

FIELD AND SHOP ASSEMBLED



Revised April 2023

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CAUTION

Thompson Fabricating LLC's cast aluminum and extruded aluminum fittings for handrails are manufactured to very close tolerances. There is a possibility that the fittings may not fit the pipe if the outside diameter of the pipe exceeds 1.90" and/or the inside diameter of Schedule 40 pipe is less than 1.61" or the inside diameter of Schedule 80 pipe is less than 1.50".

Please check with your pipe supplier to ensure these limits are not exceeded.

TFCo stocks this close tolerance pipe in mill finish or plastic sleeve wrapped anodized finish should you require it.

INSTRUCTIONS FOR ORDERING THOMPSON FABRICATING'S ASSEMBLED ALUMINUM RAILS OR COMPONENT PARTS

All questions raised by the following check list should be answered. This will avoid future problems and will reduce the time necessary to provide you with a quotation or delivery.

1. BUILDING CODE REQUIREMENTS:

- a) IBC International Building Code
- b) OSHA
- c) Other

2. POST SPACINGS:

(6'-0", 5'-6", 5'-0", etc.)

3. NUMBER OF HORIZONTAL RAILS:

(2 line, 3 line, etc.)

4. POST BASE MOUNT

- a) Top mount to concrete
- b) Side mount to concrete
- c) Sleeve mount to concrete
- d) Top mount to steel
- e) Side mount to steel
- f) Top mount to stair stringer (bevel rail)

5. PIPE SIZE:

- a) Rails 1-1/2" Schedule 40
- b) Posts 1-1/2" Schedule 40 or 80
- c) Rails for Americans with Disabilities Act requirements

6. FINISH:

- a) Anodized AA-M10-C22-A41 (215-R1)
- b) Anodized AA-M10-C22-A31 (204-R1)
- c) Other (bronze, hardcoat, special textures)

7. PIPE ALLOY:

- a) ASTM number (ex.:ASTM B 210, B 429)
- b) Alloy number (ex.:6105-T5, 6063-T6)

8. QUANTITIES OF ASSEMBLED RAILS:

- a) Level rail in linear feet
- b) Bevel rail in linear feet
- c) Radius rail in linear feet
- d) Wall rail in linear feet
- e) Picket rail in linear feet (describe)

**9. IF ORDERING COMPONENT PARTS ONLY,
LIST QUANTITIES OF EACH PART NUMBER**

NOTE: Prices for component parts include all necessary hardware items. EXCEPTION: Base mount flanges do not include expansion anchors or other fasteners for attaching the base flange to the structure. These items are separately priced.

10. TOEBOARD:

- a) Total linear feet straight toeboard
- b) Total linear feet radius toeboard
- c) Quantities of pre-cut corners
- d) Quantities of post clamps, splices, etc.

11. SAFETY CHAIN: Quantities and lengths

12. TFCO GATES: Self-closing?

13. REQUIRED DELIVERY DATE

14. FREIGHT: List destination

15. ENGINEER'S COMPANY NAME

**16. ARE THERE ANY CONFLICTS
BETWEEN THE PLANS AND
AND THE SPECIFICATIONS?**

WITH PROPER USE OF TFCo RAILING COMPONENTS,
THE COMPLETED RAILING SYSTEM WILL MEET
THE REQUIREMENTS OF ALL CODE AUTHORITIES
LISTED IN PARAGRAPH 1 ABOVE.

SHOULD YOU NEED ASSISTANCE IN CODE INTERPRETATIONS
OR OTHER TECHNICAL MATTERS REGARDING HANDRAILS OR
COMPONENT PARTS, PLEASE CALL THOMPSON FABRICATING LLC,
BIRMINGHAM ALABAMA AT (205) 841-0441.

PROTECTION OF HANDRAILS

The contractor should exercise caution when unloading and handling handrails to prevent scratches, dents and other damage.

Bundled mill finish (not anodized) handrails, toe plates and other mill finish parts should be stored in a protected area out of the weather to prevent water staining which is a form of corrosion. If a storage area is not available, rails, toe plates and other parts must be unbundled and separated from each other and from contact with water, mud, concrete and other substances which would stain an aluminum mill finish.

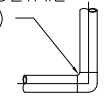
System FT

Field Assembled Railing System

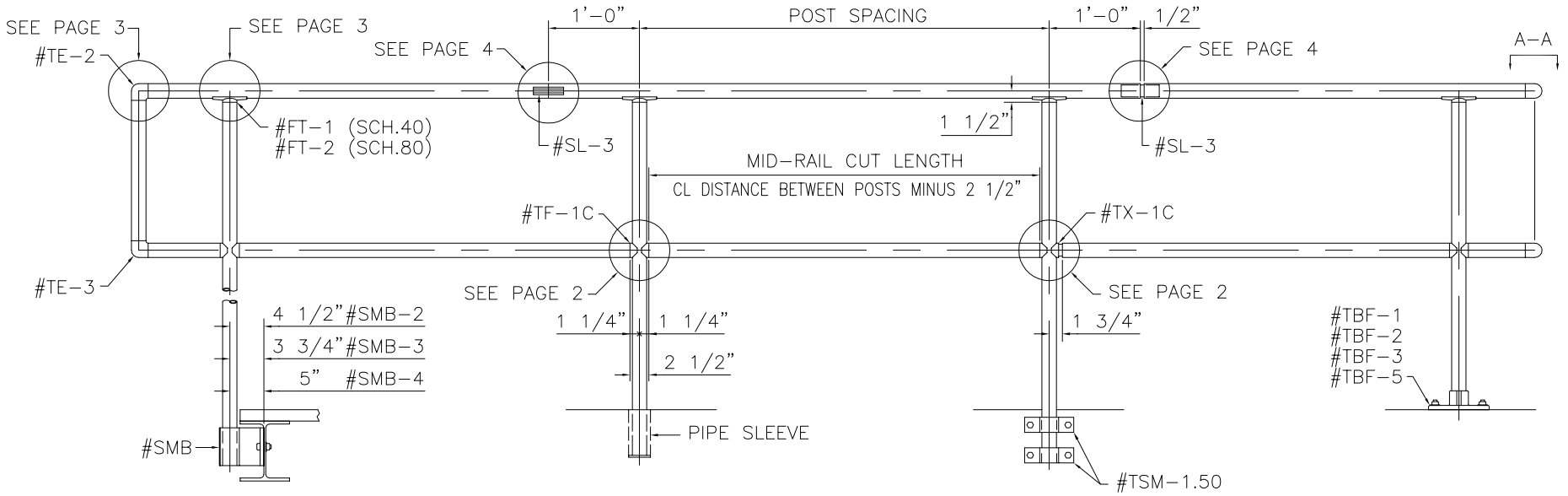
This level railing system is specifically designed for field assembly.

For details of post mounting brackets see Section 11 of this catalog.

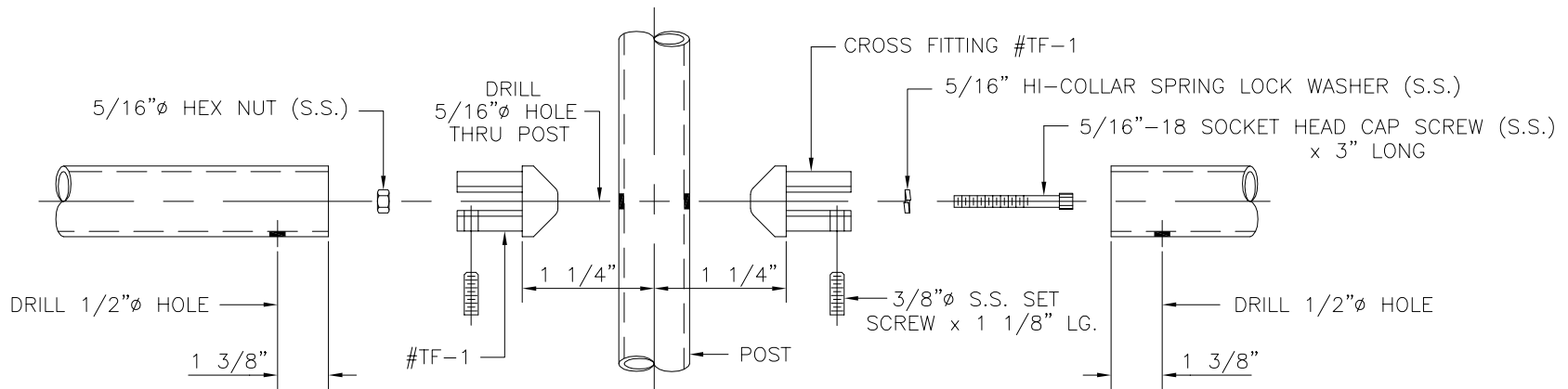
#TE-1 OR #TE-4
 HORIZONTAL TURN ELBOW
 (SEE #TE-2/#TE-3 DETAIL
 FOR INSTALLATION)



