



BRASCO INTERNATIONAL, INC.

ECLIPSE INSTALLATION GUIDELINES

Thank you for your order. Enclosed with these guidelines are engineering instructions specific to your order. Please review all pages in full before proceeding with your installation.

Storage

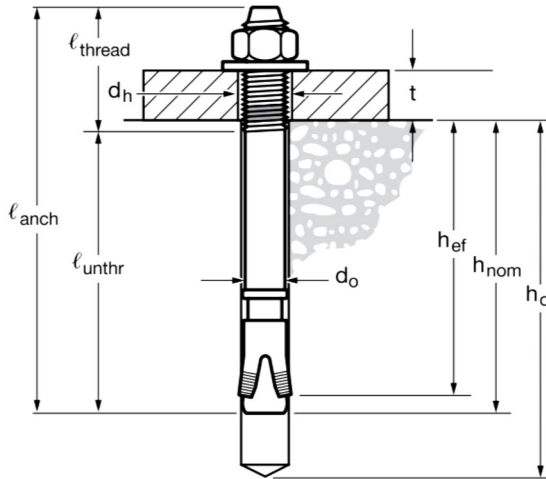
1. Products stored outside must be fully tarped. Wooden crates, cardboard boxes and identifying labels are not weatherproof and will deteriorate in the elements.
2. If your order includes solar lighting, be cautious when handling batteries as they are capable of generating hazardous short-circuit currents. Remove all jewelry (bracelets, metal watches, rings) before attempting to handle or disassemble batteries.
3. Batteries should be stored indoors at a recommended 68 degrees Fahrenheit for max shelf life.
4. Batteries should be installed no later than 3 months from delivery or battery warranties will be void.

TOOLS NEEDED

<input type="checkbox"/> Drill Motor / Impact Driver	<input type="checkbox"/> Cordless Drill	<input type="checkbox"/> Chalk Line
<input type="checkbox"/> 3/8" Drill Bit (min. 6" lg.)	<input type="checkbox"/> Air Compressor	<input type="checkbox"/> Tape Measure
<input type="checkbox"/> Pry Bar (Leveling)	<input type="checkbox"/> Steel Hammer	<input type="checkbox"/> Torque Wrench
<input type="checkbox"/> 8" Long Masonry Drill Bits	<input type="checkbox"/> Dead Blow Hammer or Mallet	<input type="checkbox"/> Hex Key Set
<input type="checkbox"/> 5/8" and 3/4" Socket and Wrench	<input type="checkbox"/> Bubble Level, Line / String Level	<input type="checkbox"/> Generator or Other Power Source
<input type="checkbox"/> HD Drill Motor or Hammer Drill	<input type="checkbox"/> Min. 6ft. Step Ladder	<input type="checkbox"/> Shop Vac or Broom for Clean Up

Installing Expansion Anchors

Expansion Anchor Installed



Setting information	Symbol	Units	Nominal anchor diameter d _a													
			3/8			1/2				5/8				3/4		
Nominal bit diameter	d _{bit}	in.	3/8			1/2				5/8				3/4		
Minimum nominal embedment	h _{nom}	in.	2-5/16			2-3/8		3-5/8		3-9/16		4-7/16		4-5/16		5-9/16
		(mm)	(59)			(60)		(91)		(91)		(113)		(110)		(142)
Effective minimum embedment	h _{ef}	in.	2			2		3-1/4		3-1/8		4		3-3/4		4-3/4
		(mm)	(51)			(51)		(83)		(79)		(102)		(95)		(121)
Min. hole depth	h _o	in.	2-5/8			2-5/8		4		3-3/4		4-3/4		4-5/8		5-3/4
		(mm)	(67)			(67)		(102)		(95)		(121)		(117)		(146)
Min. thickness of fixture ¹	t _{min}	in.	1/8			1/8		n/a		1/8		n/a		1/8		n/a
		(mm)	(3)			(3)				(3)				(3)		
Max. thickness of fixture	t _{max}	in.	2-1/4			4		2-3/4		5-5/8		4-3/4		4-5/8		3-5/8
		(mm)	(57)			(101)		(70)		(143)		(121)		(117)		(92)
Installation torque	T _{inst}	ft-lb	25			40				60				110		
		(Nm)	(34)			(54)				(81)				(149)		
Fixture hole diameter	d _h	in.	7/16			9/16				11/16				13/16		
		(mm)	(11.1)			(14.3)				(17.5)				(20.6)		
Available anchor lengths	ℓ _{anch}	in.	3	3-3/4	5	3-3/4	4-1/2	5-1/2	7	4-3/4	6	8-1/2	10	5-1/2	8	10
		(mm)	(76)	(95)	(127)	(95)	(114)	(140)	(178)	(121)	(152)	(216)	(254)	(140)	(203)	(254)
Threaded length including dog point	ℓ _{thread}	in.	7/8	1-5/8	2-7/8	1-5/8	2-3/8	3-3/8	4-7/8	1-1/2	2-3/4	5-1/4	6-3/4	1-1/2	4	6
		(mm)	(22)	(41)	(73)	(41)	(60)	(86)	(178)	(38)	(70)	(133)	(171)	(38)	(102)	(152)
Unthreaded length	ℓ _{unthr}	in.	2-1/8			2-1/8				3-1/4				4		
		(mm)	(54)			(54)				(83)				(102)		

