

# SUBMITTAL



Submittal number	95.0	Date	12/17/2019
Project	TRAILS AT CROWFOOT F1 & 9	6954 N. CROWFOOT VALLEY RD. PARKER, CO 80134	
Project number	201810		
Spec section			
Subsection		Status	Open
Current action	Submitted	Ball in court	
Topic	Signage Materials		

Submitter	MICHAEL TOMAS SNYDER
Reviewer	
Cc	

Date submitted	12/17/2019	Submission due date	12/17/2019
Released for review	12/17/2019	Review due date	12/24/2019
Date returned		Required on site date	
Date closed			

**Notes**

Please see the attached Colorado Barricade Submittal 496228-S for Signage Materials

**SUBMITTAL NO: 496228-S**
**SUBMITTED FOR: Approval**
**CUSTOMER: KELLEY TRUCKING INC**
**PO / Subcontract No.: 2018-10**
**JOB No.: 496228**
**PROJECT NAME: TRAILS AT CROWFOOT FILING 1 AND 1A**
**DATE: 12/16/2019**
**ATTN: CON COCKRUM**

### ITEMS SUBMITTED

PRODUCT	MANUFACTURER	DATA SUBMITTED
ALUNINUM PANELS .080 -.100	MANDEL METALS	CERTIFICATE OF COMPLIANCE
SHEETING – HI INTENSITY, DIAMOND, FLORESCENT	AVERY DENNISON	CERTIFICATE OF COMPLIANCE
TELE SPAR SIGN SUPPORT	ULTIMATE SIGN SUPPORT	CERTIFICATE OF COMPLIANCE
S SQUARE NEXTUBE SIGN SUPPORT	S SQUARE TUBE PRODUCTS	CERTIFICATE OF COMPLIANCE

- |   |   |
|---|---|
| <input type="checkbox"/> APPROVED           | <input type="checkbox"/> APPROVED AS NOTED    |
| <input type="checkbox"/> REVISED & RESUBMIT | <input type="checkbox"/> REJECTED/RESUBMIT    |
| <input type="checkbox"/> NOT REVIEWED       | <input type="checkbox"/> FOR YOUR INFORMATION |

Submittals are reviewed for conformance with design intent and general compliance with the Contract Documents only. Notations Do Not Aurtherize Changes to Contract Sum.

Approval, comments and/or corrections does not relieve the Contractor from compliance with the Contract Documents. The Contractor is responsible for confirming and correlating all quantities, demension, tolerance, clearances, fabrication processes, techniques and sequences of construction, compatibility of materials and methods, coordination of their work with other trades and subcontractors, performance of work and a safe and satisfactory manner and for full compliance with the Contract Documents.

---

**DATE**


---

**Reviewed BY**



**REFLECTIVE SOLUTIONS**

902 Feehanville Drive  
Mount Prospect, IL 60056  
Phone: 847-824-7450  
FAX: 847-824-7662

RPD BARRICADE, LLC  
2295 S. LIPAN STREET  
DENVER, CO 80223

6.14.17

P.O. #: 6356428  
Invoice #: 61615357  
Order #: SE22465

To Whom It May Concern:

We hereby certify that the Avery Dennison retroreflective sheeting identified herein conforms to all specification requirements contained in the Avery Dennison Product Data Bulletin for the product(s) listed below:

Product Code	Color	Size (W x L)	Quantity (Rolls/Sheets)	Lot #
T-11500	White	48.00 x 050.00 yd	2 RL	7f09yp0092604680s

We also hereby certify that the Avery Dennison retroreflective sheeting identified above:

- Meets ASTM 4956 Type XI
- Was manufactured in the United States of America in accordance to the "Buy America Act"

Very truly yours,

Avery Dennison  
Graphics and Reflective Solutions

Sandeep Kottarath  
Quality & Engineering Manager



**REFLECTIVE SOLUTIONS**

902 Feehanville Drive  
Mount Prospect, IL 60056  
Phone: 847-824-7450  
FAX: 847-824-7662

RPD BARRICADE, LLC  
2295 S. LIPAN STREET  
DENVER, CO 80223

2.13.17

P.O. #: 6356140  
Invoice #: 61581601  
Order #: SD80824

To Whom It May Concern:

We hereby certify that the Avery Dennison retroreflective sheeting identified herein conforms to all specification requirements contained in the Avery Dennison Product Data Bulletin for the product(s) listed below:

Product Code	Color	Size (W x L)	Quantity (Rolls/Sheets)	Lot #
T-11511	Fluorescent Yellow	36.00 x 050.00 yd	1 RL	7a25yp0042546647s

We also hereby certify that the Avery Dennison retroreflective sheeting identified above:

- Meets ASTM 4956 Type XI
- Was manufactured in the United States of America in accordance to the "Buy America Act"

Very truly yours,

Avery Dennison  
Graphics and Reflective Solutions

Sandeep Kottarath  
Quality & Engineering Manager



**REFLECTIVE SOLUTIONS**

902 Feehanville Drive  
Mount Prospect, IL 60056  
Phone: 847-824-7450  
FAX: 847-824-7662

RPD BARRICADE, LLC  
2295 S. LIPAN STREET  
DENVER, CO 80223

2/29/2016

P.O. #: 6355293  
Invoice #: 61491229  
Order #: SB93691

To Whom It May Concern:

We hereby certify that the Avery Dennison retroreflective sheeting identified herein conforms to all specification requirements contained in the Avery Dennison Product Data Bulletin for the product(s) listed below:

Product Code	Color	Size (W x L)	Quantity (Rolls/Sheets)	Lot #
T-11507	Green	48.00 x 050.00 yd	2 RL	6b22yp0142380299s

