



INTERNA-RAIL[®] 2 and 3-LINE RAILING SYSTEMS

PRODUCT DATA SHEET

GENERAL

The Interna-Rail[®] railing system is designed for various types of safety and industrial rail designs, and is used in all railing applications that must comply with IBC codes for structural strength and dimensions.

OVERALL DIMENSIONS:

Height of top rail above walking surface: 42".

Post spacing: Determined by site conditions.

Mounting: Determined by site conditions.



MATERIALS:

Posts: Aluminum 6005-T5, 1 ½" IPS (48.2 mm O.D.) Schedule 80 Wall (clear anodized)

Rails: Aluminum 6063-T6, 1 ½" IPS (48.2 mm O.D.) Schedule 40 Wall (clear anodized)

Fittings: Aluminum 6063-T6 (clear anodized)

Base Flanges: Cast Aluminum

Fasteners: Stainless Steel 304 Alloy

CODE COMPLIANCE:

U.S. International Building Code 2009/2012/2015/2018/2021/2024 standards specific to guardrails, handrails and infill panel materials including glass.

PERFORMANCE REQUIREMENTS:

All railings shall be supplied to conform to applicable sections of the following codes:

- International Building Code | OSHA | ADAAG

STRUCTURAL PERFORMANCE:

Provide railings capable of withstanding the effects of gravity and the following loads and stresses within limits and under conditions indicated:

Top Rails of Guards:

- Uniform load of 50 lb/ft. applied in any direction.
- Concentrated load of 200 lb/lf. applied in any direction.
- Uniform and concentrated loads need not be assumed to act concurrently.

Handrails:

- Uniform load of 50 lb/ft. applied in any direction.
- Concentrated load of 200 lb/lf. applied in any direction.
- Uniform and concentrated loads need not be assumed to act concurrently.

**PRODUCT TEST REPORTS:**

Available upon request.



The Hollaender® Manufacturing Company

P.O. Box 156399 | 10285 Wayne Avenue | Cincinnati, OH 45215-6399

800-772-8800 | 513-772-8800 | Fax: 513-772-8806 | sales@hollaender.com | www.hollaender.com

The Hollaender Mfg. Co.

Originators and Manufacturers of:

Speed-Rail®
Nu-Rail®
Rackmaster®
Mend-a-Rail®
Interna-Rail®
Speed-Rail II®
Bumble Bee Safety Rail®
Newman by Hollaender™



Certificate of Compliance

The Hollaender Mfg. Co. hereby certifies that the products listed below meet or exceed all requirements of the following specifications:

- Product:** Speed-Rail®, Nu-Rail® and Cast Interna-Rail® fittings as manufactured by The Hollaender Mfg. Co.
- Metal:** Fittings cast of aluminum alloy 535
Aluminum ingot complies with ASTM B179
Product cast in accordance with ASTM B26
Special Note: We certify that there are no traces of mercury in this alloy, per the attached standard report and alloy chemical analysis.
- Set Screw:** Forged internal/external knurl cup point set screw with class 3A threads complies with ANSI/ASME B18.3 & FF-S-200A
Standard Screw: Complies with ASTM F912 and plated per ASTM B633 followed by trivalent conversion & JS 600 topcoat. Minimum coating thickness 8 micrometers measured per ASTM B487.
Optional Screw: Stainless Steel 302 alloy set screw complies with ASTM F880
- Testing:** Structural tests have been performed on Hollaender handrail systems and individual components by certified independent laboratories including Space Dynamics Research Corp., Belcan, Pittsburgh Testing Laboratories and University of Dayton Research Institute.
- Design:** Hollaender Structural Fittings, when properly installed per manufacturer recommendations, meets or exceed all applicable requirements as specified by Code of Federal Regulations 1910.29 (OSHA), IBC, BOCA, UBC and SBC.

All products supplied by the Hollaender Mfg. Co. are manufactured completely in the **United States of America.**

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Mend-a-Rail ®
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Bumble Bee Safety Rail ®



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The Hollaender Mfg. Co. hereby certifies that the products listed below meet or exceed all requirements of the following specifications:

- Product:** Aluminum Pipe (Sizes $\frac{3}{4}$ ", 1", 1-1/4", 1-1/2" & 2" I.P.S) &
Dowel (both Tubular & Solid) in finishes mill and 215-R1 Anodized
Extruded solely within the United States of America
- Metal:** Alloys 6063-T6, 6061-T6 & 6005-T5 per ASTM B429 Standard Specification
for Aluminum-Alloy Structural Pipe and Tube.
- Finish:** Aluminum Association Standard 1 - *Aluminum Standards and Data*.
Mill Finish Specification M10C22
Anodized Finish Specification M10C22A41
Medium Matte/Architectural Class 1³.
Seal tested per ASTM B136
- Appearance:** Normal die lines are acceptable. Other than these marks there
should be not be any visible scratches, drip marks, mars, etc. on the pipe.