VIEW A-A

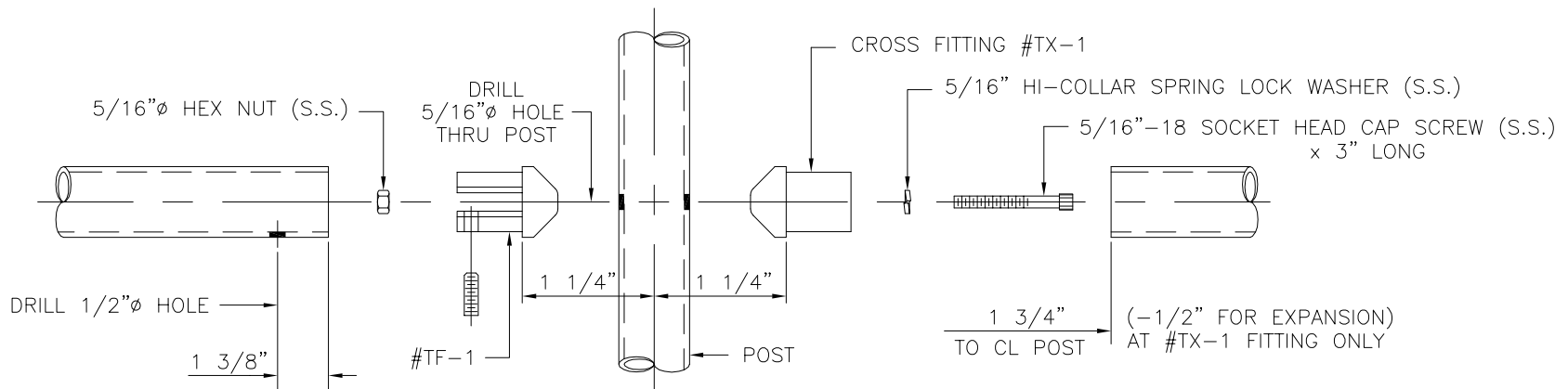


ELEVATION OF GUARDRAIL



CROSS AT MID-RAIL

PART NO. #TF-1C

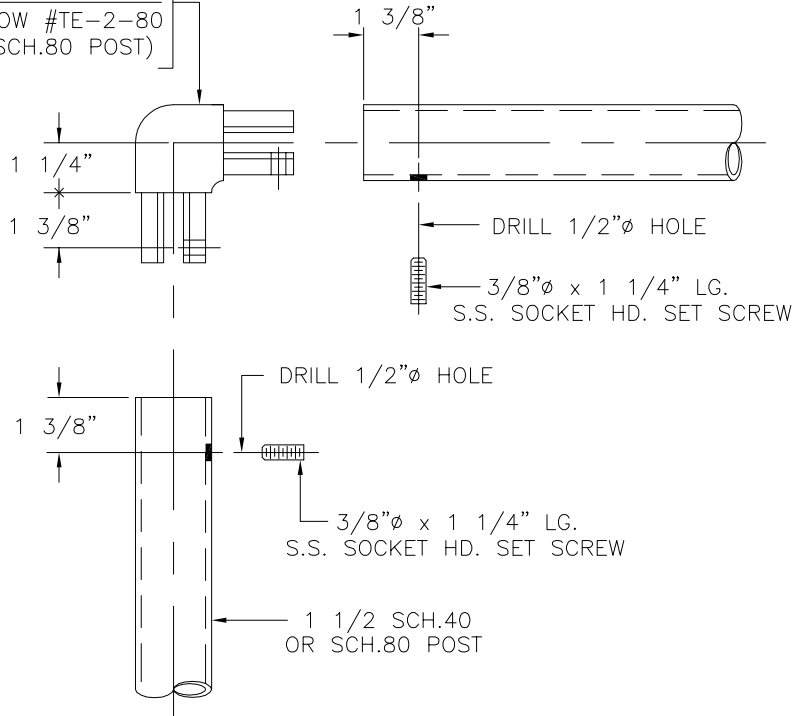


EXPANSION CROSS AT MID-RAIL

PART NO. #TX-1C

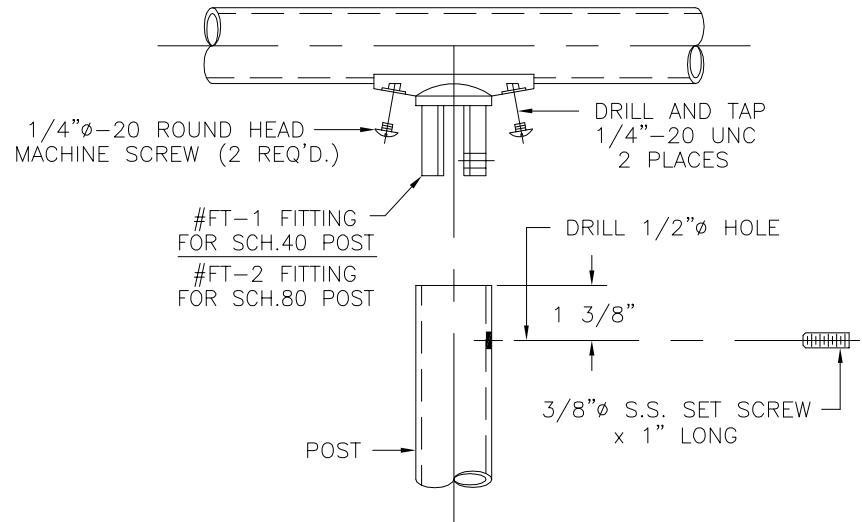
90° ELBOW #TE-2
(FOR SCH.40 POST)

90° ELBOW #TE-2-80
(FOR SCH.80 POST)

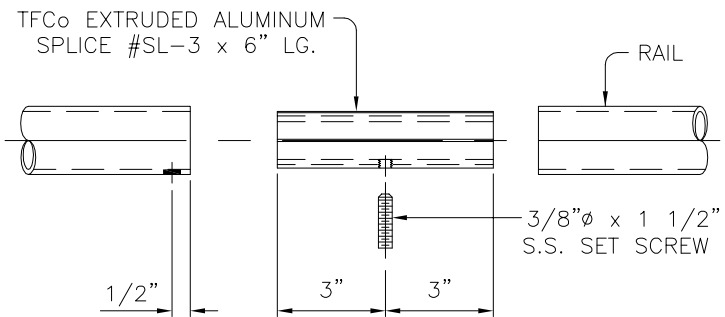


90° ELBOW #TE-2

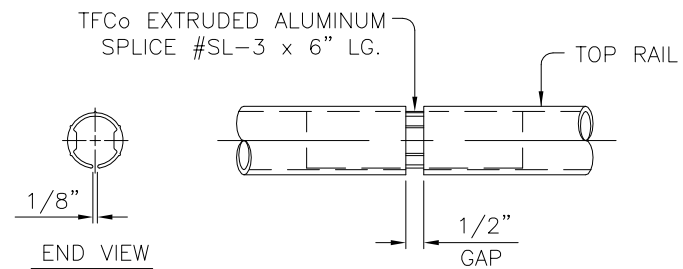
#TE-1 AND #TE-3 SIMILAR



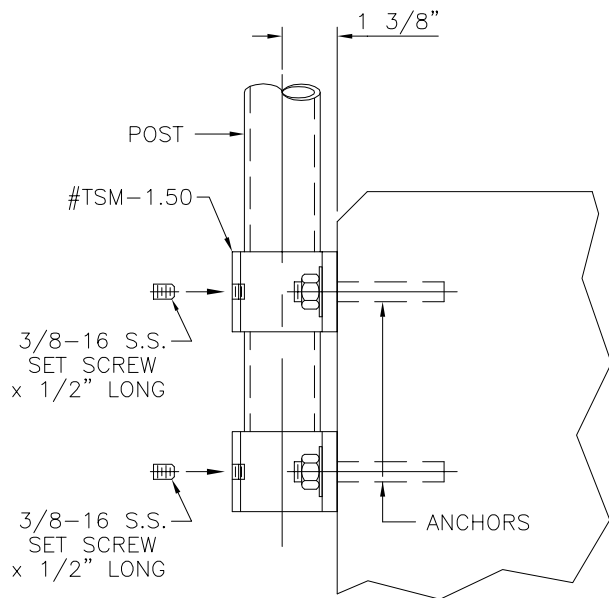
TOP RAIL TEE #FT-1/#FT-2



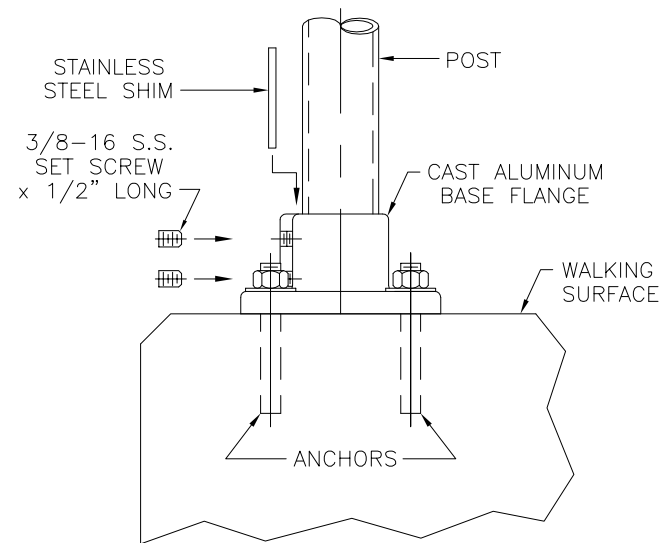
SPLICE INSERT #SL-3



EXPANSION SPLICE



INSTALLATION OF SIDE-MOUNT BRACKET



INSTALLATION OF BASE FLANGE

INSTRUCTIONS FOR ASSEMBLY

1. Measure pipe, cut to length, deburr.
2. Drill posts.
3. Drill mid-rails.
4. Install fittings on posts.
5. Install mid-rails on posts, tighten set screws.
6. Insure distance between posts is correct.
7. Locate top rail in saddle of top rail fittings, clamp in place.
8. Using a 1/4"-20 drill-tap, drill through holes in top fitting and into top rail.
9. Install 1/4"-20 round head machine screws in tapped holes.
10. Check completed rail for alignment and correct dimensions.

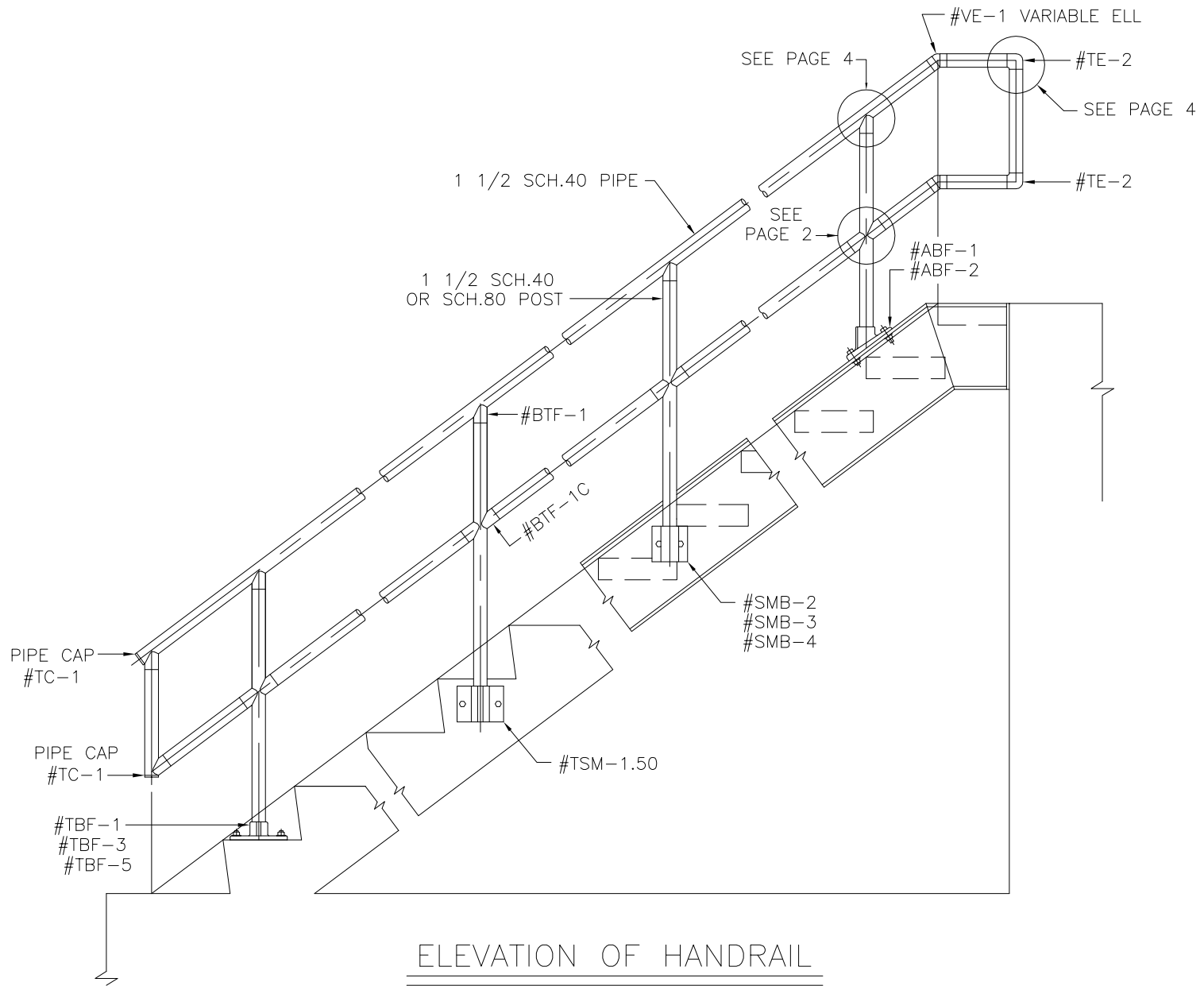
Note: To decrease assembly time, the 3/8" x 1 1/8" set screws may be installed in the #TF-1 fittings prior to installing mid-rails on #TF-1 fittings.