We also hereby certify that the Avery Dennison retroreflective sheeting identified above:

- Meets ASTM 4956 Type XI
- Was manufactured in the United States of America in accordance to the "Buy America Act"

Very truly yours,

Avery Dennison  
Graphics and Reflective Solutions

Sandeep Kottarath  
Quality & Engineering Manager



**REFLECTIVE SOLUTIONS**

902 Feehanville Drive  
Mount Prospect, IL 60056  
Phone: 847-824-7450  
FAX: 847-824-7662

RPD BARRICADE, LLC  
2295 S. LIPAN STREET  
DENVER, CO 80223

6.14.17

P.O. #: 6356428  
Invoice #: 61615357  
Order #: SE22465

To Whom It May Concern:

We hereby certify that the Avery Dennison retroreflective sheeting identified herein conforms to all specification requirements contained in the Avery Dennison Product Data Bulletin for the product(s) listed below:

Product Code	Color	Size (W x L)	Quantity (Rolls/Sheets)	Lot #
T-6500	White	48.00 x 050.00 yd	1 RL	7f12yp0162605717s

We also hereby certify that the Avery Dennison retroreflective sheeting identified above:

- Meets ASTM 4956 Type IV
- Was manufactured in the United States of America in accordance to the "Buy America Act"

Very truly yours,

Avery Dennison  
Graphics and Reflective Solutions

Sandeep Kottarath  
Quality & Engineering Manager



NOVELIS CORP: OSWEGO  
 448 COUNTY ROUTE 1A  
 OSWEGO,NY,13126-5962

## CERTIFICATION OF ANALYSIS

<i>TSold To</i>	MANDEL METALS INC  FRANKLIN PARK, Illinois, 60131-1124	<i>Shipped To</i>	MANDEL METALS INC  FRANKLIN PARK, Illinois, 60131-1124
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<i>TBatch Number</i>	1674549
<i>Novelis Sales Order</i>	32764
<i>Novelis Product Number</i>	3000002807
<i>Customer purchase</i>	P2190A
<i>Customer Part Number</i>	3000002807
<i>Handling Unit</i>	5497804
<i>Bill Of Lading Number</i>	226603-2

	<i>Imperial</i>	<i>UOM</i>	<i>Metric</i>	<i>UOM</i>
<i>Ordered Gauge</i>	0.080000	Inch		
<i>Ordered Width</i>	48.000000	Inch		
<i>Order As Alloy</i>	5052	<i>Avg Gauge</i>	N/A	
<i>Ordered Temper</i>	H38			
<i>Coil Net Weight</i>	7.423 KG			
<i>Cashing date</i>	N/A	<i>Melt Country</i>	CA	
<i>Hot Roll Country</i>	US	<i>Cold Roll</i>	US	

### Customer Specifications:

TASTM B209 ASME SB209

<u>Lab Location</u>	<u>Test Performed</u>	<u>Result</u>	<u>Uom</u>
OSW Mechanical Lab	T-Gauge: ID 0 0%	2.002	MM
OSW Mechanical Lab	T-Gauge: OD 0 0%	2.005	MM
OSW Mechanical Lab	Elg: ID 0 0%	6.50	%
OSW Mechanical Lab	Elg: OD 0 0%	6.50	%
OSW Mechanical Lab	UTS: ID 0 0%	294.51	MPA
OSW Mechanical Lab	UTS: OD 0 0%	299.60	MPA
OSW Mechanical Lab	YS: ID 0 0%	260.18	MPA
OSW Mechanical Lab	YS: OD 0 0%	266.04	MPA

#### Single Alloy or Clad Core Metal Chemistry

Al: 96.97770% , Si: 0.09000% , Fe: 0.28000% , Cu: 0.03000% , Mn: 0.06000% , Mg: 2.35000% , Cr: 0.19000% , Zn: 0.01000% , Ti: 0.01000% , Be: 0.00010% , Ca: 0.00010% , Cd: 0.00100% , Na: 0.00010% , Pb: 0.00100%

### Other Characteristic(s)

*TValues*

### Comments

#### Statement Of Compliance

*TI certify that the materials detailed herein have been tested and found to be in compliance with the appropriate specifications.*

*TThis Certificate was created Electronically and is valid without Signature*

T12/14/2015

*Date of Issue*



NOVELIS CORP: OSWEGO  
448 COUNTY ROUTE 1A  
OSWEGO, NY, 13126-5962

## CERTIFICATION OF ANALYSIS

<i>TSold To</i>	MANDEL METALS INC  FRANKLIN PARK, Illinois, 60131-1124	<i>Shipped To</i>	MANDEL METALS INC  FRANKLIN PARK, Illinois, 60131-1124
-----------------	--	-------------------	--

<i>TBatch Number</i>	01699861
<i>Novelis Sales Order</i>	35717
<i>Novelis Product Number</i>	3000002596
<i>Customer purchase</i>	P2629
<i>Customer Part Number</i>	3000002596
<i>Handling Unit</i>	5510155
<i>Bill Of Lading Number</i>	270224-1

	<i>Imperial</i>	<i>UOM</i>	<i>Metric</i>	<i>UOM</i>
<i>Ordered Gauge</i>	0.100000	Inch		
<i>Ordered Width</i>	60.00000	Inch		
<i>Order As Alloy</i>	5052	Avg Gauge	N/A	
<i>Ordered Temper</i>	H38			
<i>Coil Net Weight</i>	4.874	KG		
<i>Cashing date</i>	N/A	Melt Country	US	
<i>Hot Roll Country</i>	US	Cold Roll	US	