Aluminum-Magnesium Alloy 535.0 Sand Castings

Chemical Composition & Physical Properties

Chemical Composition Limits per ASTM B 26-98

Si	Fe	Cu	Mn	Mg	Ti	Other	Al
0.15	0.15	0.05	0.10-0.25	6.2-7.5	0.01-0.25	0.15	Remainder

Typical Mechanical Properties

Temper	Ultimate Strength	Yield Strength	Elongation	Shear Strength	Compressive Yield Strength	Brinell Hardness	Endurance Limit
	(ksi)	(ksi)	(% in 2 in.)	(ksi)	(ksi)		(ksi)
F	40	20	13	27.45	23.5	70	10
	(35 min.)	(18 min.)	(9 min.)			(70 min.)	ASTMB26-98

*Thermal Conductivity (@77F, SI units): 0.24 cal/cm*s*K

*Heat Treatment - Achieves its physical and mechanical properties as-cast (F). This eliminates the time and cost of heat treating.

*Machinability - Excellent machinabilityas-cast, excellent surface finish and high dimensional stability.

*Corrosion Resistance - Highest of any cast alloy. It can be anodized for additional corrosion protection to a 0.7 mil thickness (215R1).

*Finishing - Produces an excellent surface finish by burnishing or polishing. Anodizes well to a clear satin finish due to the minimal amount of silicon in the alloy.

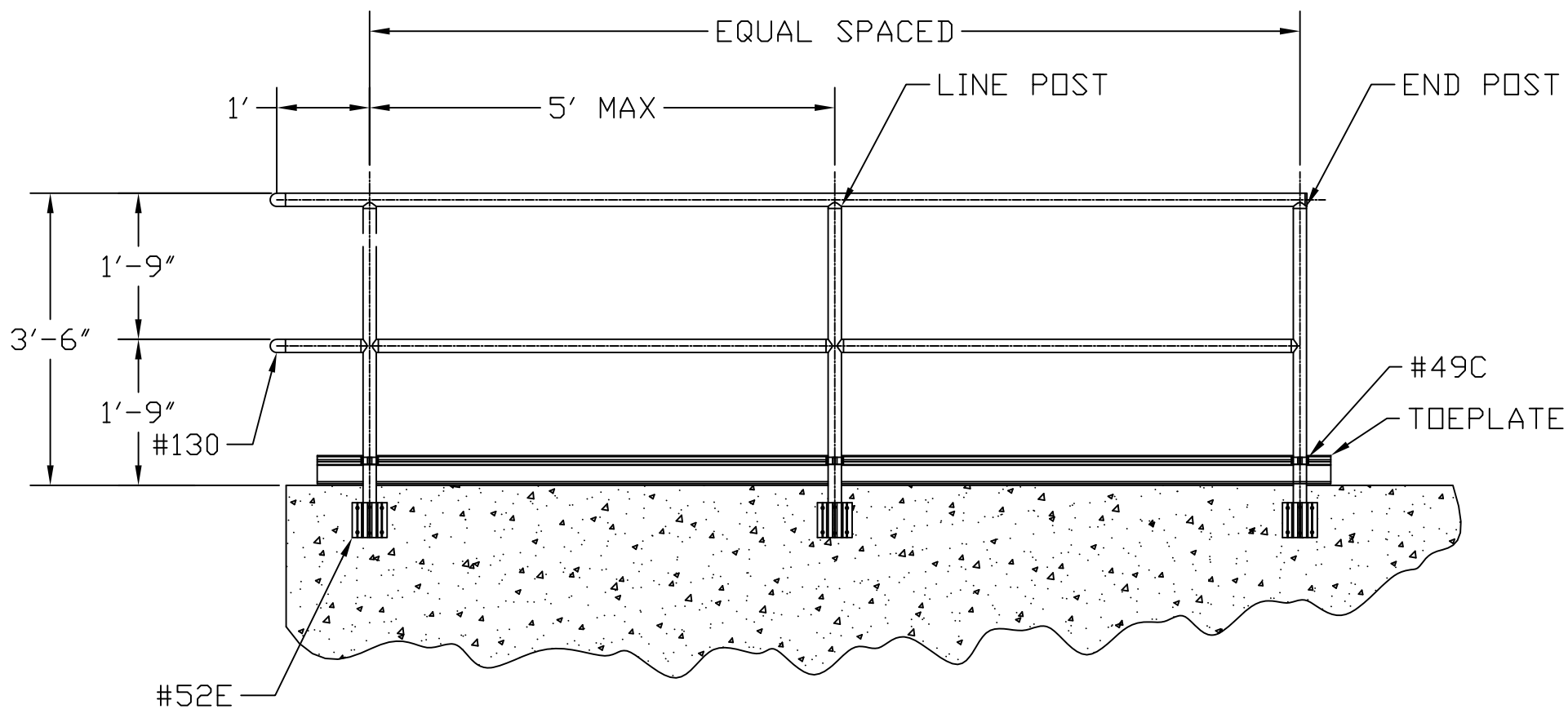
*Weldability - It can be welded by any of the inert gas processes, T.I.G. or M.I.G., using filler rod of 5356 or 5183.