System BTF

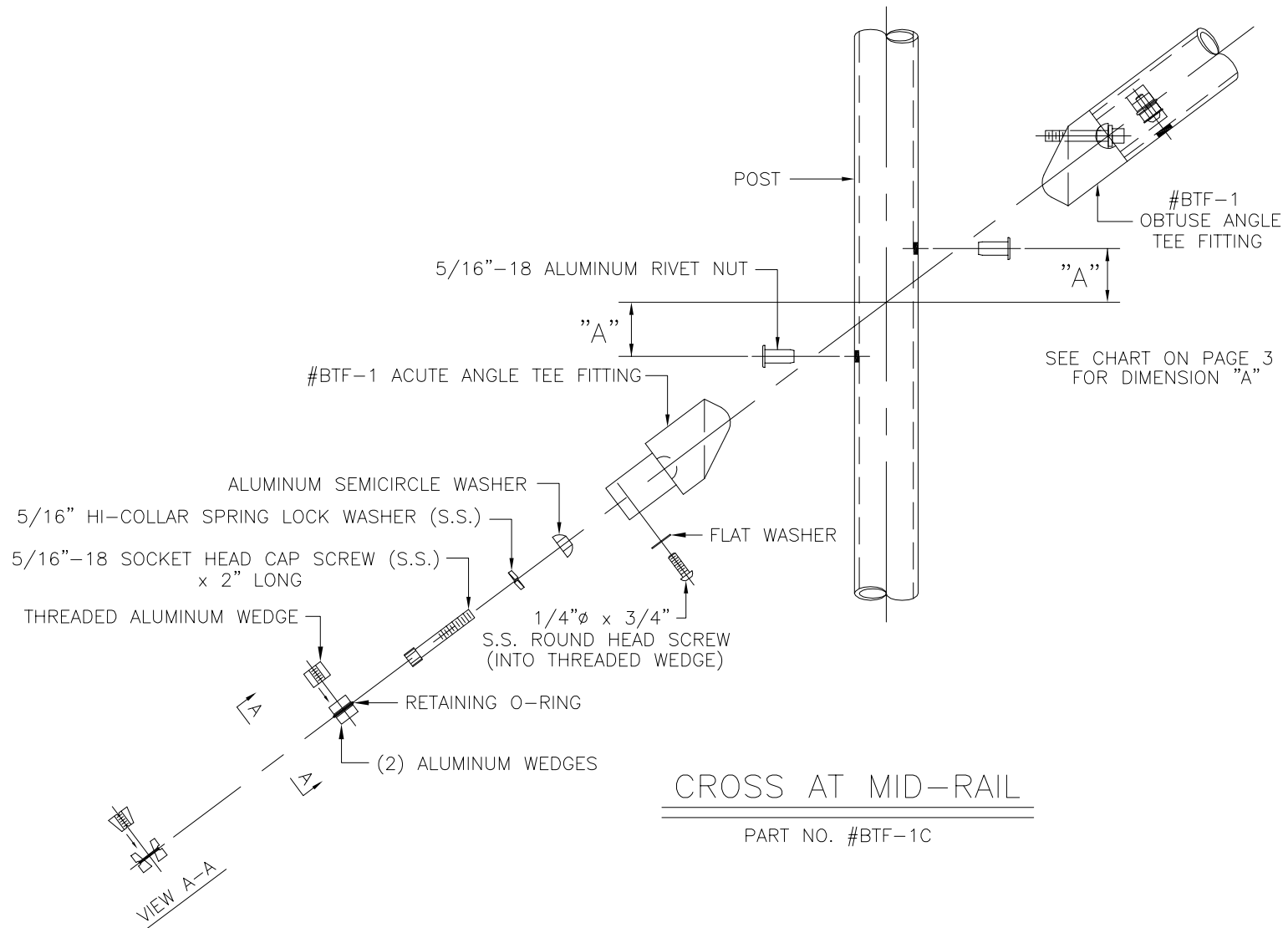
Field or Shop Assembled
Bevel Railing System

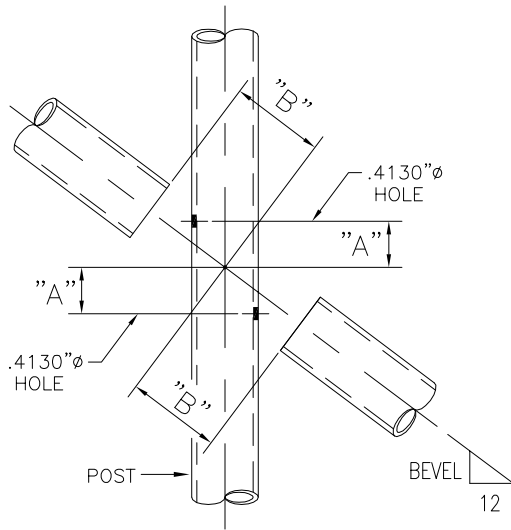
For details of post mounting brackets
see Section 11 of this catalog.

SECTION 2



ELEVATION OF HANDRAIL





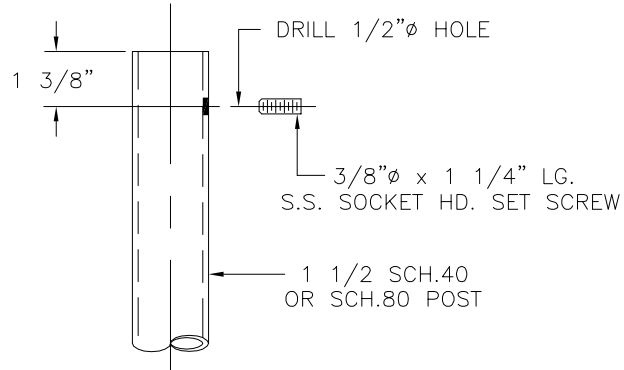
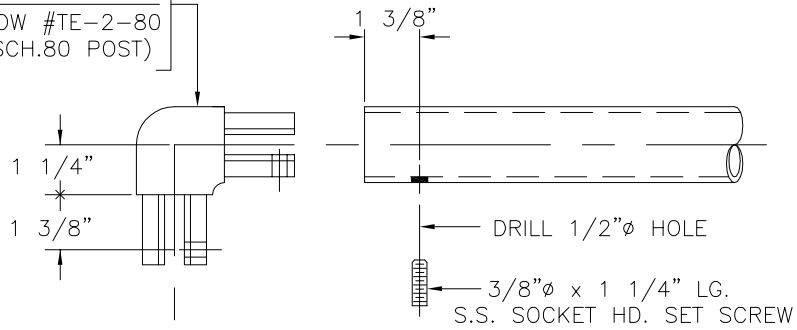
Bevel	Degree	"A"	"B"
6	26.5651	1"	2 5/16"
6 1/16	26.8033	1 1/16"	2 5/16"
6 1/8	27.0405	1 1/16"	2 5/16"
6 3/16	27.2768	1 1/16"	2 5/16"
6 1/4	27.5120	1 1/16"	2 5/16"
6 5/16	27.7462	1 1/16"	2 5/16"
6 3/8	27.9795	1 1/16"	2 5/16"
6 7/16	28.2117	1 1/16"	2 5/16"
6 1/2	28.4429	1 1/8"	2 5/16"
6 9/16	28.6731	1 1/8"	2 5/16"
6 5/8	28.9024	1 1/8"	2 5/16"
6 11/16	29.1306	1 1/8"	2 5/16"
6 3/4	29.3578	1 1/8"	2 5/16"
6 13/16	29.5839	1 1/8"	2 5/16"
6 7/8	29.8091	1 1/8"	2 5/16"
6 15/16	30.0333	1 3/16"	2 5/16"
7	30.2564	1 3/16"	2 5/16"

Bevel	Degree	"A"	"B"
7 1/16	30.4786	1 3/16"	2 5/16"
7 1/8	30.6997	1 3/16"	2 5/16"
7 3/16	30.9199	1 3/16"	2 5/16"
7 1/4	31.1390	1 3/16"	2 5/16"
7 5/16	31.3571	1 3/16"	2 5/16"
7 3/8	31.5742	1 1/4"	2 5/16"
7 7/16	31.7903	1 1/4"	2 5/16"
7 1/2	32.0054	1 1/4"	2 5/16"
7 9/16	32.2195	1 1/4"	2 3/8"
7 5/8	32.4326	1 1/4"	2 3/8"
7 11/16	32.6446	1 1/4"	2 3/8"
7 3/4	32.8557	1 1/4"	2 3/8"
7 13/16	33.0658	1 5/16"	2 3/8"
7 7/8	33.2749	1 5/16"	2 3/8"
7 15/16	33.4830	1 5/16"	2 3/8"
8	33.6901	1 5/16"	2 3/8"
8 1/16	33.8962	1 5/16"	2 3/8"
8 1/8	34.1013	1 5/16"	2 3/8"
8 3/16	34.3054	1 5/16"	2 3/8"
8 1/4	34.5085	1 3/8"	2 3/8"
8 5/16	34.7107	1 3/8"	2 3/8"
8 3/8	34.9118	1 3/8"	2 3/8"
8 7/16	35.1120	1 3/8"	2 3/8"
8 1/2	35.3112	1 3/8"	2 3/8"
8 9/16	35.5094	1 3/8"	2 3/8"
8 5/8	35.7067	1 3/8"	2 3/8"
8 11/16	35.9030	1 3/8"	2 3/8"
8 3/4	36.0983	1 7/16"	2 3/8"
8 13/16	36.2926	1 7/16"	2 3/8"
8 7/8	36.4860	1 7/16"	2 3/8"
8 15/16	36.6784	1 7/16"	2 3/8"
9	36.8699	1 7/16"	2 7/16"
9 1/16	37.0604	1 7/16"	2 7/16"
9 1/8	37.2500	1 7/16"	2 7/16"
9 3/16	37.4386	1 1/2"	2 7/16"
9 1/4	37.6262	1 1/2"	2 7/16"
9 5/16	37.8130	1 1/2"	2 7/16"
9 3/8	37.9987	1 1/2"	2 7/16"
9 7/16	38.1836	1 1/2"	2 7/16"
9 1/2	38.3675	1 1/2"	2 7/16"

Bevel	Degree	"A"	"B"
9 9/16	38.5505	1 1/2"	2 7/16"
9 5/8	38.7325	1 1/2"	2 7/16"
9 11/16	38.9136	1 9/16"	2 7/16"
9 3/4	39.0939	1 9/16"	2 7/16"
9 13/16	39.2732	1 9/16"	2 7/16"
9 7/8	39.4515	1 9/16"	2 7/16"
9 15/16	39.6290	1 9/16"	2 7/16"
10	39.8056	1 9/16"	2 7/16"
10 1/16	39.9812	1 9/16"	2 7/16"
10 1/8	40.1560	1 9/16"	2 7/16"
10 3/16	40.3299	1 5/8"	2 7/16"
10 1/4	40.5028	1 5/8"	2 1/2"
10 5/16	40.6749	1 5/8"	2 1/2"
10 3/8	40.8461	1 5/8"	2 1/2"
10 7/16	41.0165	1 5/8"	2 1/2"
10 1/2	41.1859	1 5/8"	2 1/2"
10 9/16	41.3545	1 5/8"	2 1/2"
10 5/8	41.5222	1 5/8"	2 1/2"
10 11/16	41.6891	1 11/16"	2 1/2"
10 3/4	41.8550	1 11/16"	2 1/2"
10 13/16	42.0202	1 11/16"	2 1/2"
10 7/8	42.1844	1 11/16"	2 1/2"
10 15/16	42.3479	1 11/16"	2 1/2"
11	42.5104	1 11/16"	2 1/2"
11 1/16	42.6722	1 11/16"	2 1/2"
11 1/8	42.8331	1 11/16"	2 1/2"
11 3/16	42.9932	1 11/16"	2 1/2"
11 1/4	43.1524	1 3/4"	2 1/2"
11 5/16	43.3108	1 3/4"	2 1/2"
11 3/8	43.4684	1 3/4"	2 1/2"
11 7/16	43.6252	1 3/4"	2 9/16"
11 1/2	43.7811	1 3/4"	2 9/16"
11 9/16	43.9363	1 3/4"	2 9/16"
11 5/8	44.0906	1 3/4"	2 9/16"
11 11/16	44.2442	1 3/4"	2 9/16"
11 3/4	44.3969	1 13/16"	2 9/16"
11 13/16	44.5489	1 13/16"	2 9/16"
11 7/8	44.7000	1 13/16"	2 9/16"
11 15/16	44.8504	1 13/16"	2 9/16"
12	45.0000	1 13/16"	2 9/16"