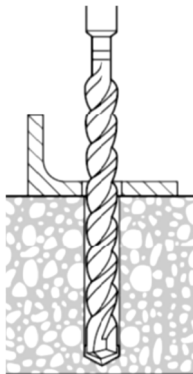
Expansion Anchor Technical Chart

Minimum thickness of fixture is a concern only when the anchor is installed at the minimum nominal embedment. When KWIK Bolt TZ anchors are installed at this embedment, the anchor threading ends near the surface of the concrete. If the fixture is sufficiently thin, it could be possible to run the nut to the bottom of the threading during application of the installation torque. If fixtures are thin, it is recommended that embedment be increased accordingly.

Step 1.

Prepping the Concrete

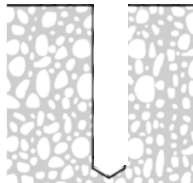
Using anchor boot as a template, mark hole locations and move anchor boot out of the way. Drill a hole the same diameter as the expansion anchor to a minimum depth of 1/2" deeper than the anchor will penetrate to allow debris to fall during installation.



Step 2.

Prepping the Hole

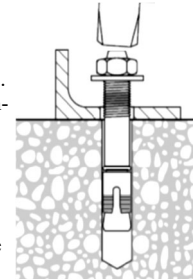
Clean debris from holes using a wire brush, vacuum, or compressed air.



Step 3.

Anchor Installation

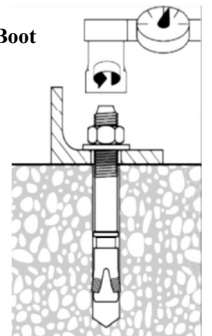
Replace the anchor boot and align with holes in the concrete. Make sure the nut on the expansion anchor is threaded to the top of the threaded rod to prevent damage to the threads. Insert the expansion anchor through the base plate and into the hole in the concrete. Hit the expansion anchor with sharp blows until the washers are snug against the base plates.



Step 4.

Securing the Anchor Boot

Tighten the nut to the recommended installation torque.