### Customer Specifications:

<u><i>T</i>Lab Location</u>	<u><i>T</i>est Performed</u>	<u><i>R</i>esult</u>	<u><i>U</i>om</u>
OSW Mechanical Lab	T-Gauge: ID 0 0%	2.450	MM
OSW Mechanical Lab	T-Gauge: OD 0 0%	2.455	MM
OSW Mechanical Lab	Elg: ID 0 0%	6.70	%
OSW Mechanical Lab	Elg: OD 0 0%	6.60	%
OSW Mechanical Lab	UTS: ID 0 0%	304.57	MPA
OSW Mechanical Lab	UTS: OD 0 0%	302.10	MPA
OSW Mechanical Lab	YS: ID 0 0%	272.03	MPA
OSW Mechanical Lab	YS: OD 0 0%	271.06	MPA

#### Single Alloy or Clad Core Metal Chemistry

Al: 96.84459% , Si: 0.13517% , Fe: 0.25128% , Cu: 0.06091% , Mn: 0.07417% , Mg: 2.36733% , Cr: 0.21272% , Ni: 0.00668% , Zn: 0.00873% , Ti: 0.00942% , Be: 0.00007% , Bi: 0.00028% , Ca: 0.00091% , Cd: 0.00011% , Ga: 0.01083% , Li: 0.00006% , Na: 0.00007% , Pb: 0.00200% , Sn: 0.00059% , V: 0.01297% , Zr: 0.00110%

### Other Characteristic(s)

*T*Values

### Comments

#### Statement Of Compliance

*T*I certify that the materials detailed herein have been tested and found to be in compliance with the appropriate specifications.

*T*This Certificate was created Electronically and is valid without Signature

T05/02/2016

Date of Issue



**MANDEL METALS, INC.**  
 Service Center Division  
 11400 Addison Street  
 Franklin Park, IL 60131  
 Tel. 847/455-6606  
 Fax 847/455-3330

# MATERIAL CERTIFICATION

CUSTOMER ORDER NO. 6356074

MANDEL ORDER NO. USS32443

**SOLD TO**  
 COLORADO BARRICADE  
 2295 S. LIPAN STREET  
 DENVER, CO 80223

**T O**

**PHYSICAL PROPERTIES** (typ., approx. 60°F)

Tensile 39.0 ksj/min.  
 Yield 32.0 ksi min.  
 Elongation 4 %

ITEM(S)

ALO BLANK/SQUARE/OCTAGON

5052-H38 .080/.100 VARIOUS X VARIOUS

SHIP DATE

**MADE IN THE USA**

**CHEMICAL ANALYSIS: RANGES AND LIMITS** Composition in % max. unless shown as a range or min.

Aluminum Alloy	Silicon		Iron	Copper	Manganese	Magnesium	Chromium	Zinc	Ti	Others		Aluminum
	Si	Fe								Each	Total	
1100	1.0			0.05-0.20	0.05			0.10		0.05	0.15	99.00 Min.
2011	0.40		0.7	5.0-6.0				0.30		0.05 <sup>1</sup>	0.15	Remainder
2014	0.50-1.2		0.7	3.9-5.0	0.40-1.2	0.20-0.8	0.10	0.25	0.15	0.05	0.15	Remainder
2017	0.20-0.80		0.7	3.5-4.5	0.40-1.0	0.40-0.8	0.10	0.25	0.15	0.05	0.15	Remainder
2024	0.50		0.50	3.8-4.9	0.30-0.9	1.2-1.8	0.10	0.25	0.15	0.05	0.15	Remainder
2219	0.20		0.30	5.8-6.8	0.20-0.40	0.02		0.10	0.02-0.10	0.05 <sup>4</sup>	0.15	Remainder
3003	0.6		0.7	0.05-0.20	1.0-1.5			0.10		0.05	0.15	Remainder
3105	0.6		0.7	0.30	0.30-0.8	0.20-0.8	0.20	0.40	0.10	0.05	0.15	Remainder
5005	0.30		0.7	0.20	0.20	0.50-1.1	0.10	0.25		0.05	0.15	Remainder
**5052	0.25		0.40	0.10	0.10	2.2-2.8	0.15-0.35	0.10		0.05	0.15	Remainder
5083	0.40		0.40	0.10	0.40-1.0	4.0-4.9	0.05-0.25	0.25	0.15	0.05	0.15	Remainder
5086	0.40		0.50	0.10	0.20-0.7	3.5-4.5	0.05-0.25	0.25	0.15	0.05	0.15	Remainder
5454	0.25		0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.20	0.25	0.20	0.05	0.15	Remainder
5456	0.25		0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	0.25	0.20	0.05	0.15	Remainder
5657	0.08		0.10	0.10	0.03	0.6-1.0		0.05		0.02 <sup>2</sup>	0.05	Remainder
6061	0.40-0.8		0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.35	0.25	0.15	0.05	0.15	Remainder
6063	0.20-0.6		0.35	0.10	0.10	0.45-0.9	0.10	0.10	0.10	0.05	0.15	Remainder
6262	0.40-0.8		0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.14	0.25	0.15	0.05 <sup>3</sup>	0.15	Remainder
7075	0.40		0.50	1.2-2.0	0.30	2.1-2.9	0.18-0.28	5.1-6.1	0.20	0.05	0.15	Remainder
CAST Tooling	1.0		1.10	0.70-1.60	1.00	0.8-2.1	0.30	2.2-4.2	0.25	0.05	0.15	Remainder
Alclad 2024 Clad	0.7	Si + Fe		0.10	0.05	.05		0.10	0.03	0.03 <sup>5</sup>		99.30 Min.
Core	0.50		0.50	3.8-4.9	0.30-0.9	1.2-1.8	0.10	0.25		0.05	0.15	Remainder
Alclad 7075 Clad	0.7	Si + Fe		0.10	0.10	0.10		0.8-1.3		0.05	0.15	Remainder
Core	0.40		0.50	1.2-2.0	0.30	2.1-2.9	0.18-0.28	5.1-6.1	0.20	0.05	0.15	Remainder

<sup>1</sup>Lead and Bismuth each 0.20-0.6% <sup>2</sup>Gallium 0.03% max; Vanadium 0.05% max  
<sup>4</sup>Vanadium 0.05-0.15%; Zirconium 0.10-0.25%

<sup>3</sup>Lead and Bismuth 0.40-0.7%  
<sup>5</sup>Vanadium 0.05 Max.