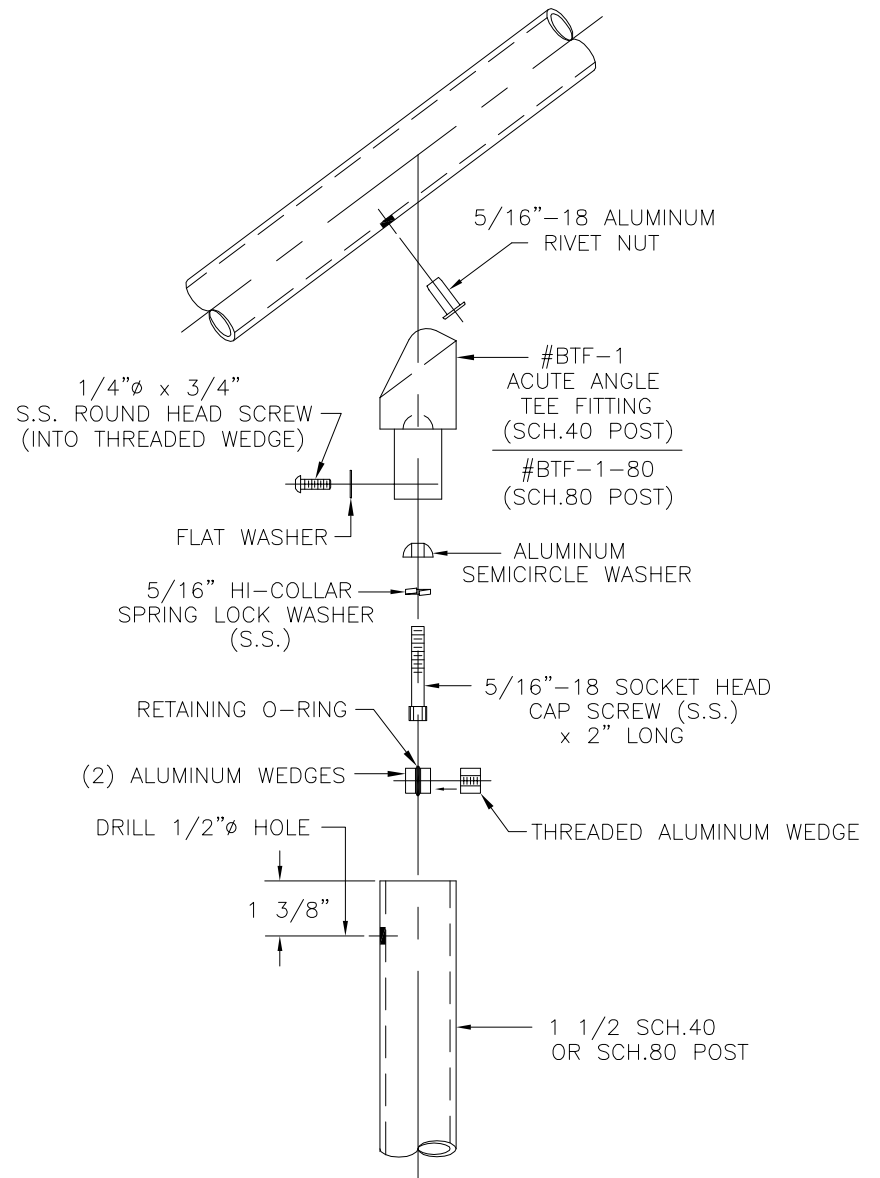
90° ELBOW #TE-2
(FOR SCH.40 POST)

90° ELBOW #TE-2-80
(FOR SCH.80 POST)



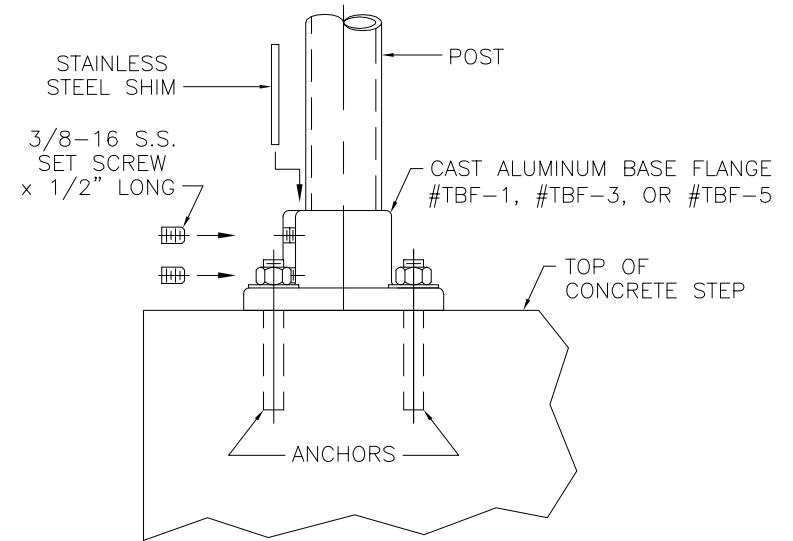
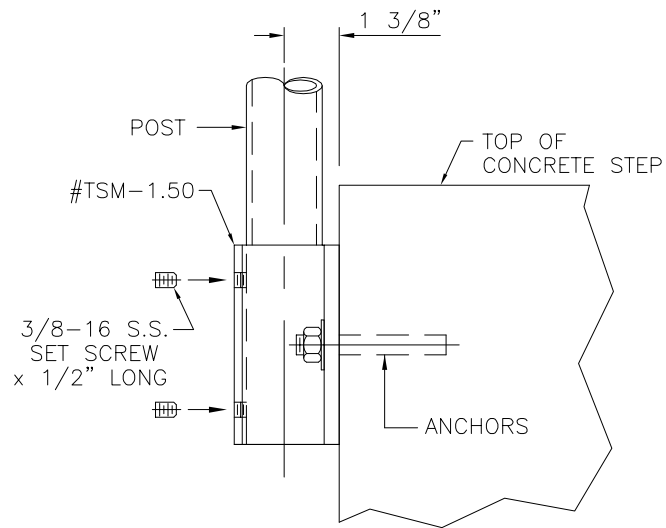
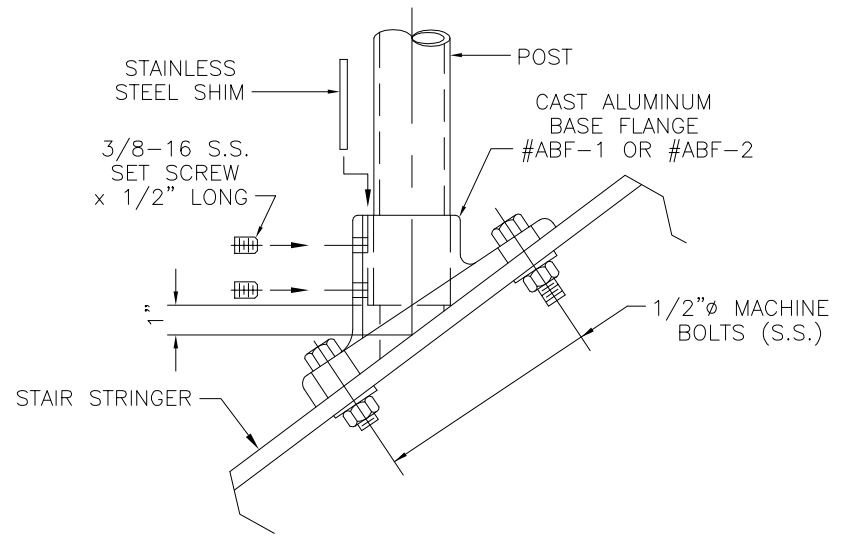
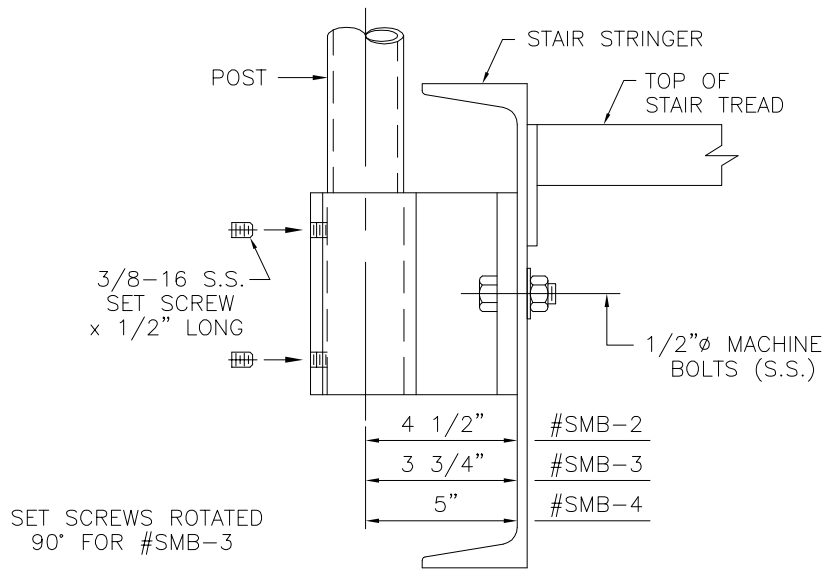
90° ELBOW #TE-2

#TE-3 SIMILAR



TOP RAIL FITTING #BTF-1

#BTF-1-80 FOR SCH.80 POST



INSTALLATION OF SIDE-MOUNT BRACKETS

INSTALLATION OF BASE FLANGES

INSTRUCTIONS FOR ASSEMBLY

1. Measure pipe, cut to length, deburr.
2. Drill posts and top rail for rivet nut installation.
Obtain hole locations from chart on page 3.
Use letter "Z" drill (.4130").
3. Complete drilling of posts, mid-rails and top rails with $1/2"$ \emptyset holes.
4. Install rivet-nuts in posts and top rail.
5. Install #BTF-1 fittings on posts and top rails.
Tighten $5/16"$ \emptyset -18 socket head cap screws.
6. Install mid-rails on post #BTF-1 fittings,
tighten screws.
7. Install top rail fittings into top of posts,
tighten screws.
8. Check completed rail for alignment and
correct dimensions.

System TF

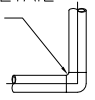
Shop Assembled Railing System

We recommend this level rail system be shop assembled due to special tooling requirements.

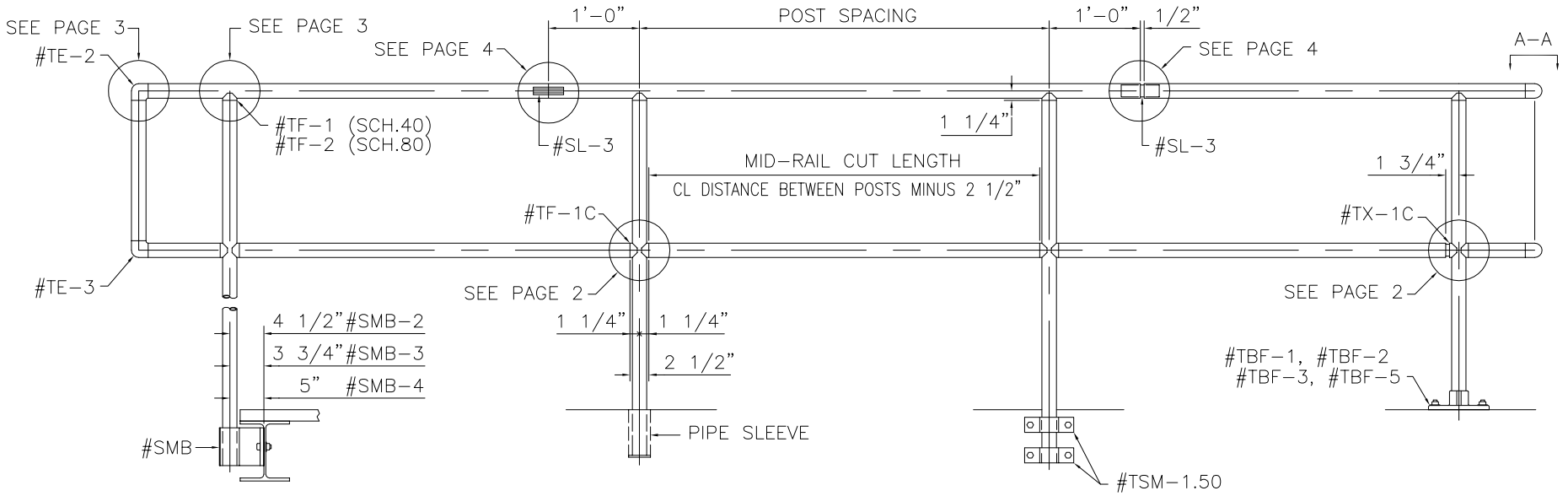
For companion bevel rail see System BTF (Section 2)

For details of post mounting brackets see Section 11 of this catalog.