Standard Brasco Anchoring Guidelines

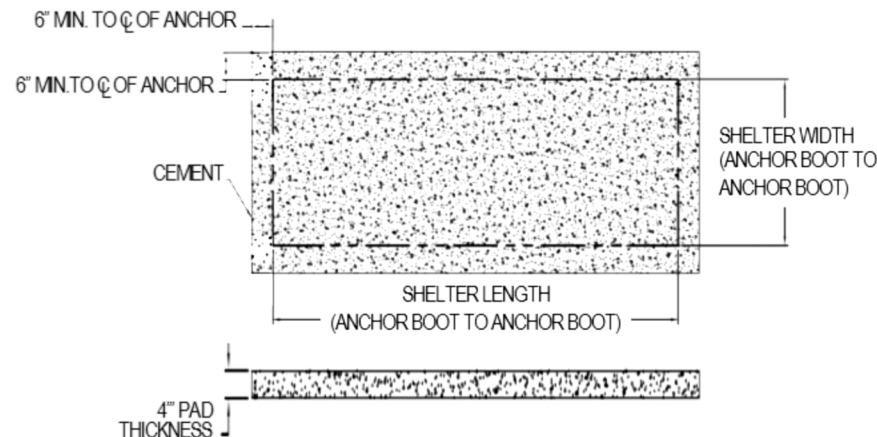
Expansion Anchor Installed

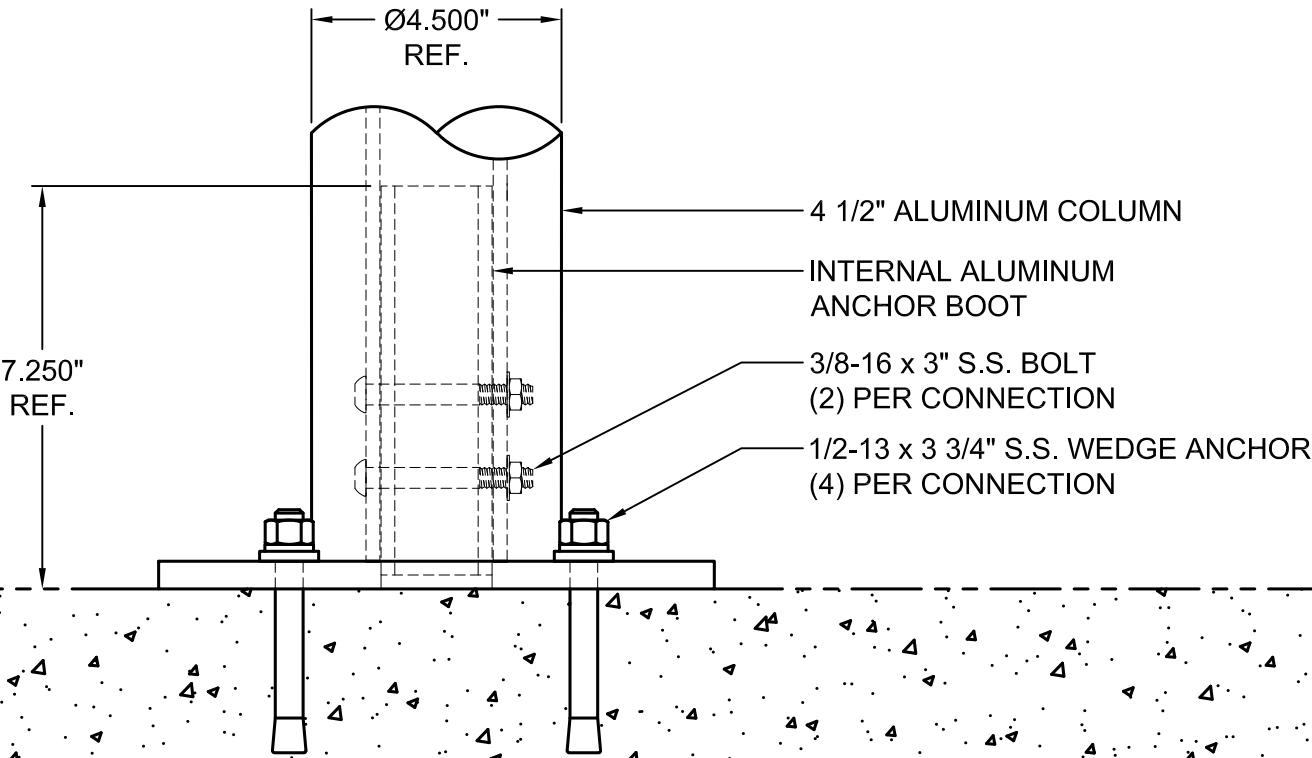
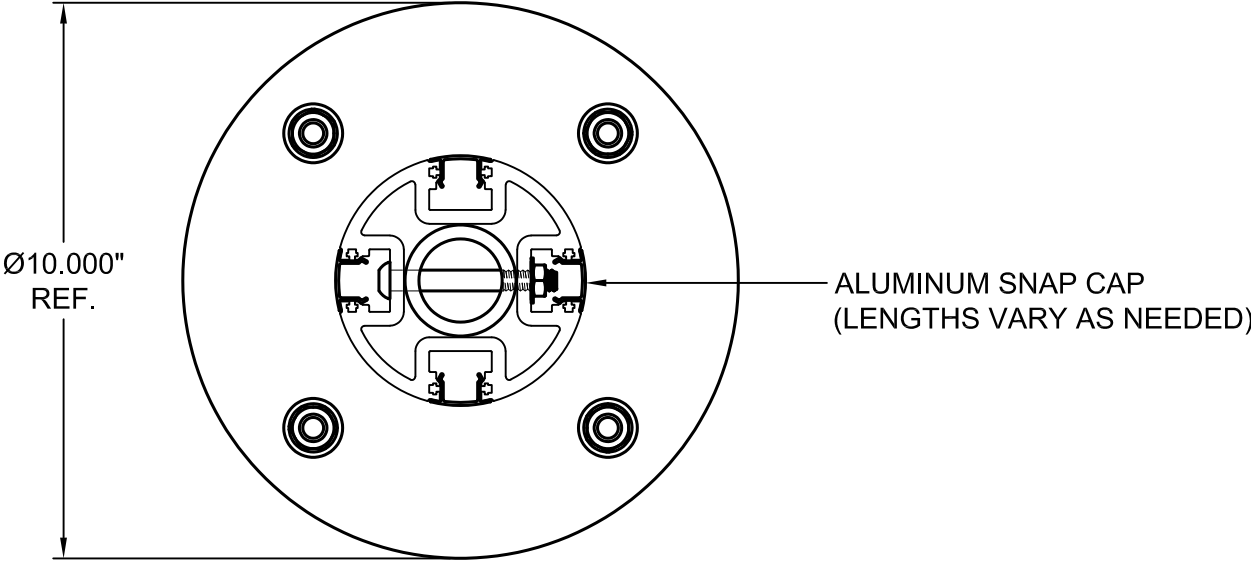
1. Locating proper column locations is critical. Care must be taken to keep columns plumb and walls square to each other.
2. Shelter should be sloped slightly to the rear for proper drainage. Approximately 1/4 inch slope per ft. from front to rear of shelter is recommended. Columns should be shimmed as necessary.
3. Anchors to be installed in conjunction with manufacturers recommendations only. (See Expansion Anchor Technical Chart on previous page.)
4. Anchors need to be installed a minimum of 6 inches from the edge of the concrete pad. See below for reference.