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NO.	REVISIONS	DATE	APPROVED
A	ISSUED FOR REVIEW/APPROVAL	7-28-04	BW

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STRUCTURAL ENGINEERING GROUP

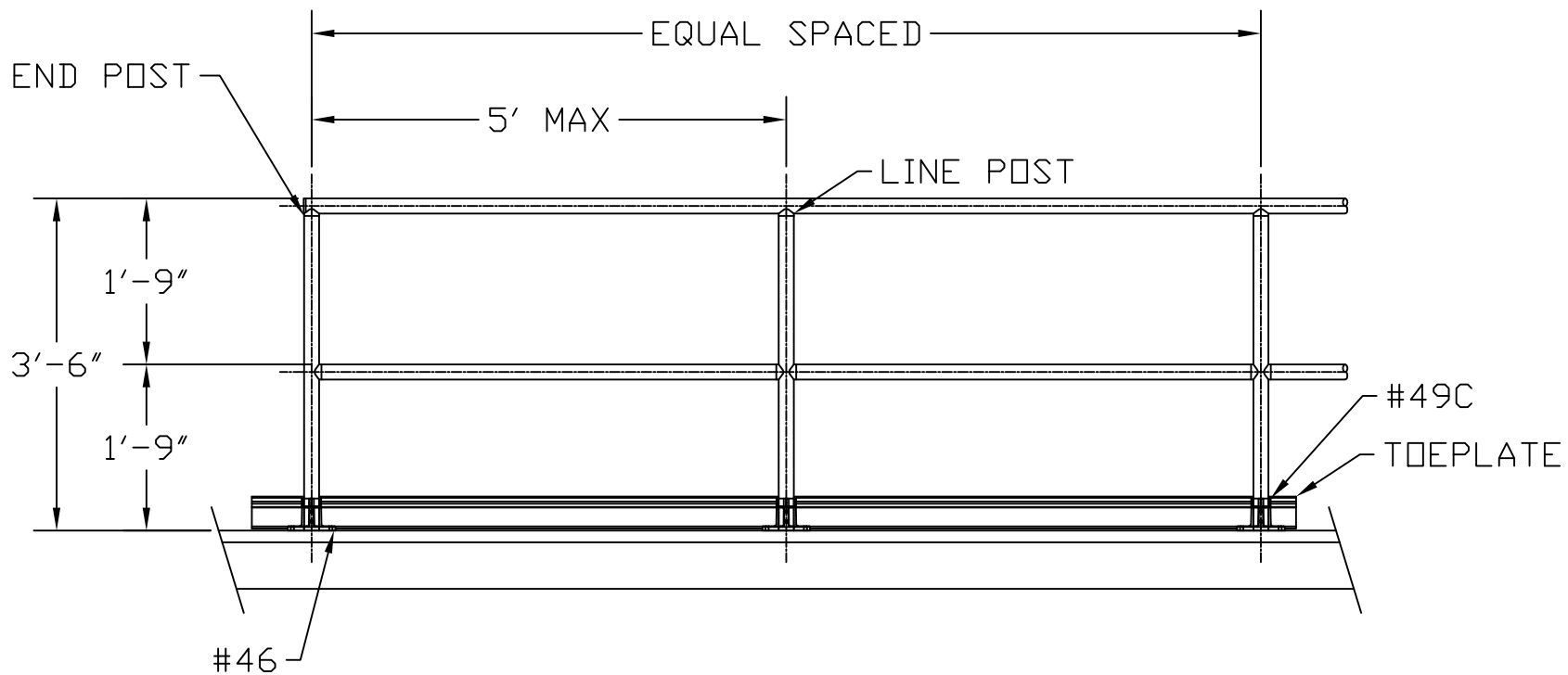
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PROJECT
CH2MHILL

DESCRIPTION
DETAIL PACKAGE

DESIGN BY BW	APPROVED BY BW	DATE 7-28-04
PROJECT NO. N/A	FIELD NTS	
FORM ANODIZED 215R1	DRAWING NO. 0000-D	
REVISION VARIES	SHEET 10	27