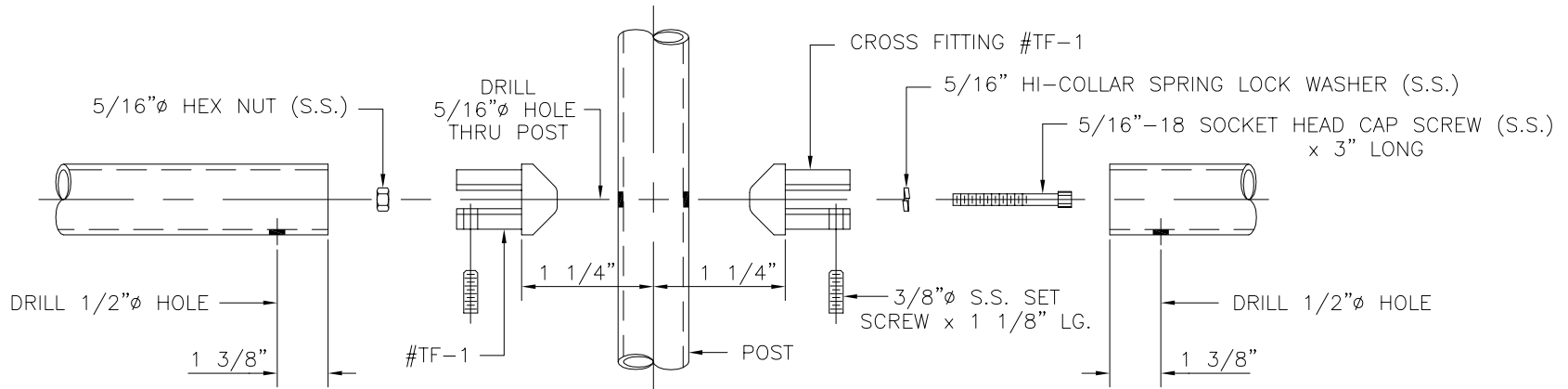
#TE-1 OR #TE-4
 HORIZONTAL TURN ELBOW
 (SEE #TE-2/#TE-3 DETAIL
 FOR INSTALLATION)



VIEW A-A

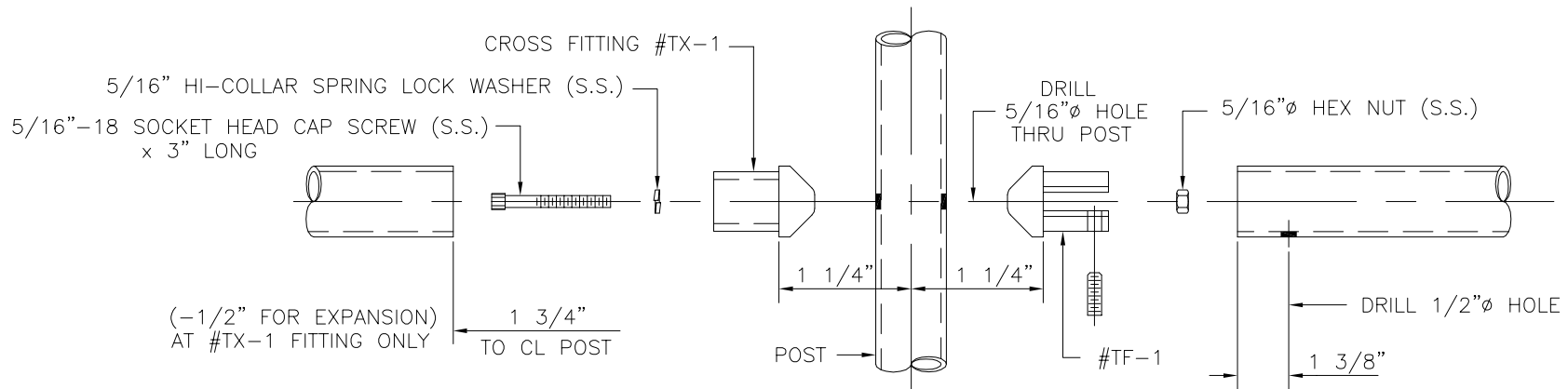


ELEVATION OF GUARDRAIL



CROSS AT MID-RAIL

PART NO. #TF-1C

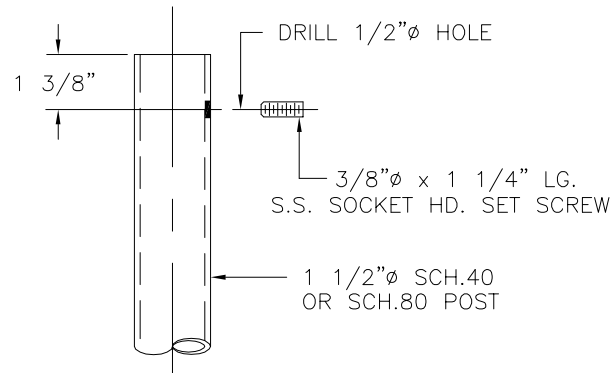
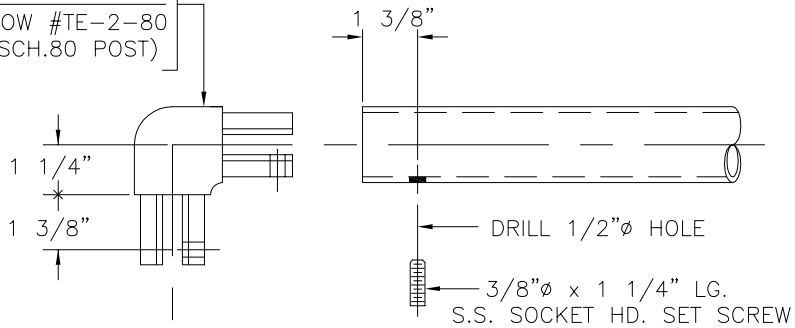


EXPANSION CROSS AT MID-RAIL

PART NO. #TX-1C

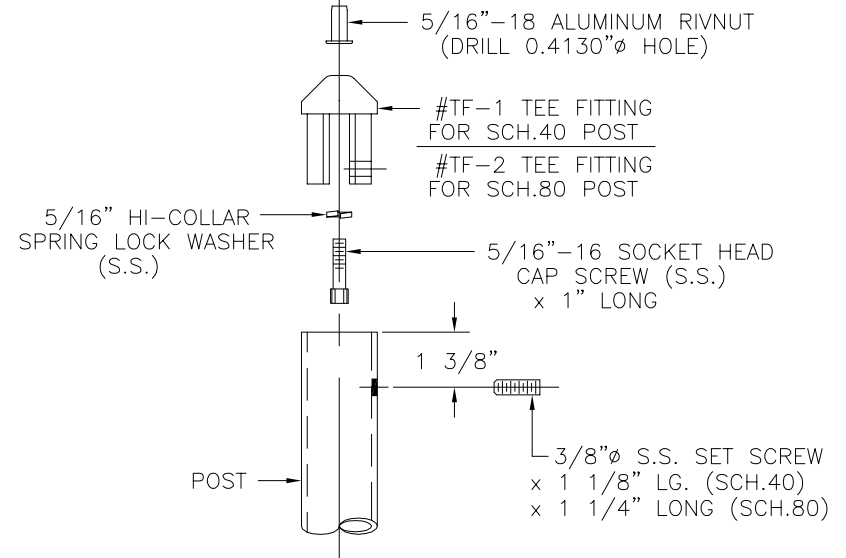
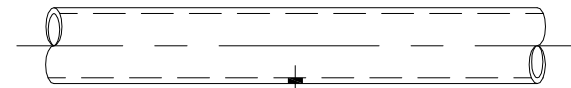
90° ELBOW #TE-2
(FOR SCH.40 POST)

90° ELBOW #TE-2-80
(FOR SCH.80 POST)