Standard Concrete Pad Overview

NOTE: This visual is for reference only. Brasco is not liable for concrete installation instructions unless structural concrete calculations are included with an order. Consult your local building codes for specific concrete pad requirements.

RECOMMENDED: Brasco recommends a minimum 4 inch thick, 3000 PSI concrete pad for areas with wind speeds lower than 110 MPH. The concrete pad should allow a minimum of 6 inches around the shelter's perimeter to prevent concrete breakage when anchoring. Concrete may or may not require additional reinforcement.





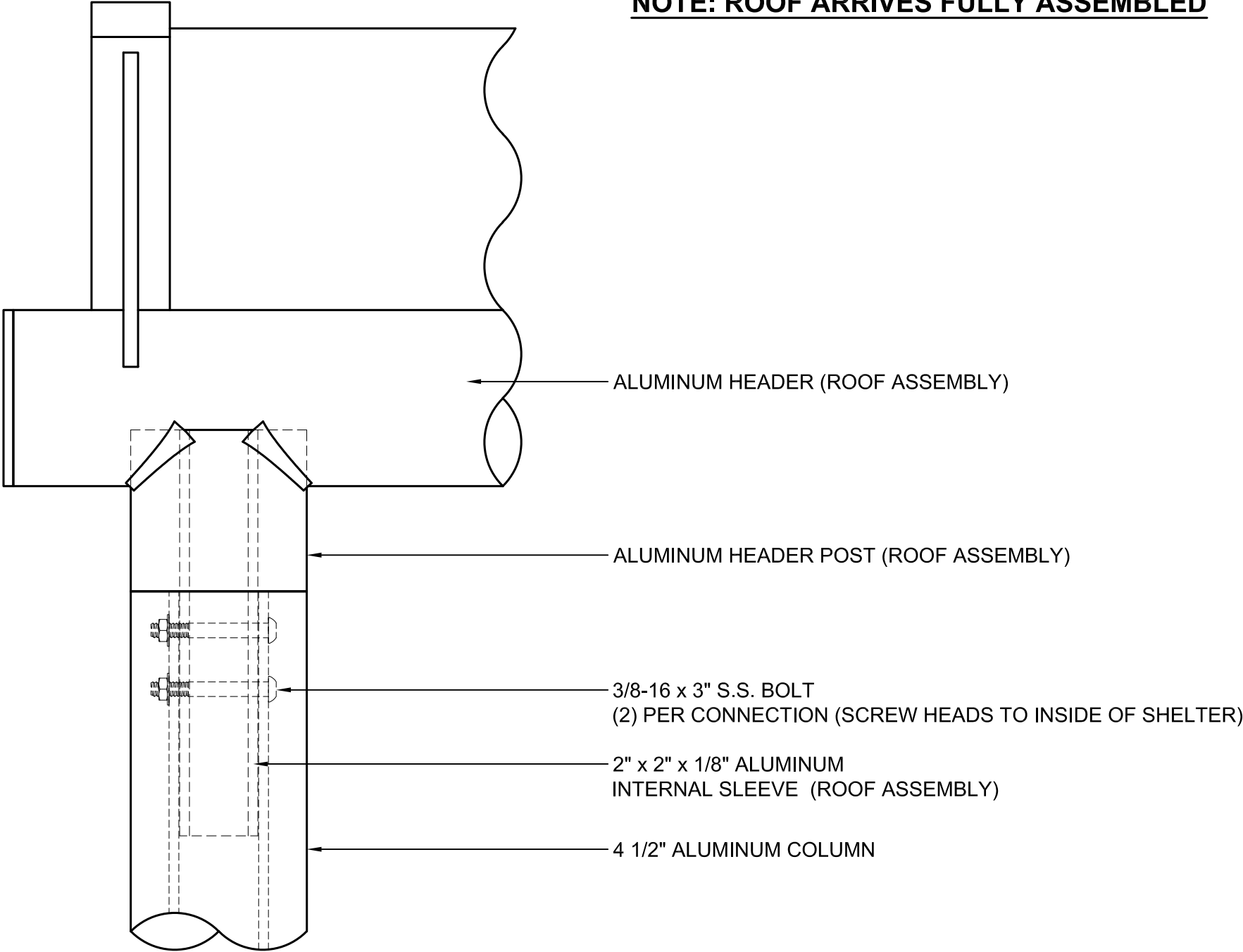
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MADISON HEIGHTS, MICHIGAN 48071
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SIGNED: _____ DATE: _____

CUSTOMER:	INSTALLATION INSTRUCTIONS	ENGINEER:	ZTL
		DATE:	10-17-13
PROJECT:	ECLIPSE STYLE TRANSIT SHELTER	CHECKER:	BMB
		DATE:	10-17-13
MODEL:	ECLIPSE SERIES	JOB #	EC-INST
		SHEET #:	EC-INST 2