We certify that the ORDER ITEM described on this document was shipped in accordance with your order. The producer of the material has certified to us that it conforms to the chemical composition limits shown above.

ALL MATERIAL IS MELTED AND MANUFACTURED IN THE USA.

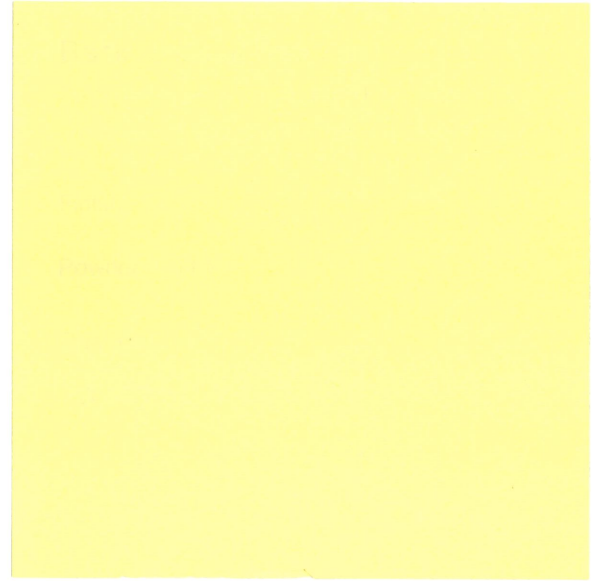
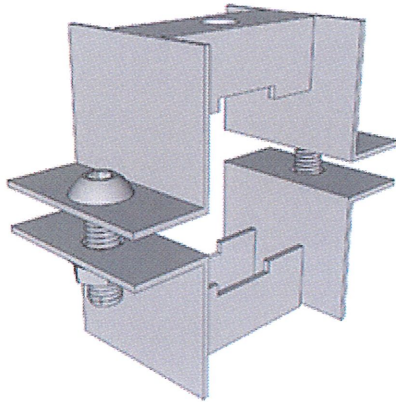
**Mandel Metals, Inc.**

"The aluminum sign blanks have received a chemical treatment conforming to ASTM B921 prior to placement of reflective sheeting."

SERVING CUSTOMERS FOR OVER 30 YEARS: 1985 - 2017

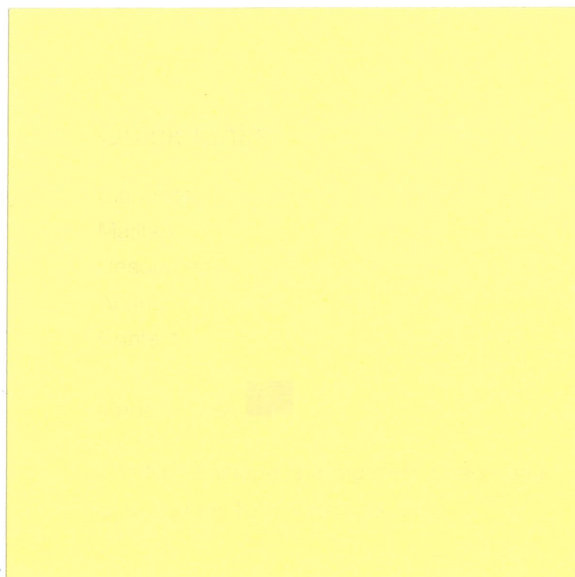
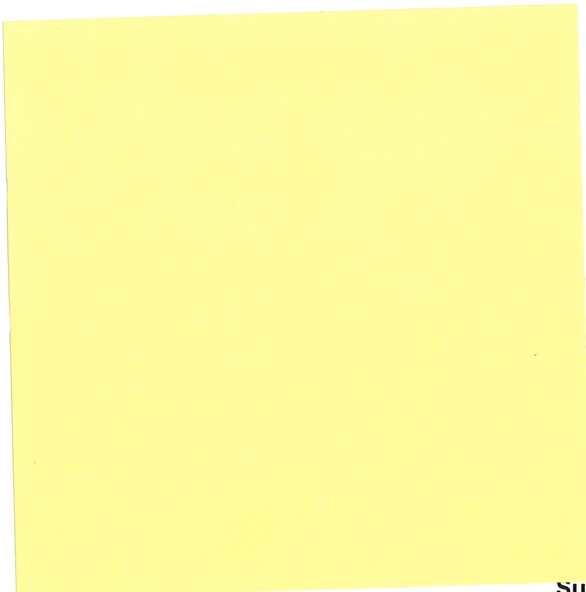


Sign Post » Mai



General	Specifications
---------	----------------

**Part No.:** DM200  
**Dims:** 3.63" L x 1.75" W x 3.38" H  
**Weight:** 0.46 lbs  
**Material:** GS - Galvanized Steel  
**Color:** Mill Finish or [Powder Coat Color](#)