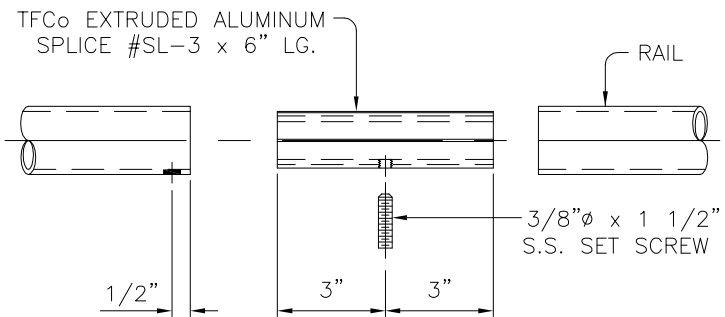


90° ELBOW #TE-2

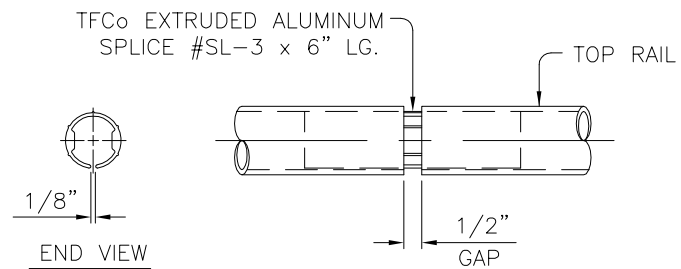
#TE-1 AND #TE-3 SIMILAR



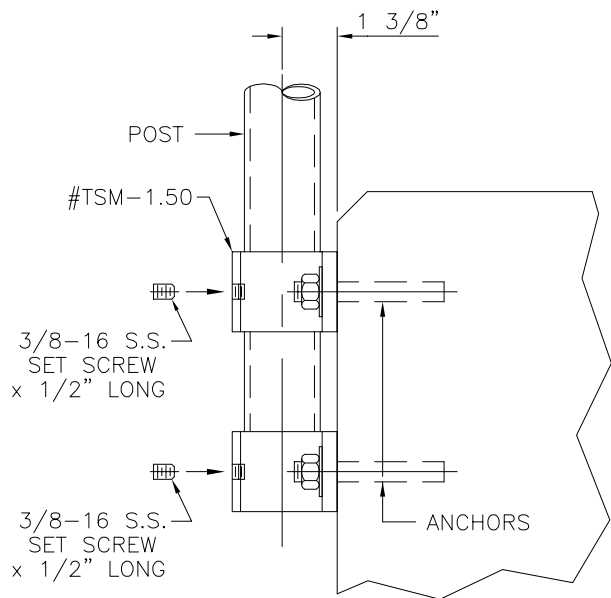
TOP RAIL TEE #TF-1/#TF-2



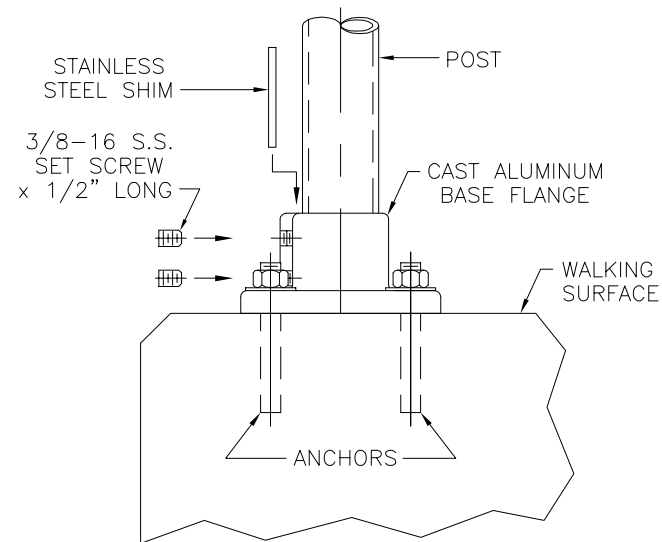
SPLICE INSERT #SL-3



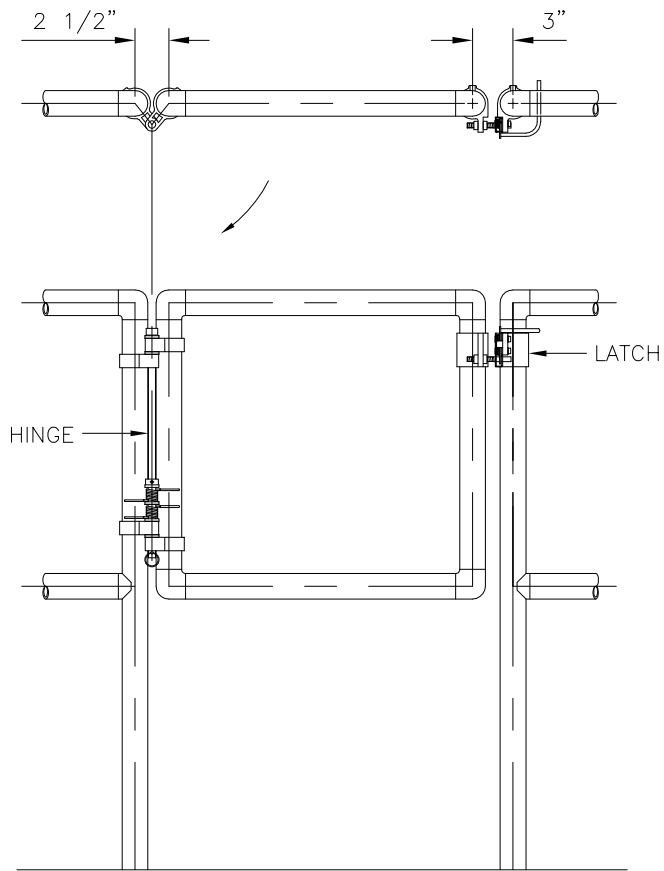
EXPANSION SPLICE



INSTALLATION OF SIDE-MOUNT BRACKET

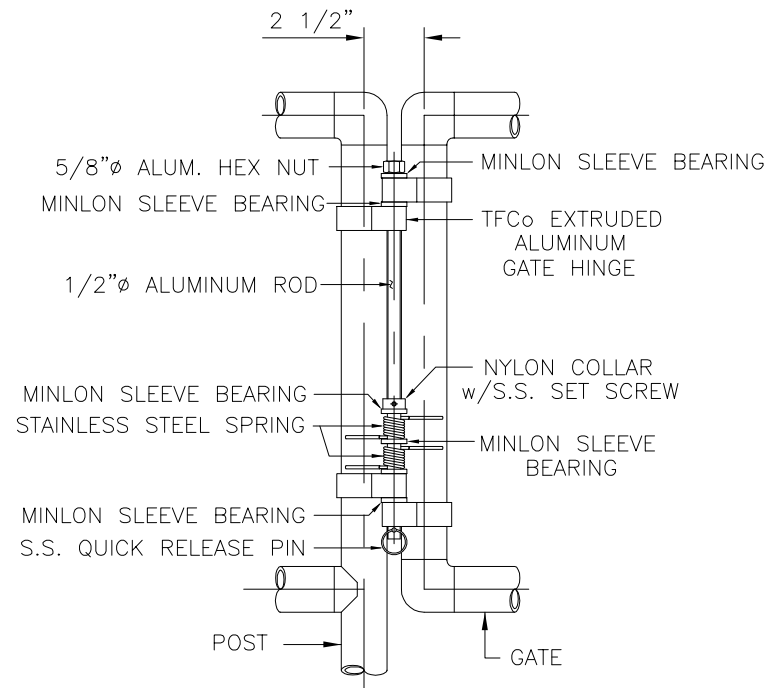


INSTALLATION OF BASE FLANGE

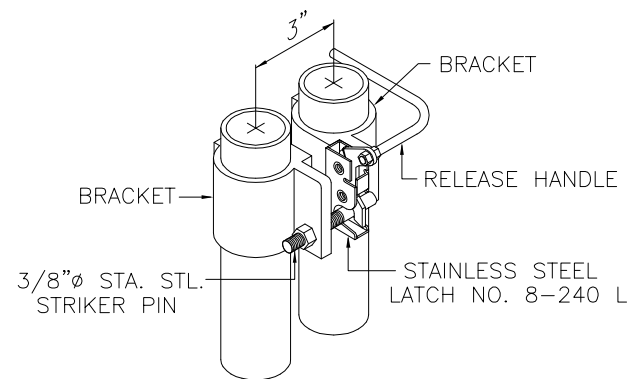


GATE KIT GK-1

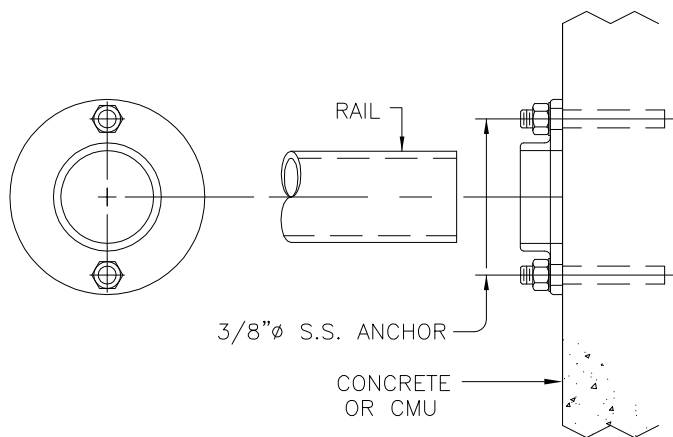
FOR ANODIZED GATE
USE GATE KIT GK-1A



GATE HINGE



GATE LATCH



WALL TERMINAL FLANGE #CF-2

INSTRUCTIONS FOR ASSEMBLY

1. Measure pipe, cut to length, deburr.
2. Drill top rail for rivet nuts and splice locks. Use letter Z drill (.4130") for rivet nut holes.
3. Drill posts, install fittings for mid-rails.
4. Install rivet nuts and fittings on top rail.
5. Install mid-rails on posts.
6. Install top rail on posts.
7. Tighten 3/8"Ø set screws.
8. Check completed rail for alignment and correct dimensions.

System ASF

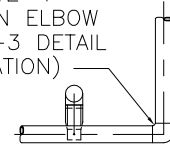
Field or Shop Assembled Level and Bevel Railing System

This system adapts well
to shop or field assembly.

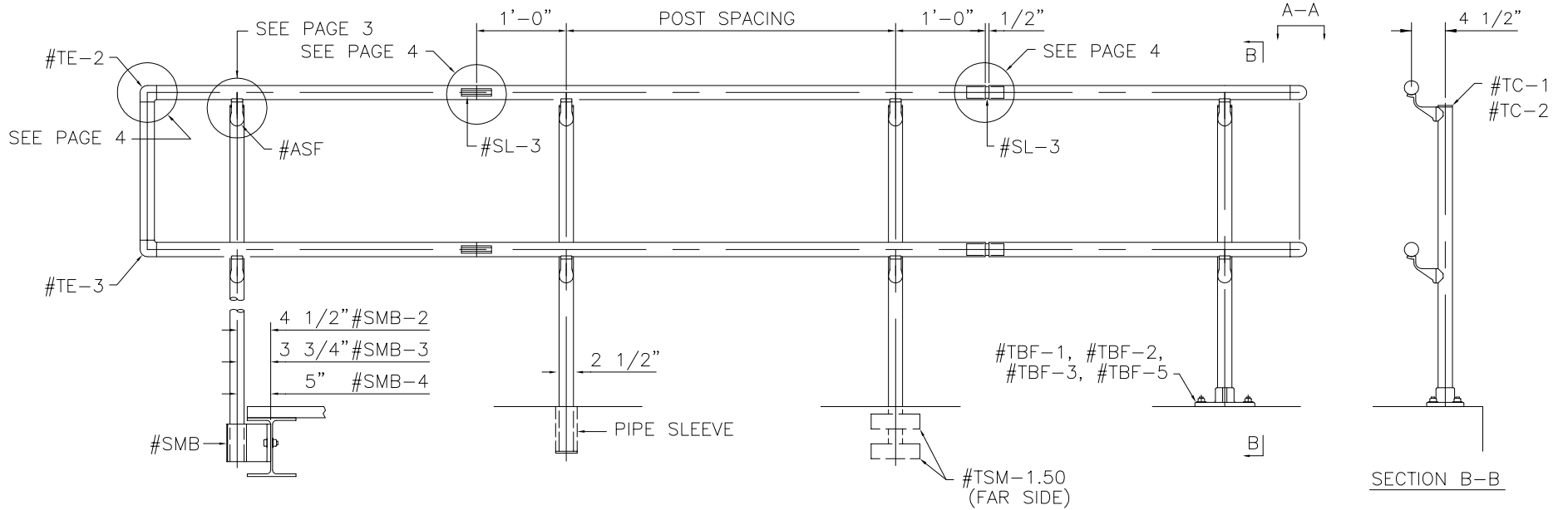
A rivet-nut setting tool is required.

For details of post mounting brackets
see Section 11 of this catalog.

#TE-1 OR #TE-4
 HORIZONTAL TURN ELBOW
 (SEE #TE-2/#TE-3 DETAIL
 FOR INSTALLATION)