NOTE: ROOF ARRIVES FULLY ASSEMBLED



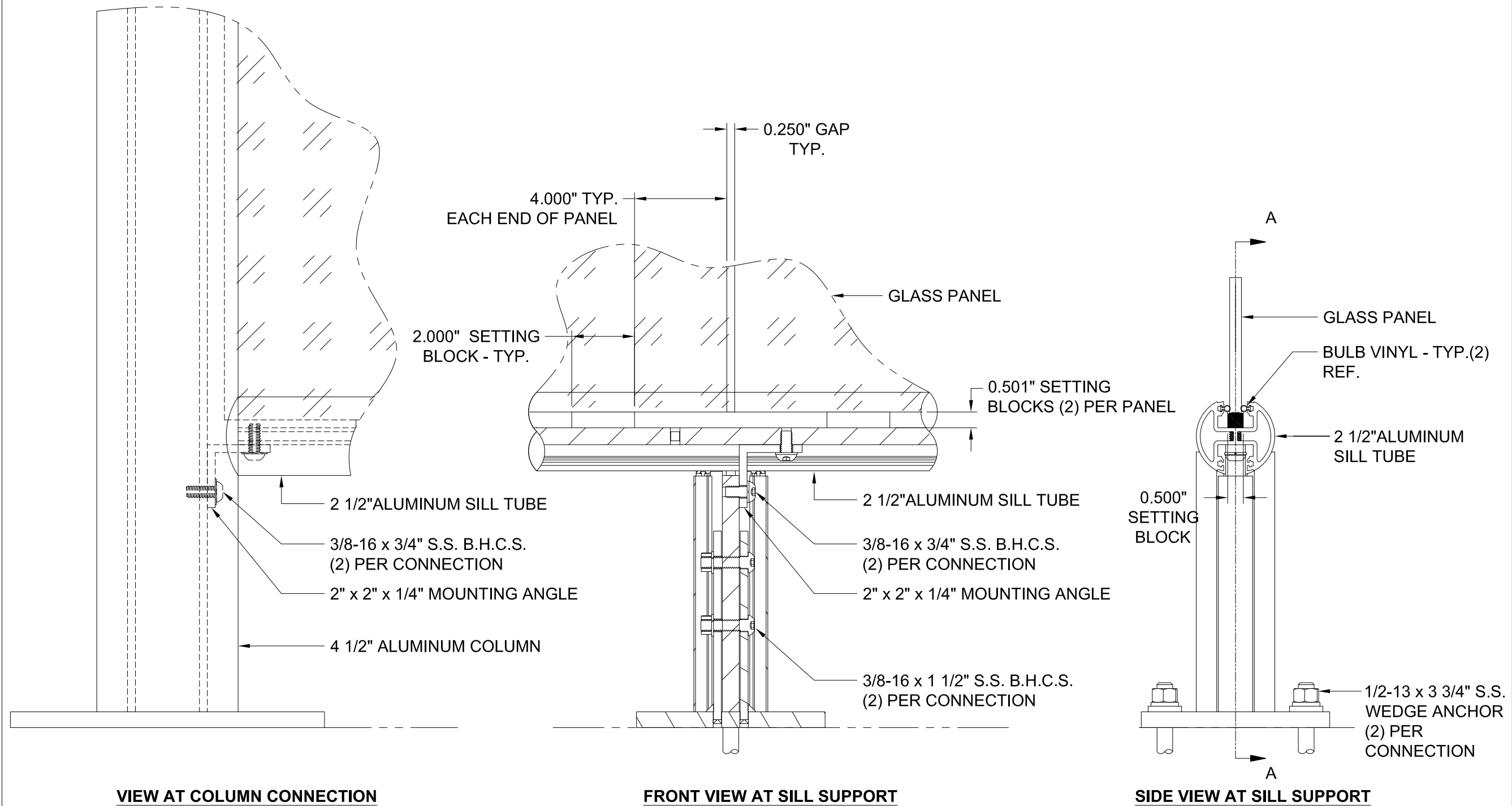
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CUSTOMER:	INSTALLATION INSTRUCTIONS	ENGINEER: ZTL	
		DATE:	10-17-13
PROJECT:	ECLIPSE STYLE TRANSIT SHELTER	CHECKER: BMB	
		DATE:	10-17-13
MODEL:	ECLIPSE SERIES	JOB #	EC-INST
		SHEET #:	EC-INST 3



