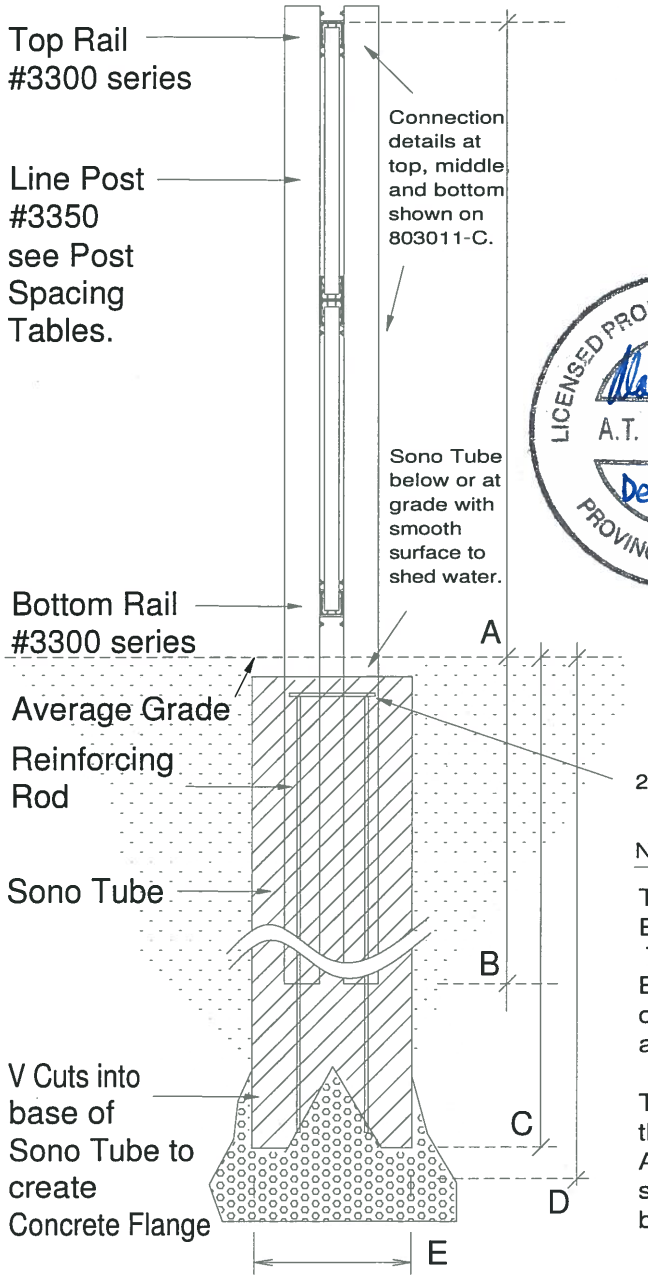
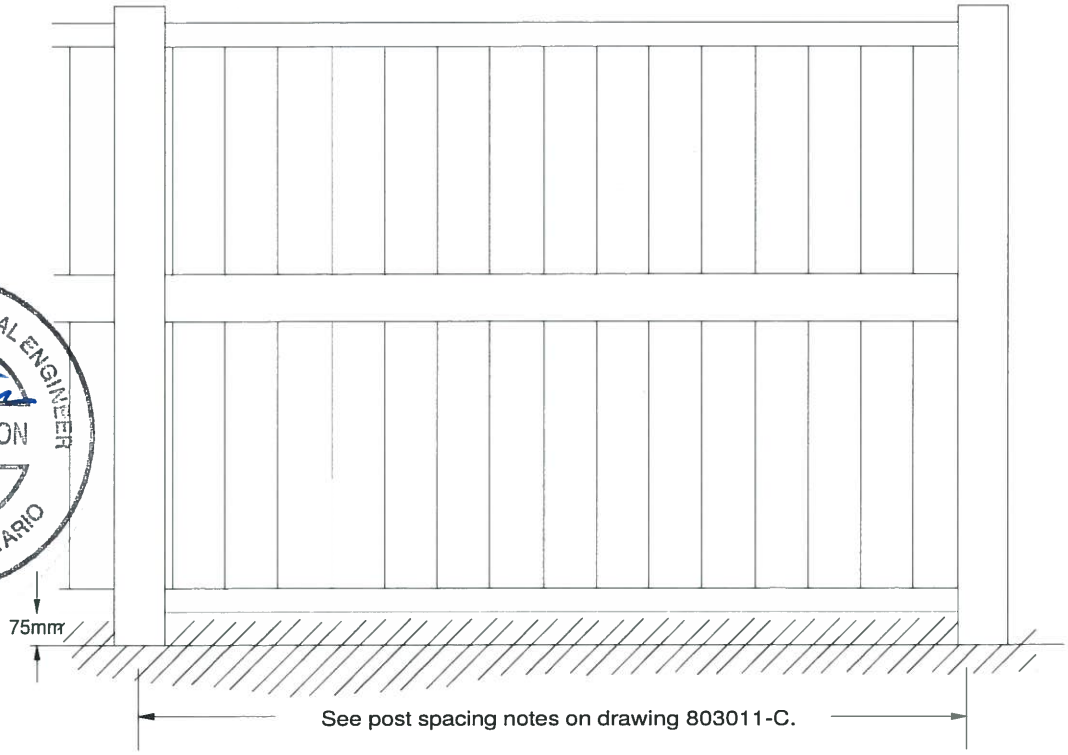
End View