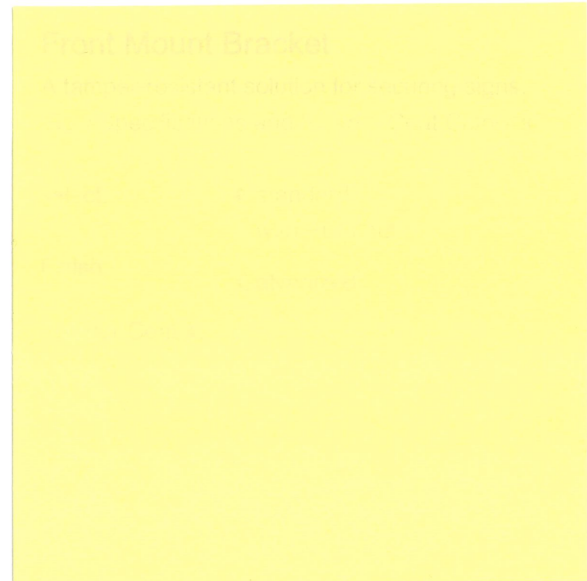
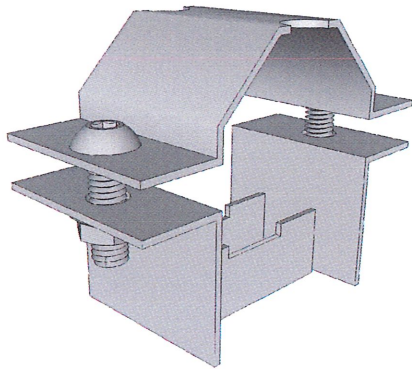
Submit



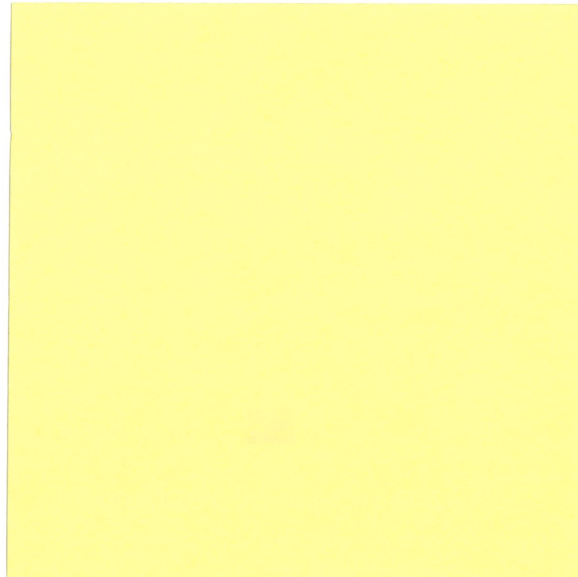
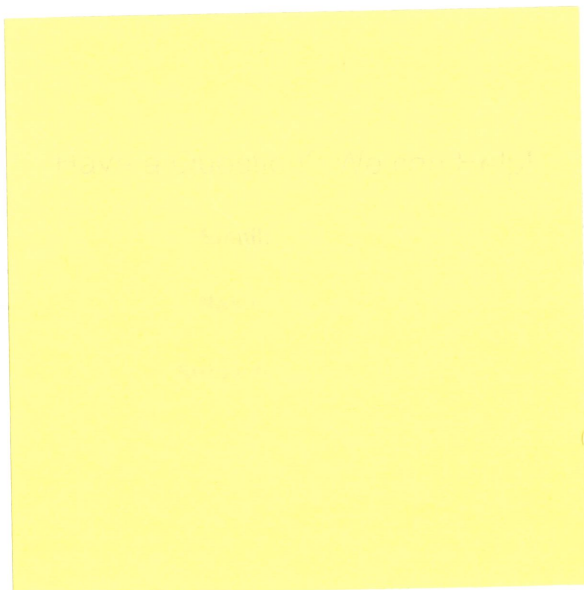
SERVING CUSTOMERS FOR OVER 30 YEARS: 1985 - 2017



Sign Post » Mai



Description	Specifications
<p><b>Part No.:</b> FM200 / FM200M (with PEM nut) <b>Dims:</b> 3.63" L x 1.75" W x 2.75" H (assembled) <b>Weight:</b> 0.39 lbs <b>Material:</b> GS - Galvanized Steel <b>Color:</b> Mill Finish or <a href="#">Powder Coat Color</a></p>	



Submit



SERVING CUSTOMERS FOR OVER 30 YEARS: 1985 - 2017



Steel Tubing » Sign Post »



### NEX<sup>®</sup> 2" Sign Post: Knockout

NEX<sup>®</sup> 2" knockout galvanized sign post.

View Specifications and [Powder Coat Colors](#) in


Gauge:

Length:

Finish:

Powder Coat #:

Description	Specifications	Support Documentation
<p><a href="#">NEX<sup>®</sup> Sign Post - Technical Specifications - 12 &amp; 14 ga</a> <a href="#">NEX<sup>®</sup> Sign Post - Certificate of Compliance &amp; Origin</a> <a href="#">NEX<sup>®</sup> Sign Support - FHWA Approval 1999</a> <a href="#">Powder Coat Color Chart</a></p>		

Made in USA 



Manufacturer of NEX<sup>®</sup> Sign & NEX<sup>®</sup> Mailbox Support Systems.

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## Certificate of Compliance & Origin

S-Square Tube Products, Inc., a Colorado manufacturer, certifies that our NEX<sup>®</sup> Tube sign supports, NEX<sup>®</sup> Wedge™ and bracket components are manufactured from materials produced in the United States of America.

All material and products are manufactured in accordance with the stated specifications.

We also certify that they meet the criteria for NCHRP 350 as required by the Federal Highway Administration.

