure and continuous sound seal for 50+ years

## Heights

\* At heights from 6m to 8m the #3350 Posts may be spread farther apart. Based on windloading, infill, and other factors, specific engineering will be done at these heights and specific drawings produced.

## Alcuf DP3 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.3

SCALE: none

**812061-B**



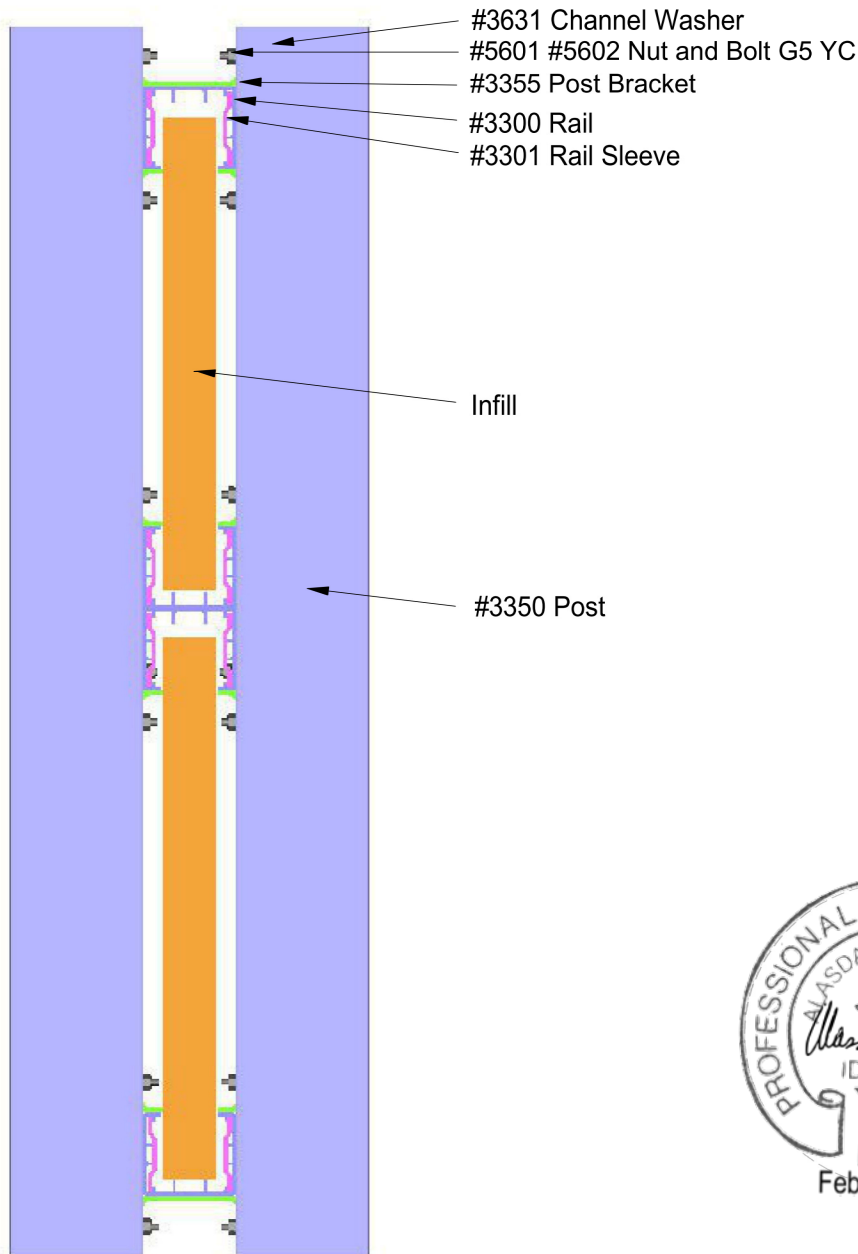
**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

# DP3 Connections and Assembly Details

This drawing set consists of parts A to E.

Figure 1.



## DP3 Post Spacing

Post spacing will be calculated based on fence height, location, infill, exposure, and the average wind pressures in your region. **Please refer to our provincial post spacing tables** to calculate the appropriate post spacing for your project.