Side View



LICENSED PROFESSIONAL ENGINEER
A.T. HIGGINSON
Dec. 19/18
PROVINCE OF ONTARIO

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

NOTES:

The site requires soil testing by a Soils Engineer and/or a Geotechnical Consultant. The base design and depth requirements A B C D and E above, will be designed based on these reports. What is shown above, is 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 Concrete strength @ 28 days: F'c=32 MPa - Class C2 Exposure 6% +/-1% Air Entraiment.
Reinforcing Steel: G30.18M - Grade 400.

This drawing set consists of parts A to E.

Alcuf DP3 Noise Barrier

DATE: 2018-12-06

DRAWING NUMBER:
812061-A

REV: 1.1

SCALE: none

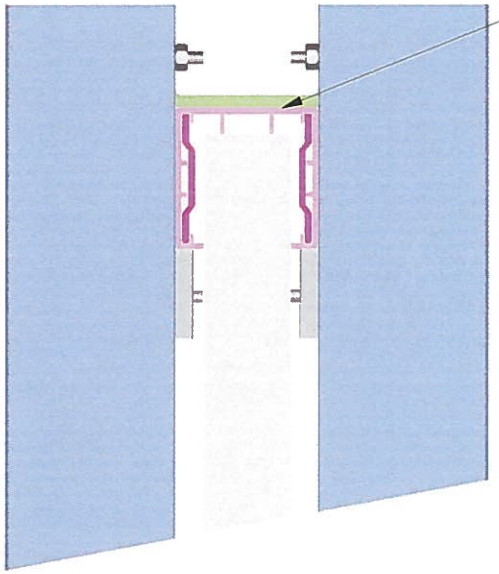
Alcuf International Inc.
Ottawa, Ontario, Canada
www.alcuf.com

DRAWN BY:
designs@alcuf.com

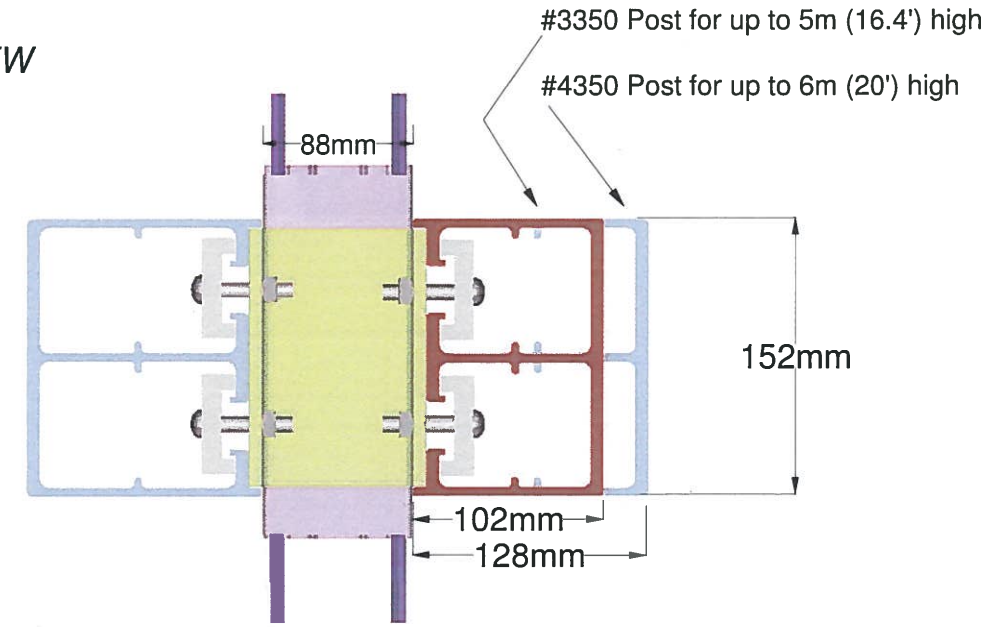
DP3 Frameworks and Infill Options up to 20' (6.2m) high

This drawing set consists of parts A to E.