It is our opinion that our products meet the specifications of the state DOT and are suitable for installation on the state and federal roadways.

All material and products are shipped in conformance with requirements of the order.

Sincerely,

A handwritten signature in blue ink that reads 'Lori Beedon'.

Lori Beedon  
President  
S-Square Tube Products, Inc.



2275 W. Midway Blvd, Unit C, Broomfield, CO 80020

Mailing address: PO Box 306, Commerce City, CO 80037

303.286.7051

866.639.5717 Fax

888.267.6463

[www.s-squartube.com](http://www.s-squartube.com)

## PRODUCT SPECIFICATION

### 12 & 14 GAUGE NEX® POST

**MATERIAL:** Steel posts furnished shall conform to the Standard Specification for Hot-Rolled Carbon Sheet Steel, structural quality, ASTM A1011 (previously A570). Posts shall conform to the Standard Specification for Electric-Resistance-Welded Metallic-Coated Carbon Steel Mechanical Tubing, ASTM designation A787.

**FINISH:** The NEX® sign post tubing shall be hot-dipped galvanized conforming to ASTM specification A653 designation G90. The weld is zinc-coated after scarfing operation.

**SHAPE:** The cross section of the post shall be octagon-shaped tubing formed of 12 or 14 gauge steel, carefully formed to size so that it will have four flat sides and four inverted sides. It will be induction welded in such a manner that neither weld nor flash shall interfere with telescoping properties.

**HOLE SLUGS:** Pre-scored hole slugs for knockouts shall be  $7/16" \pm 1/64"$  on 1" centers for the entire length of the post. Slugs shall be on the center line of each side in true alignment and opposite to each other.

**YIELD STRENGTH PROPERTIES:** 60,000 PSI minimum

**THICKNESS:** 12 gauge 0.094 min., 0.105 nominal  
14 gauge 0.074 min., 0.083 nominal

#### **TELESCOPING PROPERTIES:**

The finished post shall be straight and have a smooth uniform finish and shall be free from burrs. The 2" NEX® post shall telescope into a 2.25" square anchor which can be buried directly into soil or concrete. The post is secured in place with the NEX® patented wedge which is virtually vandal proof.

# PRODUCT SPECIFICATION

## 12 & 14 GAUGE NEX<sup>®</sup> POST

### Page Two

#### **TOLERANCES:**

<u>Nominal Outside Dimensions</u> 2" x 2"	<u>Outside Tolerance on All Sides at Corners</u> ± 0.010"
--	--

Note: Measurements from outside dimension shall be made at least 2" from end of tube.

#### **Squareness of Sides and Twists:**

<u>Nominal Outside Dimensions</u> 2" x 2"	<u>Squareness Tolerance</u> ± 0.012"	<u>Twist Permissible in 3' length</u> 0.062"
--	---	---

Note: A sample shall be considered to fail if its sides are not 90 degrees to each other within the squareness tolerance listed above.

**Corner Radii:** Standard outside corner radii shall be  $5/32" \pm 1/32"$

**Length:** The length of each post shall be as specified and have a permissible length tolerance of  $\pm 1/4"$

**Straightness:** 1/16" in 3 feet

<u>Size</u>	<u>Gauge</u>	<u>Weight Per Foot, Pounds</u> <u>Not Perforated</u>
2" x 2"	12	2.25
2" x 2"	14	1.89

NEX<sup>®</sup> has been crash tested in accordance with NCHRP Report 350 guidelines to meet FHWA breakaway requirements.

All specifications are subject to change without notice.

v. 04.02.2013

## Two Types of Posts to Meet Your Needs

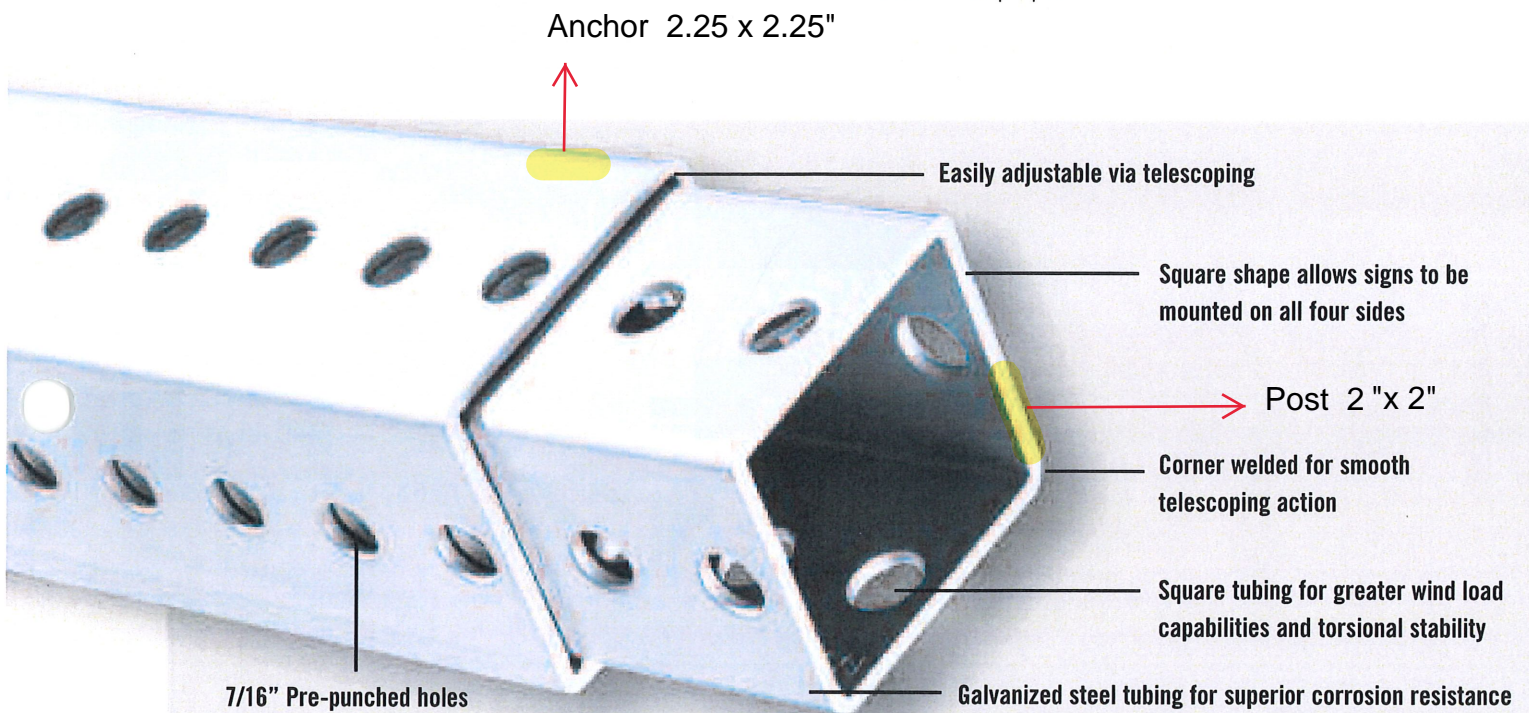
One of the keys to the Telespar signpost system's versatility and ease of installation is its two convenient methods for mounting signage.