Depending on the type of infill, and the height of the Noise Barrier, you may need to put in a center rail to support the infill and distribute the infill loading on the framework.

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 (DP3 3350/4450 series) and Rail (DP3 3300 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 (DP3) was performed by Buchan, Lawton, Parent Ltd, Ottawa, Ontario, Canada (blp.ca).

All nuts and bolts are 1/2" Grade 5 with a YELLOW ZINC RICH CHROMATE coating (ASTM-B633).



## Alcuf DP3 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**812061-C**

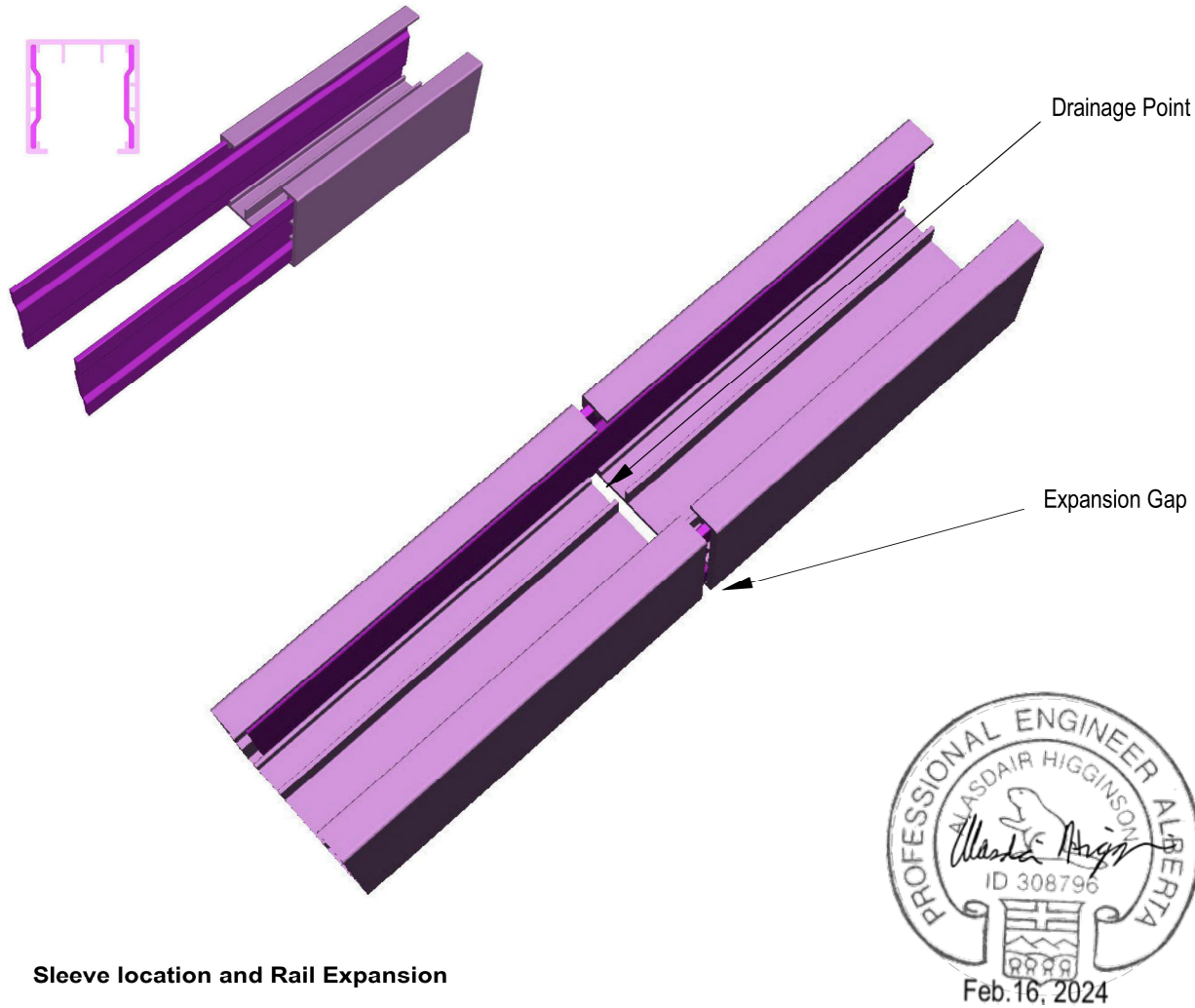


**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

# DP3 Sleeve Details and Expansion Gap Table

This drawing set consists of parts A to E.