**TYPICAL LEVEL HANDRAIL
DETAIL -TOP MTG.**

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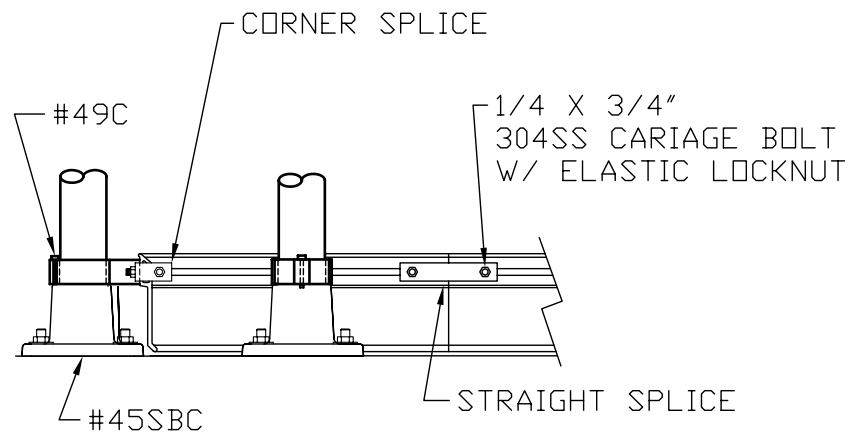
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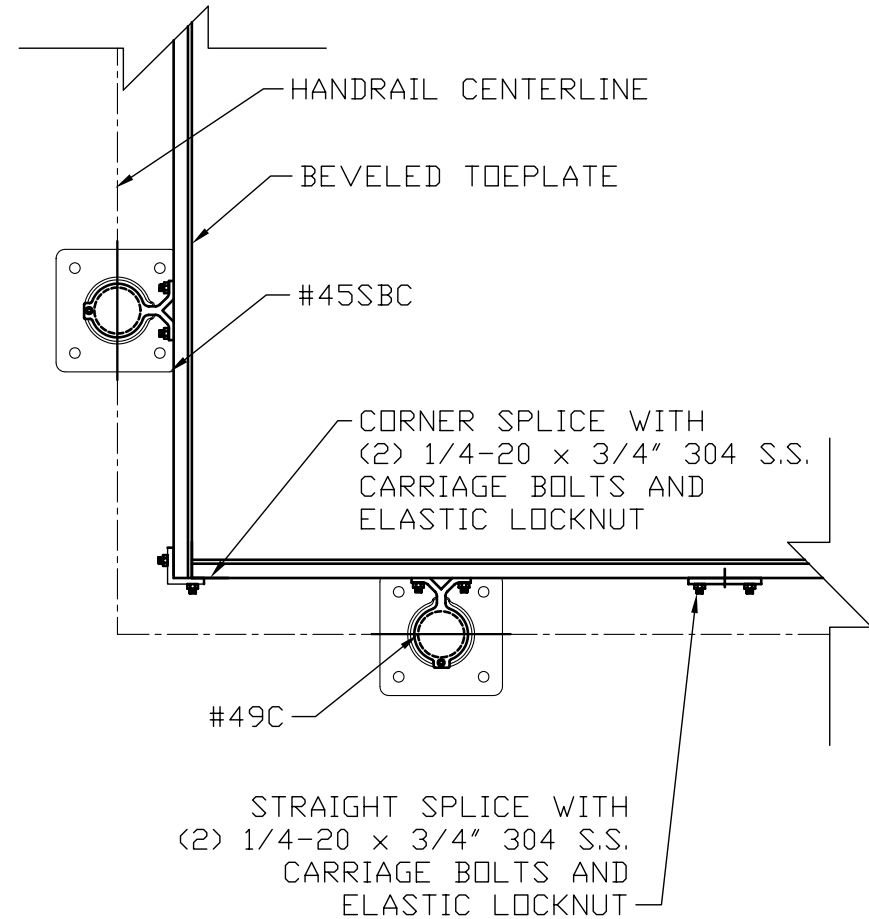
DESCRIPTION
DETAIL PACKAGE

DRAWN BY	APPROVED BY	DATE
BW	BW	7-28-04
PROJECT NO.	REVISION NO.	DATE
N/A		NTS
FORM	DRAWING NO.	DATE
ANODIZED 215R1	3002-D	
REVISION	BY	DATE
VARIES	9	27





**TOEPLATE AND ATTACHMENTS
DETAIL ELEVATION VIEW**



**TOEPLATE AND ATTACHMENTS
DETAIL PLAN VIEW**

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		N/A		NTS