### Posts with Pre-Punched Holes

Telespar square posts with 7/16" prepunched holes on 1" centers are corner welded to allow smooth telescoping action.

### Posts with Knockouts

Qwik-Punch posts are made with 7/16" knockouts, 1" on the center, on all four sides. This feature allows workers in the field to quickly punch holes exactly where they are needed leaving the balance of the post with a smooth unbroken appearance. These posts offer the same telescoping action and easy installation as standard Telespar posts.



7/16" Pre-punched holes

Note: Steel conforms to ASTM A1011 Grade 50; Galvanizing meets ASTM A-653

ELEMENTS OF SECTION	Tube Size Inches	Wall Thickness U.S. Std. Gauge & Inch	Area Sq. In.
	1 3/4 x 1 3/4	14 (0.083)	0.392
	2 x 2	14 (0.083)	0.474
	1 1/2 x 1 1/2	12 (0.105)	0.380
	1 3/4 x 1 3/4	12 (0.105)	0.485
	2 x 2	12 (0.105)	0.590
	2 1/4 x 2 1/4	12 (0.105)	0.695
	2 1/2 x 2 1/2	12 (0.105)	0.803
	2 3/16 x 2 3/16	10 (0.135)	0.841
	2 1/2 x 2 1/2	10 (0.135)	1.010
	1 3/4 x 1 3/4 QP	14 (0.083)	0.392
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I = Moment of Inertia

s = Section Modulus

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# Anchoring Options

## Installation Guidelines

1. Drive a minimum 30" piece of 12 gauge Telespar (anchor) into the soil until only 1-2 inches are left exposed. For a 2-piece anchor, use an 18" piece of tubing for a sleeve, one size larger than the anchor. It is advisable to drive the anchor and sleeve together making sure the holes are aligned.
2. Attach the sign to the post at the desired height using drive rivets or bolts.
3. Insert the signpost, which is one size smaller than the anchor, approximately 6-8 inches into the anchor base.
4. Bolt the signpost to the anchor assembly with a corner bolt.
5. When installing in concrete use a pneumatic hammer or concrete drill to break through the surface, the anchor assembly is driven to within 1" of the surface to allow attachment of the signpost. If flush installation is desired clearance should be recessed on two sides to clear the bolt for signpost connection.



6. To install in asphalt, drive the anchor assembly through the blacktop into the subsoil from ground level. Once the anchor is through the blacktop; use the same instructions as for soil installations.

Anchor Type	Description	Unique Feature
 <p><b>PRIMARY</b> Single Breakaway Anchor</p>	Can be used by one man working at ground level using manual or power equipment	Minimum installation time
 <p><b>Two-Piece Breakaway Anchor</b></p>	<p>Can be created by adding an outer sleeve to the original anchor base.</p> <p>This provides a double wall thickness to create breakaway function.</p>	Yielding breakaway system
 <p><b>SECONDARY</b> Heavy Duty Anchor</p>	For use with larger signposts. The heavy wall eliminates the need for a stiffener sleeve enabling the signpost to break on impact.	Works well in concrete and areas of high impact
 <p>Stabilization Anchor Sleeve</p>	Attaches to a single anchor with corner bolt then bolted through the post at top of anchor. Should always be attached to the corner farthest from traffic.	For use with soft or drop-off shoulders in loose or sandy soil
 <p>Omni-Directional Anchor</p>	Designed specifically for ease of installation in loose soil conditions enabling the post to perform well when impacted.	Easily retrofitted to correct problem installations
 <p>Slip Base Breakaway System</p>	For use with larger signs when the post is too strong to perform a normal breakaway function. Allows the unit to slip away without creating an unacceptable impact condition.	One of the most economical replacements in the industry

Note: The Telespar sign support system can be directly embedded manually using a drive cap and sledge, with a pneumatic hammer or by means of self-contained power equipment.