END VIEW



TOP VIEW



Rail Options

Various rail sizes are available to accomodate 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 6005 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 of between 12 and 16%. 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.

Our high strength extruded 6005-T5 aluminum alloy panels provide an even longer lasting, highly durable alternative. These self-locking panels will provide a secure and continuous sound seal for 40+ years

Speak to your dealer about options to meet your particular noise reduction requirements. Alcuf offers a couple of standard colours in Black and an earthy Bronze, but custom colours are also available.

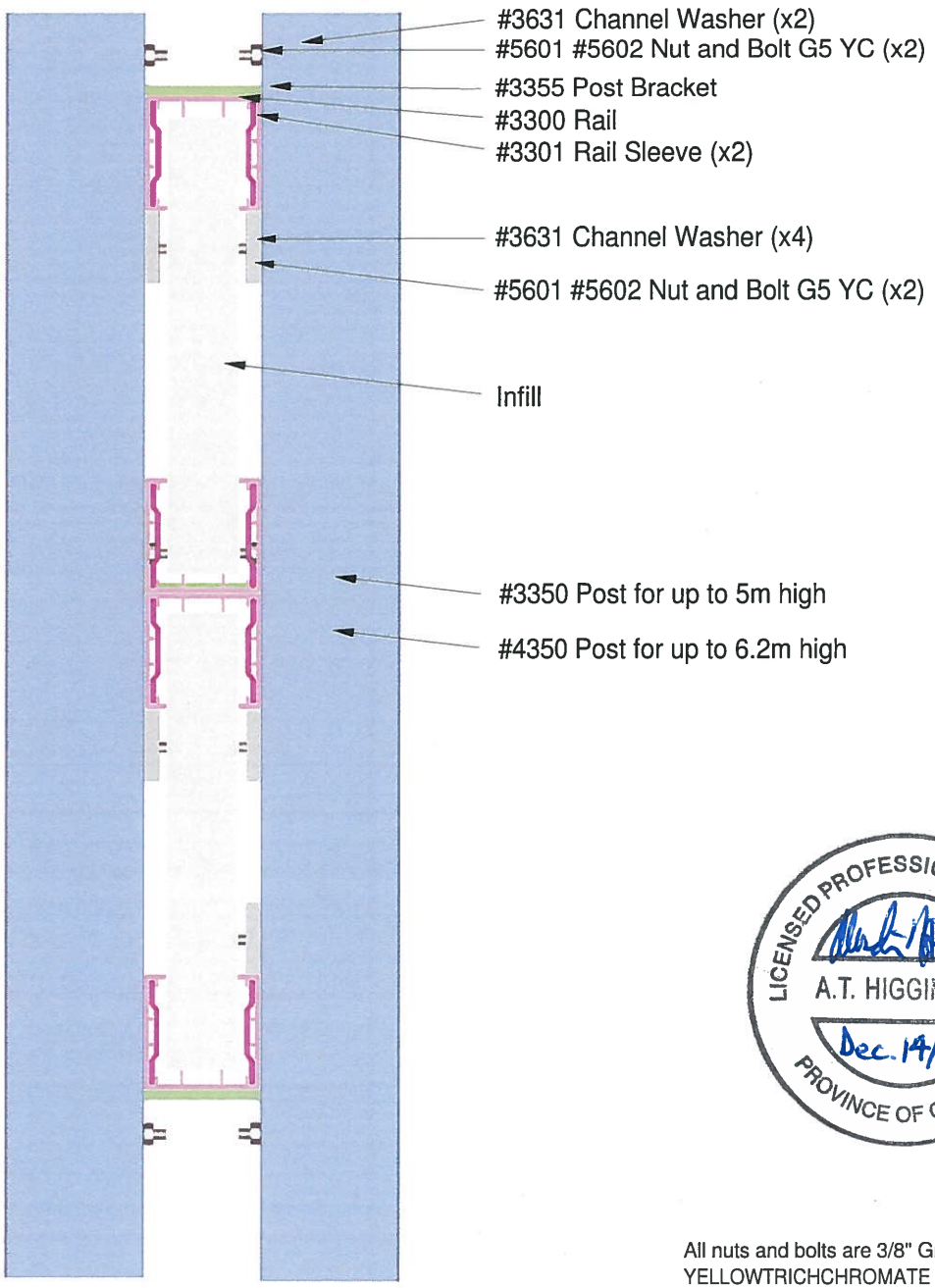
Alcuf DP3 Noise Barrier

DATE: 2018-12-06		DRAWING NUMBER: 812061-B
REV: 1.1	SCALE: none	
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.