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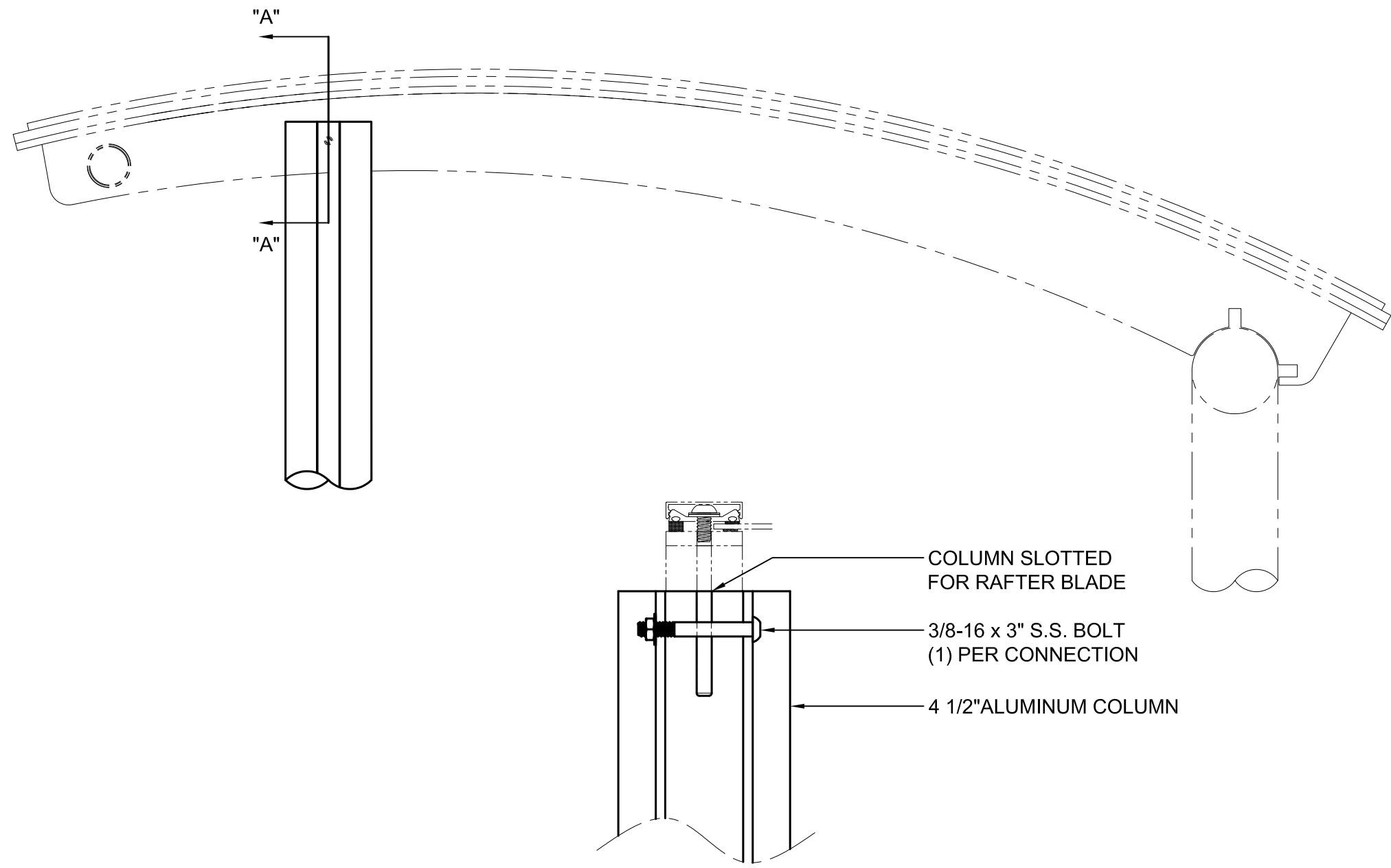
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SIGNED: _____ DATE: _____

CUSTOMER:	INSTALLATION INSTRUCTIONS			ENGINEER:	ZTL
PROJECT:	ECLIPSE STYLE TRANSIT SHELTER			DATE:	10-17-13
MODEL:	ECLIPSE SERIES	JOB #	EC-INST	CHECKER:	BMB
				DATE:	10-17-13
				SHEET #:	EC-INST 4



SECTION "A-A"



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SIGNED: _____ DATE: _____

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					DATE:	10-17-13
PROJECT:	ECLIPSE STYLE TRANSIT SHELTER				CHECKER:	BMB
					DATE:	10-17-13
MODEL:	ECLIPSE SERIES	JOB #	EC-INST	SHEET #:	EC-INST 5	