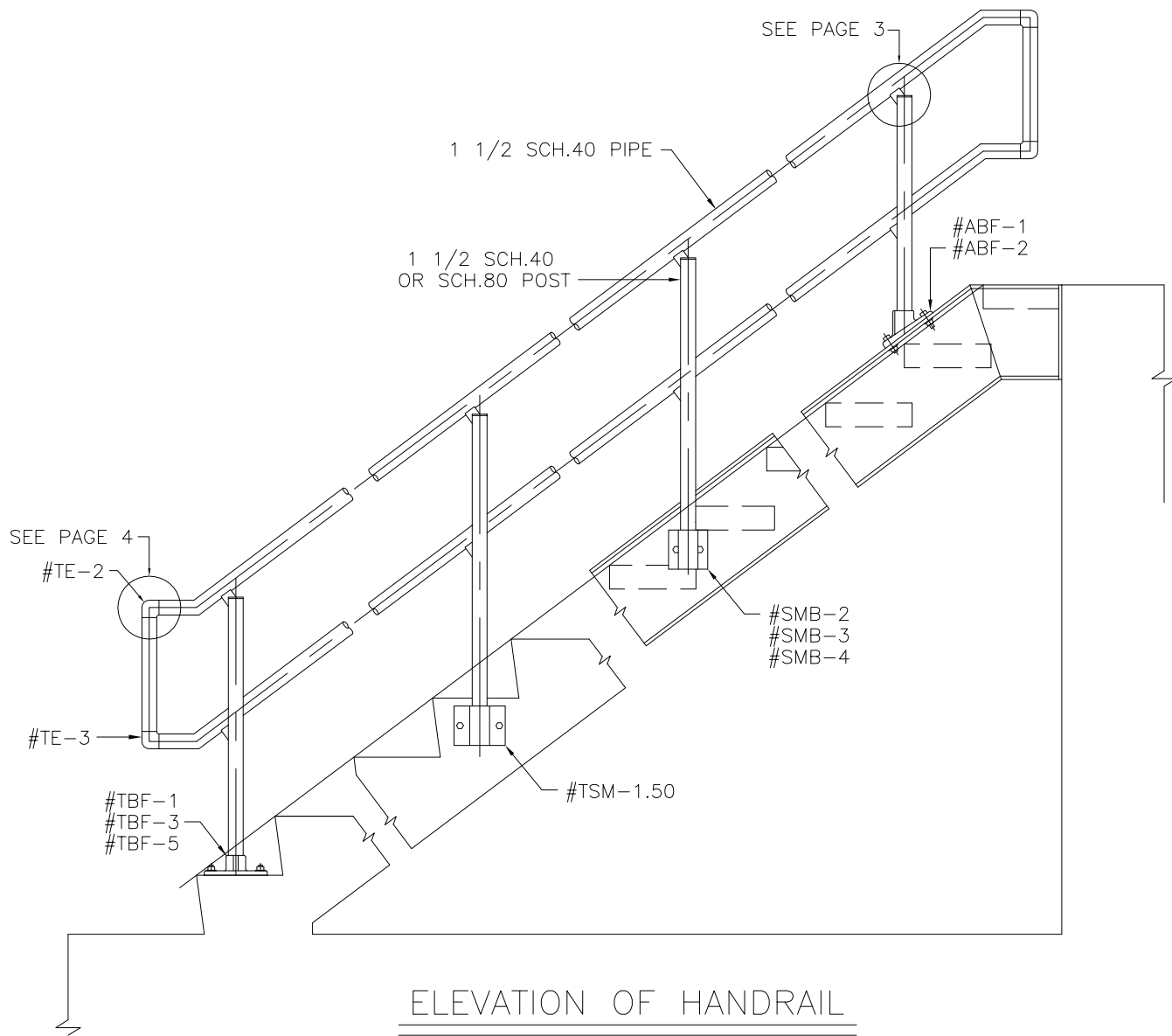


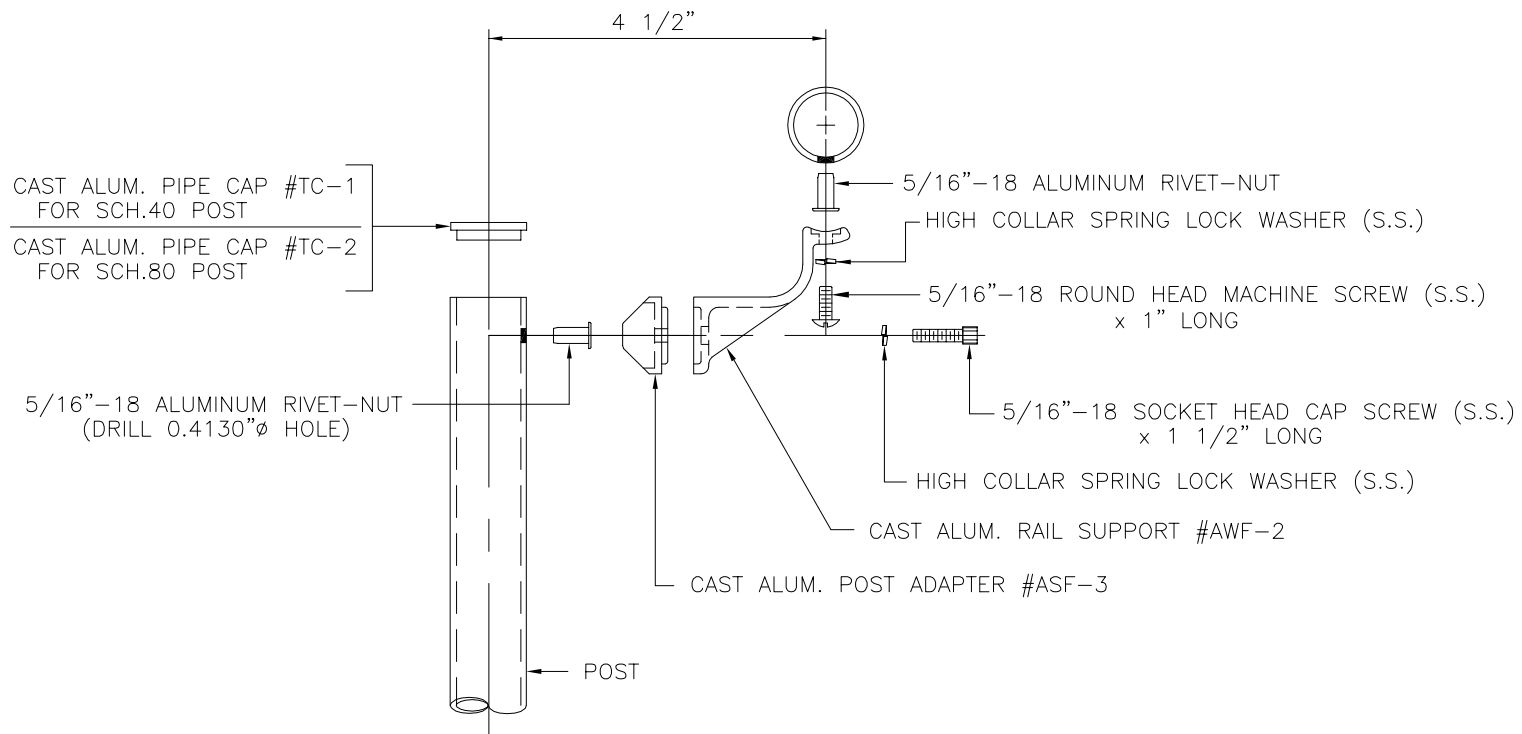
VIEW A-A



ELEVATION OF GUARDRAIL

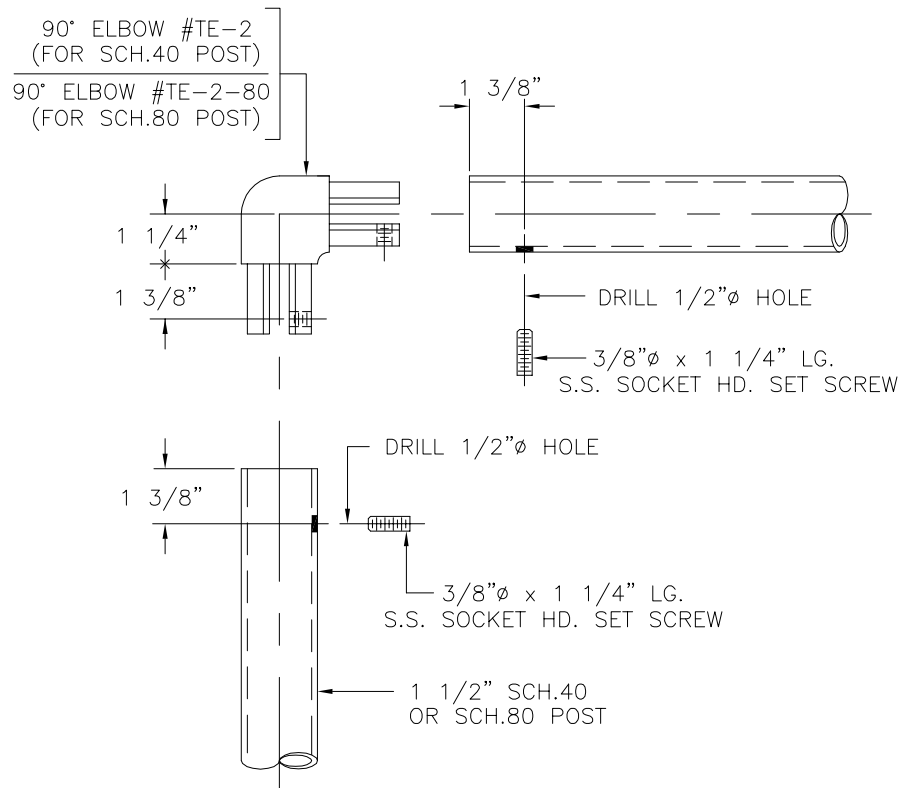
SECTION B-B



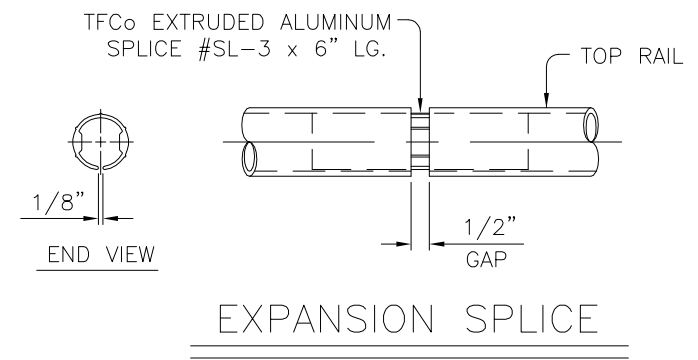
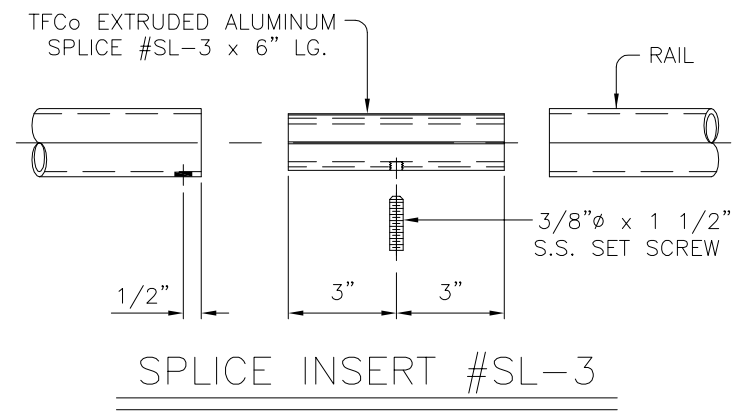


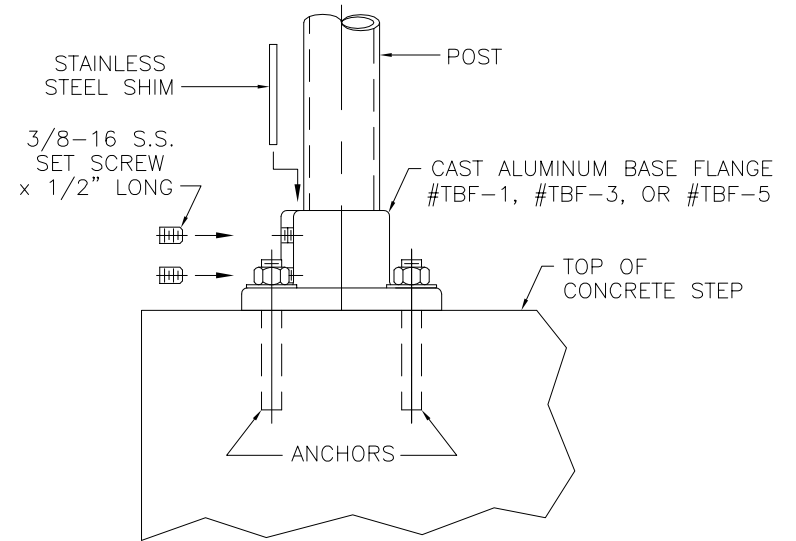
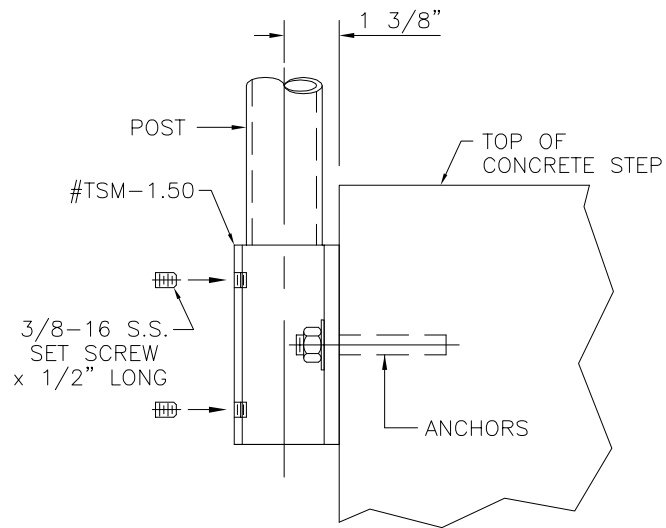
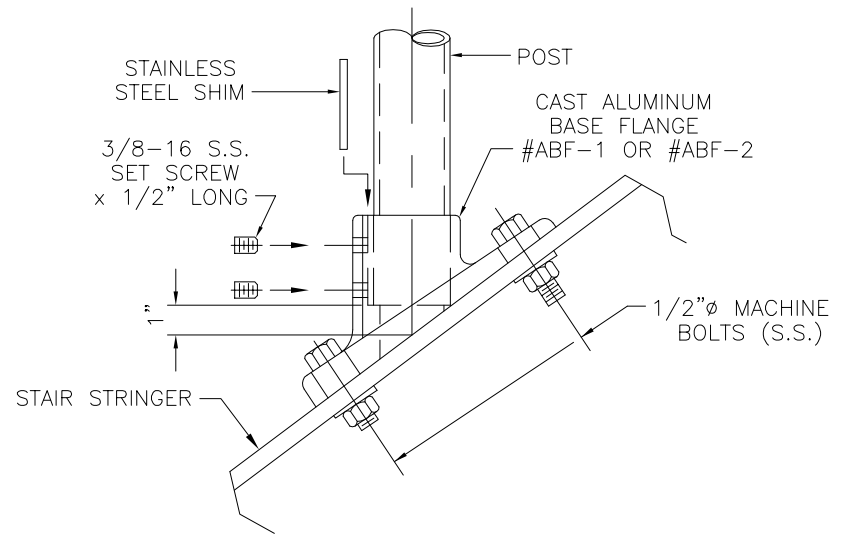
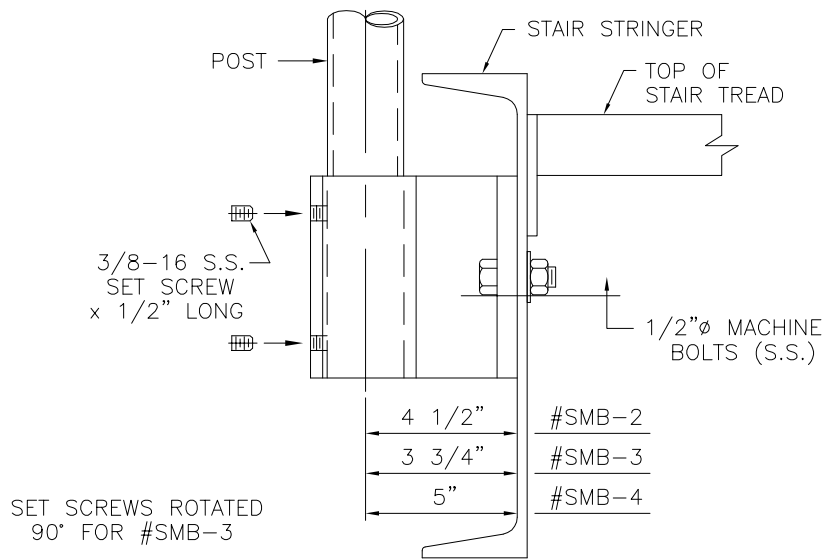
#ASF FITTING AT TOP RAIL