LICENSED PROFESSIONAL ENGINEER
A.T. HIGGINSON
Dec. 14/18
PROVINCE OF ONTARIO

All nuts and bolts are 3/8" Grade 5 with a YELLOWTRICHCHROMATE coating ASTM B-117.

DP3 Post Spacing

Post spacing will be calculated for your region based on fence height, location, infill, exposure, and the average wind pressures in your region. The regions of Ottawa, Montreal, and Toronto use a 10' post spacing for 100% solid screen infill applications in DP3.

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).

Alcuf DP3 Noise Barrier

DATE: 2018-12-06		DRAWING NUMBER: 812061-C
REV: 1.1	SCALE: none	
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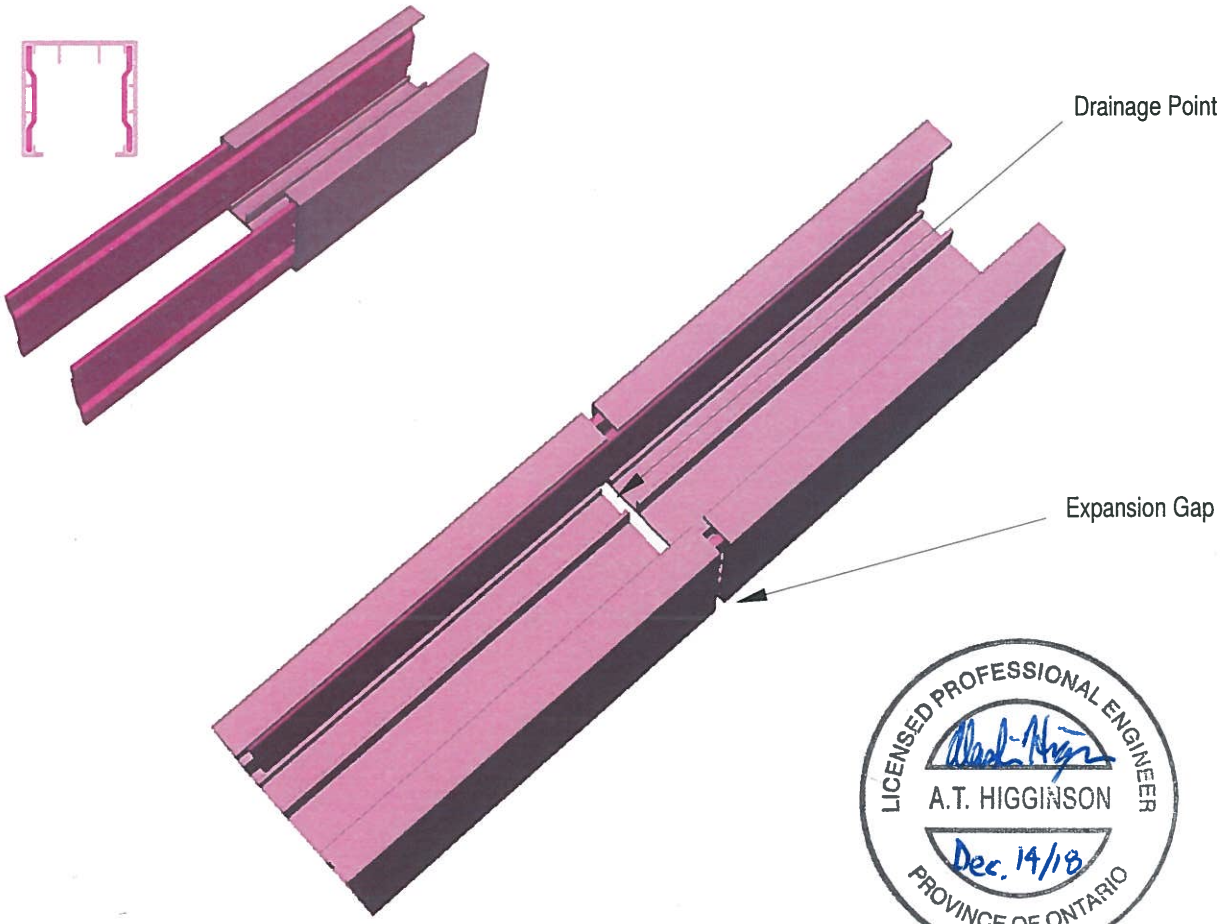
DP3 Sleeve Details and Expansion Gap Table