Expansion Gap Table

Installation Temperature		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

### 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 temperatures of the year. The Expansion Gap Table provides the Gap required depending on the temperature at the time of installation.

## Alcuf DP3 Noise Barrier

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

**812061-D**



**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

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designs@alcuf.com



**Notes**

**Mounting on concrete surfaces:**

When attaching to solid concrete surfaces, core drilling, or in the case of new construction, casting a cavity large enough to grout posts in place with a non expanding grout, is the best solution. If the surface does not allow for cavities of an appropriate size, ie on bridges, or where prestressed concrete may be used, it is possible to use mounting brackets.

Mounting brackets are typically designed to accommodate each application. This requires data on the surface being attached to including the concrete specification, the construction technique ie poured, prestressed, dimensions, etc. Each case is designed by our structural engineers to insure a solid footing.

**Noise reduction performance:**

Alcuf is a proven framework that can accommodate many different types of infill. Depending on your project requirements, a suitable infill will be recommended.

We have infills in wood that historically can deliver noise reduction for 25 - 30 years. The advantage of our framework is the wood remains dry and is free to expand and contract (with the weather) without working itself loose, or presenting gaps. Wood is beautiful and a renewable resource that is our most common infill.

We have infills in extruded aluminum, that are the longest lasting, and will in fact last as long as our framework. We have 40+ year old systems with frameworks as good as new. We have systems with extruded panels that are now 35+ years old and as good as new from both a noise reduction performance and structural performance perspective. There is no reason not to interpolate a life span of over 50 years based on actual performance.

ENGINEERING BY:

**blp** BUCHAN, LAWTON, PARENT LTD  
 Consulting Engineers  
 5-5370 Canotek Road, Ottawa, Ontario K1J 9E6  
[www.blp.ca](http://www.blp.ca)



**Alcuf DP3 Noise Barrier**

DATE: 2022-06-10

DRAWING NUMBER:

REV: 3.1

SCALE: none

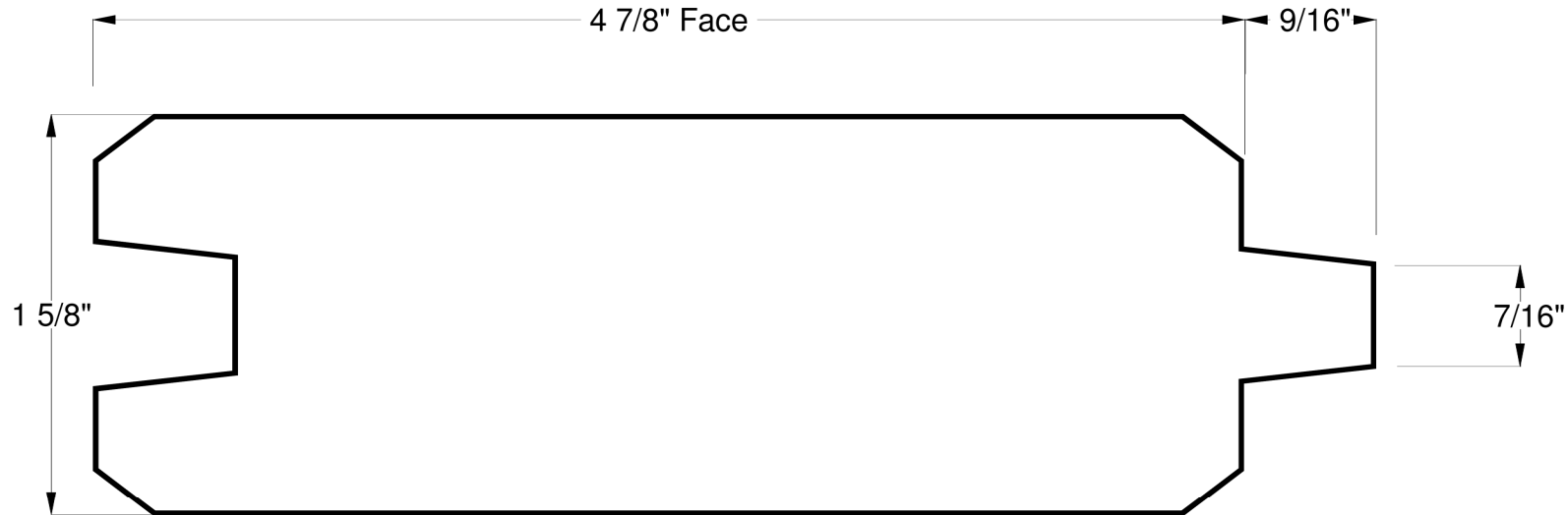
**812061-E**



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 Ottawa, Ontario, Canada  
[www.alcuf.com](http://www.alcuf.com)


DRAWN BY:  
[designs@alcuf.com](mailto:designs@alcuf.com)

**For Alcuf DP2 or DP3 Rails with a 1.75" opening.**

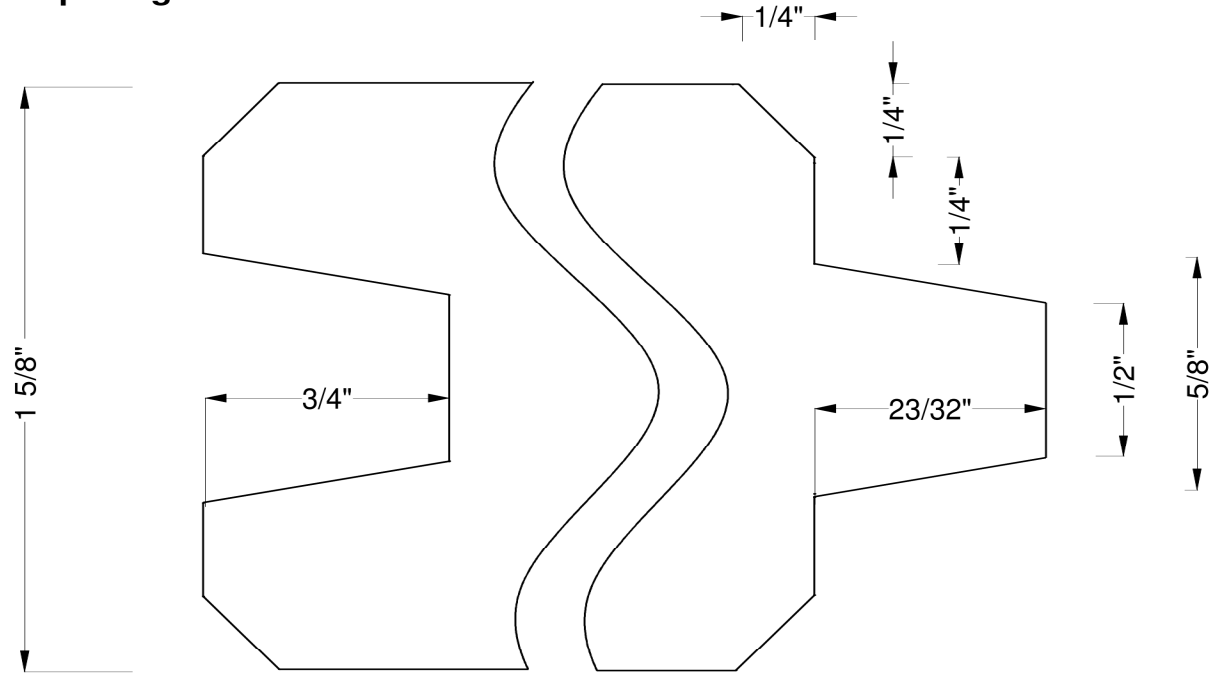
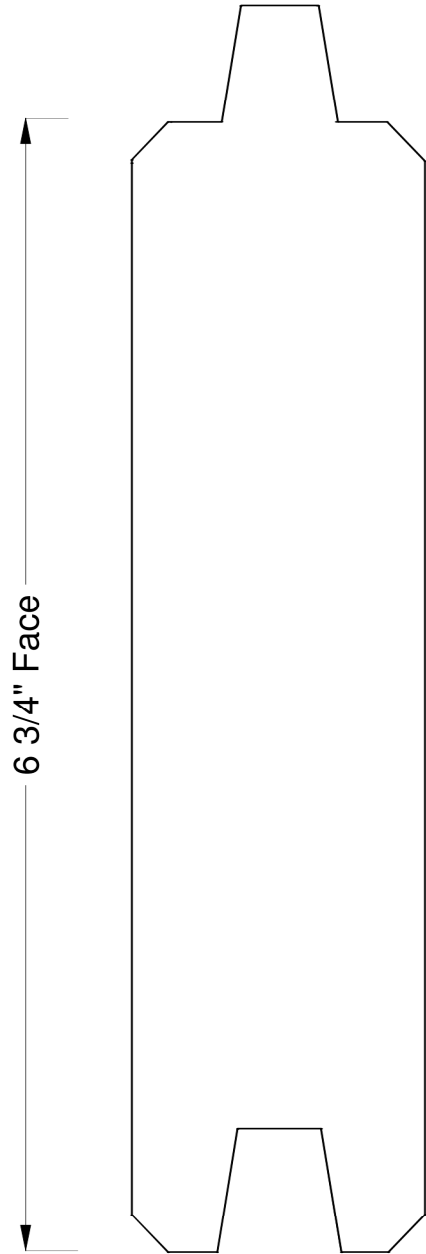