# Telespar®

Sign Support Systems

## The Telespar System

The Telespar system is available with two types of posts; galvanized steel tubing with perforated holes on all four sides and Qwik-Punch® posts, which are made with 7/16" knockouts, 1" on the center, on all four sides. The tubing is produced through a unique manufacturing process that permits tubular sections of different sizes to telescope into the next larger size. It is complemented by a variety of compatible fittings, accessories, nuts, bolts and simple installation tools.

This engineered system of integrated parts enables you to mount signs back-to-back and on adjacent sides. It is designed to make adjustment, reinforcement and splicing fast and easy. By utilizing a square tube, Telespar exhibits superior wind load capabilities and torsional stability.

The system is primarily designed for signpost usage but is adaptable to identification signage, parking meter posts, barricades and numerous other applications.



The Original Telescoping Sign Support System

TELESPAR  
PRODUCT DATA

## Two Types of Posts to Meet Your Needs

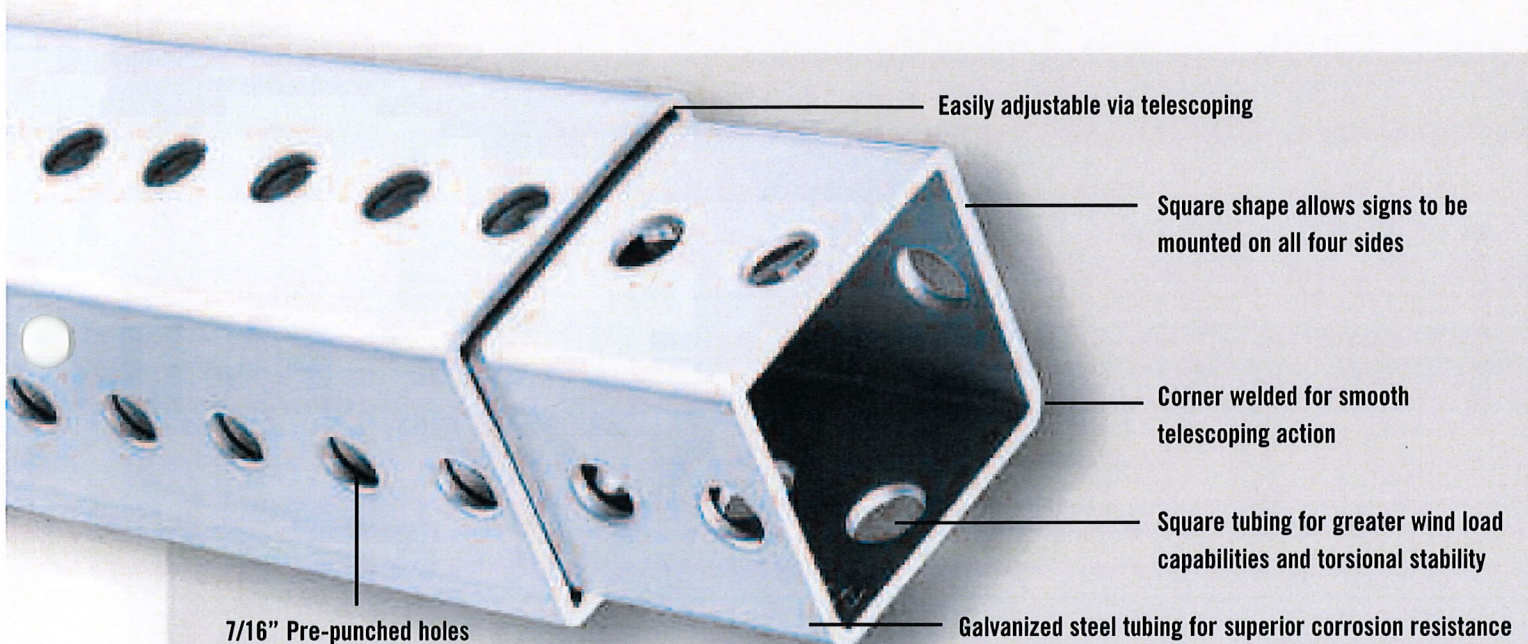
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# Ultimate Highway Solutions, Inc.

Ulti-Mate Division

# Ulti-Mate®

The Ultimate Sign Support System

## Physical, Chemical Test Report and Material Certification Ulti-Mate Perforated Square Steel Sign Posts

COLORADO BARRICADE CO.

Order #6356401; Invoice #47177; Shipped 6/21/2017

These posts have been accepted by the FHWA as meeting the breakaway requirement. This product meets the requirements for crashworthiness (NCHRP 350) as adopted by the FHWA.

The steel used in manufacturing was made and melted in the United States and fabrication was done at our plant in Florence, AL.

Materials provided comply with current "Buy America" requirements of 23 CFR 635.410.

All tube products are galvanized and conform to ASTM A653, Coating designation G90.

Chemical and physical properties were in accordance and listed below:

Heat Number	C	Mn	P	S	SI
NE5178	.190	.870	.010	.002	.028
NE5701	.200	.830	.009	.003	.015
SE3154	.180	.820	.007	.003	.027
NE1306	.200	.830	.010	.004	.017
SE5997	.200	.850	.006	.001	.029

Heat Number	Yield psi	TSN psi	ELN%	Size /Gauge
NE5178	62700	71800	19	1.50sq x 12ga x 240"
NE5701	72100	79000	19	1.75sq x 12ga x 240"
SE3154	68600	74900	19	1.75sq x 12ga x 288"
NE1306	64900	76100	20	2sq x 12ga x 288"
SE5997	66100	77500	16	2sq x 12ga x 240"

*Kal'ie Davis*

Test Certification Representative

Corporate Office  
11095 W. Olive Rd.  
Grand Haven, MI 49417  
Phone: 888-366-9220