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 times 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: 2018-12-06

DRAWING NUMBER: 812061-D

REV: 3.0

SCALE: none

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Ottawa, Ontario, Canada
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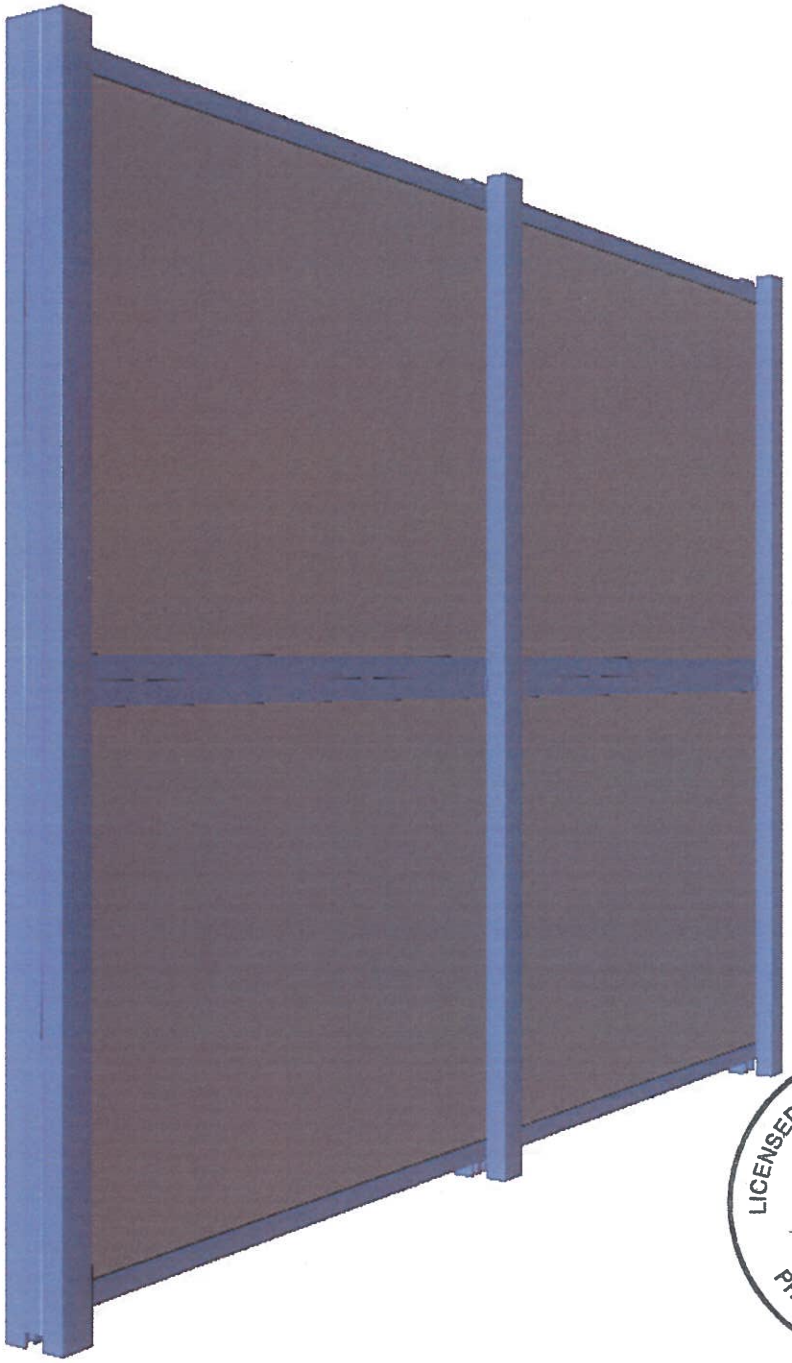
DP3 Notes

This drawing set consists of parts A to E.



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 determined.

We have infills in wood that historically can deliver noise reduction for 20 - 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 warm 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 framework as good as new. We have systems with extruded panels that are now 30+ 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.

Alcuf DP3 Noise Barrier

DATE: 2018-12-06		DRAWING NUMBER: 812061-E
REV: 1.0	SCALE: none	

Alcuf International Inc.
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