**Douglas Fir** infill boards shall be surfaced all sides and profiled to the specifications shown. The material shall meet or exceed the NLGA grading rules for No. 1 Structural as per paragraph 124b, graded as such from both faces. There shall be no prior selection and the boards must be further graded to ensure tight knot with no through holes. Material must be dried to 14-17% moisture content.

Surface density of **24 kg/m<sup>2</sup>** (=4.9 lb/ft<sup>2</sup>) (source SSWA INC., Richmond Hill, Ontario, 2022).

<b>Alcuf Noise Barrier V-Joint Douglas Fir TG</b>	
DATE: 2024-01-18	DRAWING NUMBER: <b>2206102</b>
REV: 4	SCALE: none
 <b>Alcuf International Inc.</b> Ottawa, Ontario, Canada www.alcuf.com	DRAWN BY: designs@alcuf.com

For Alcuf DP2 or DP3 Rails with a 1.75" opening.



**Douglas Fir** infill boards shall be surfaced all sides and profiled to the specifications shown. The material shall meet or exceed the NLGA grading rules for No. 1 Structural as per paragraph 124b, graded as such from both faces. There shall be no prior selection and the boards must be further graded to ensure tight knot with no through holes. Material must be dried to 14-17% moisture content.

Surface density of **24 kg/m<sup>2</sup>** (=4.9 lb/ft<sup>2</sup>) (source SSWA INC., Richmond Hill, Ontario, 2022).

**Alcuf Noise Barrier V-Joint Douglas Fir TG**

DATE: 2024-01-18

DRAWING NUMBER:

REV: 4

SCALE: none

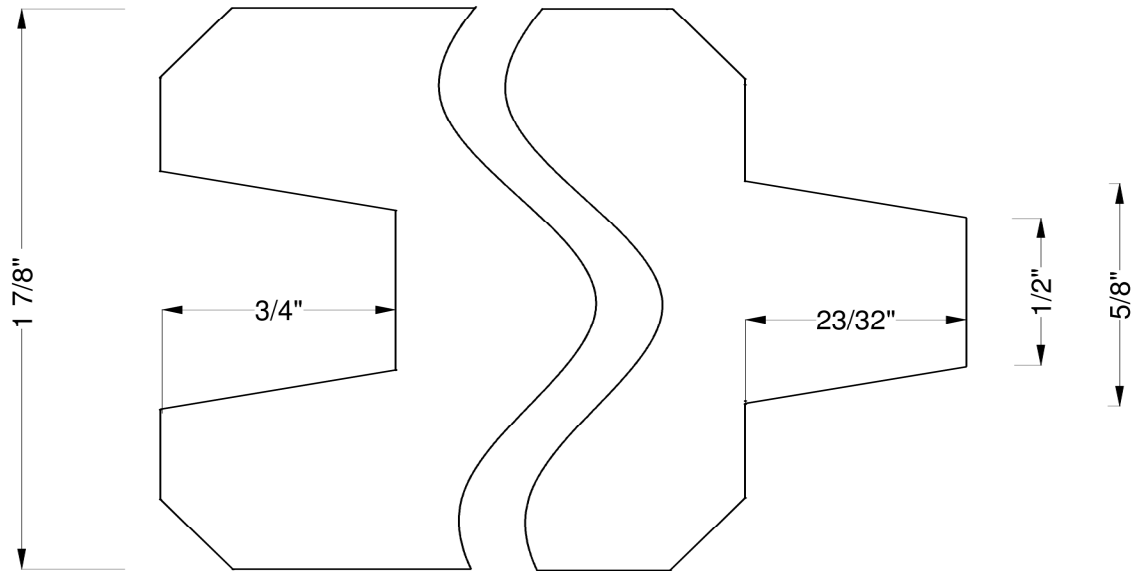
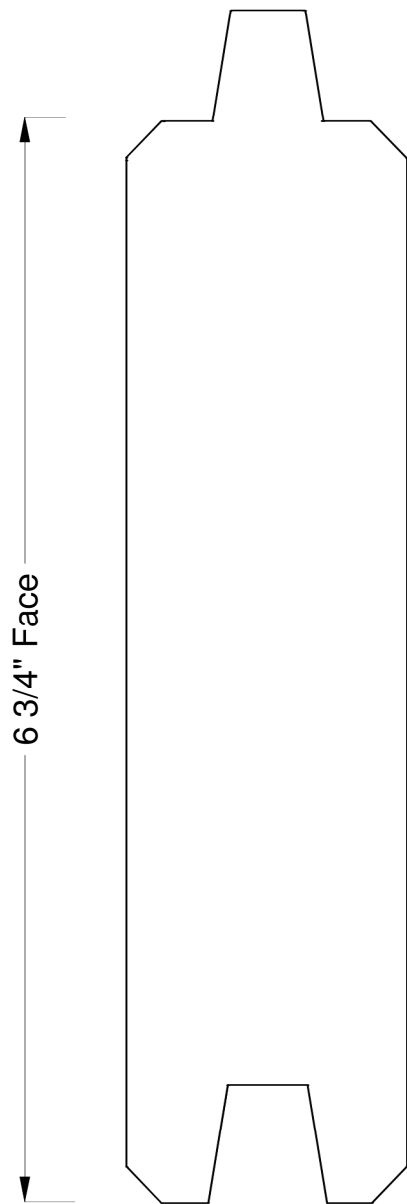
**2206101**



**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

**For Alcuf DP2 or DP3 Rails with a 2" opening.**



**White Pine** infill boards shall be profiled to the specifications shown. The material shall meet or exceed the NLGA grading rules for three (3) Common and better as per paragraphs 118a, b & c, graded as such from both faces. There shall be no prior selection and the boards must be further graded to ensure tight knot with no through holes. Material must be dried to 14-17% moisture content.

This board has a rough face.

Minimum STC rating of 20.

**Alcuf Noise Barrier V-Joint White Pine TG**

DATE: 2024-01-18

DRAWING NUMBER:

REV: 4

SCALE: none

**2206103**



**Alcuf International Inc.**  
Ottawa, Ontario, Canada  
www.alcuf.com

DRAWN BY:  
designs@alcuf.com

Surface density of **20 kg/m<sup>2</sup>** (=4.0 lb/ft<sup>2</sup>) (source SSWA INC., Richmond Hill, Ontario, 1979).