(MID-RAIL CONNECTION SIMILAR)



90° ELBOW #TE-2
#TE-1 AND #TE-3 SIMILAR





INSTALLATION OF SIDE-MOUNT BRACKETS

INSTALLATION OF BASE FLANGES

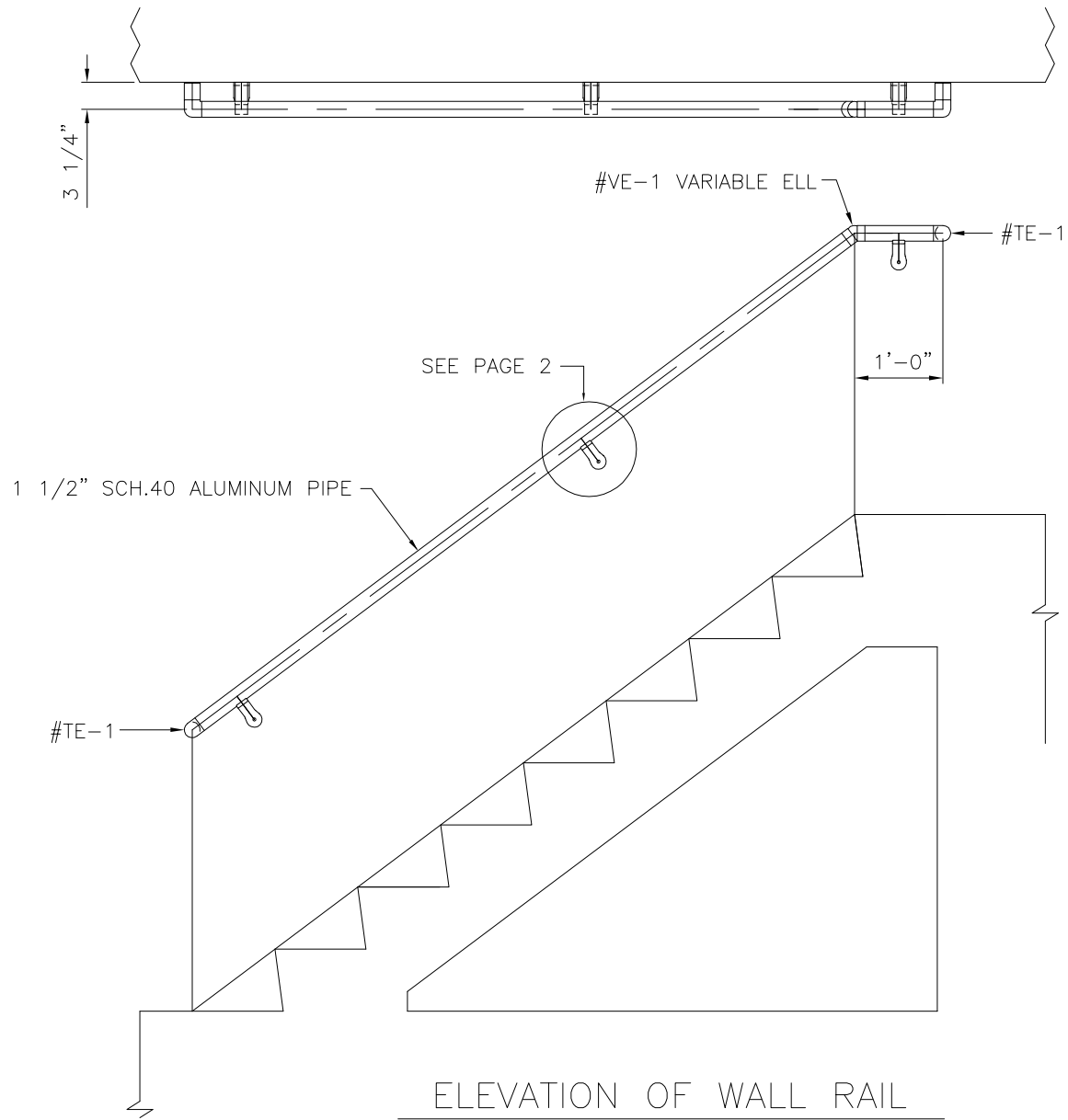
INSTRUCTIONS FOR ASSEMBLY

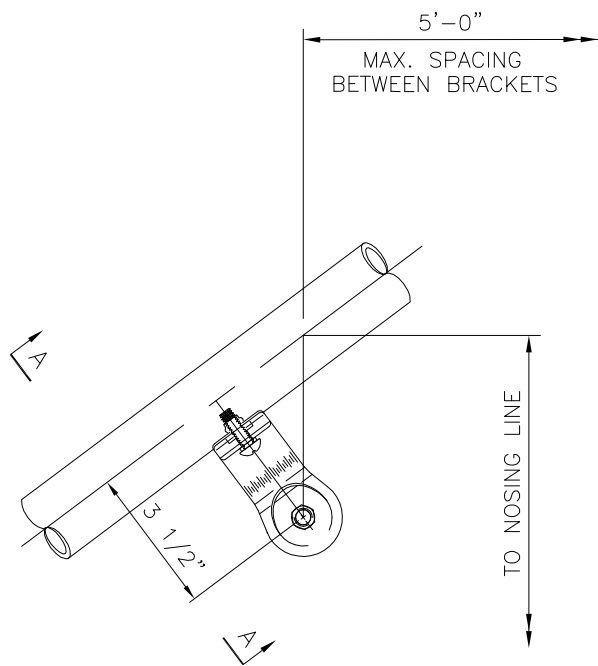
1. Measure pipe, cut to length, deburr.
2. Drill posts.
3. Drill rails.
4. Install rivet-nuts on posts.
5. Install #ASF-3/#AWF-2 fittings on posts, adjust to proper bevel. Place rail in saddle, using holes in saddle as a template. Mark location of holes on underside of rail. Drill holes with letter "Z" drill (.4130") for rivet-nuts. Install rivet-nuts. Install rails on fittings with 5/16"-18 S.S. round head machine screws.
6. Install pipe cap #TC-1/#TC-2 in top of posts.
7. Check completed rail for alignment and correct dimensions.

System AWF

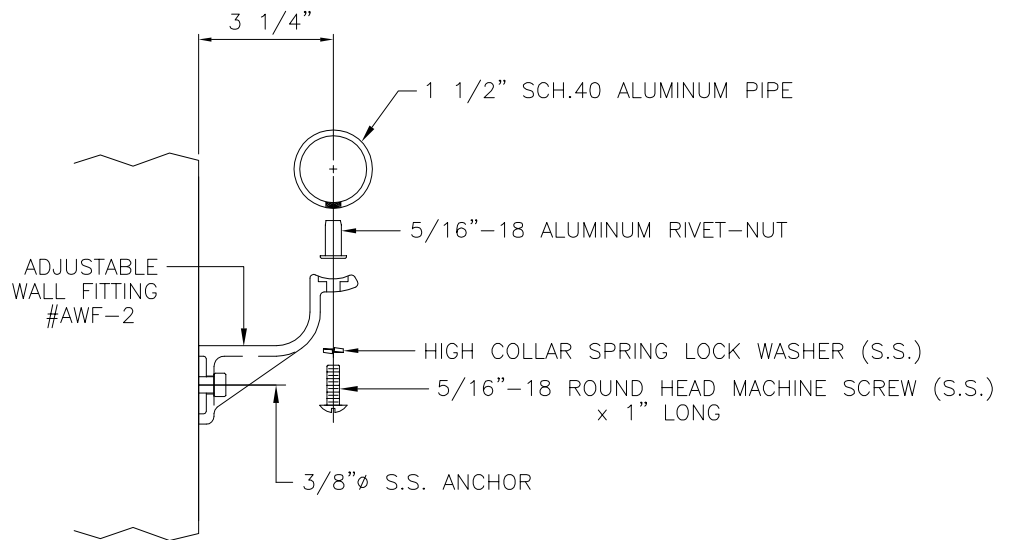
Field or Shop Assembled
Level or Bevel Wall Handrail

SECTION 5





WALL RAIL ELEVATION



SECTION A-A

INSTRUCTIONS FOR ASSEMBLY

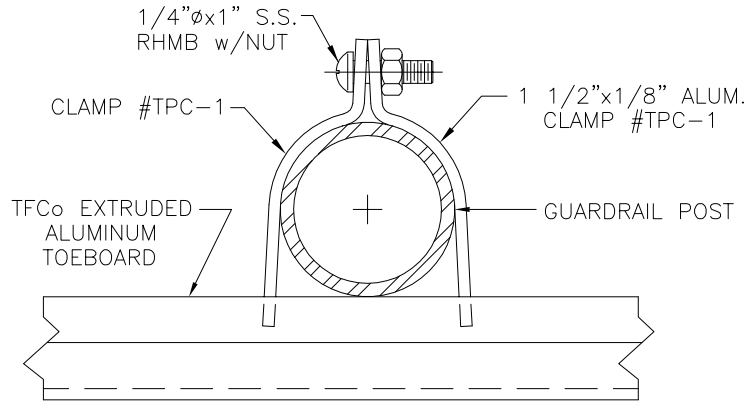
1. Cut pipe to length, bend as required and deburr.
2. Align base of #AWF-2 fittings on wall, drill and install fasteners using the base as a drill template.
3. Place rail in saddles of #AWF-2, using holes in saddle as a template. Mark location of holes on underside of rail. Drill holes with letter "Z" drill (.4130") for rivet-nuts. Install rivet-nuts. Install rails on fittings with 5/16"-18 S.S. round head machine screws.

System TB

Field Assembled Toeboard System

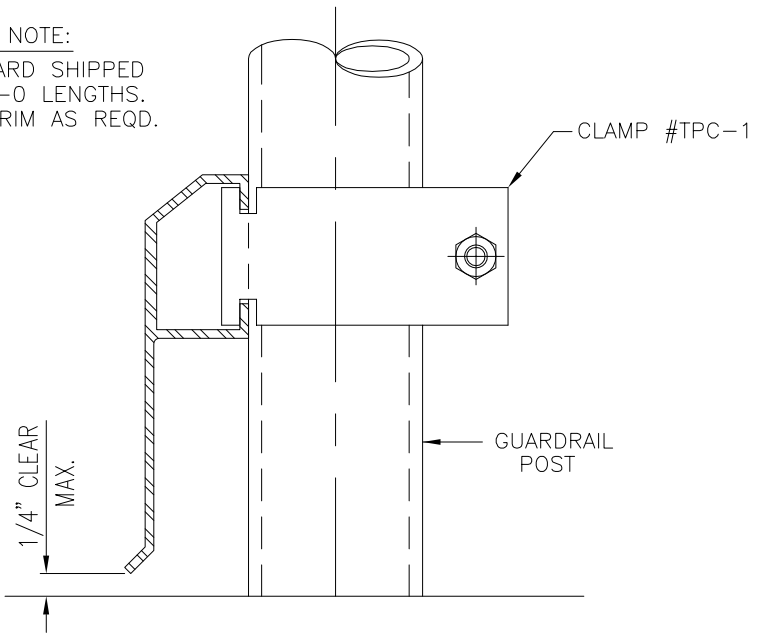
For use with all TFCo level railing systems.

SECTION 6

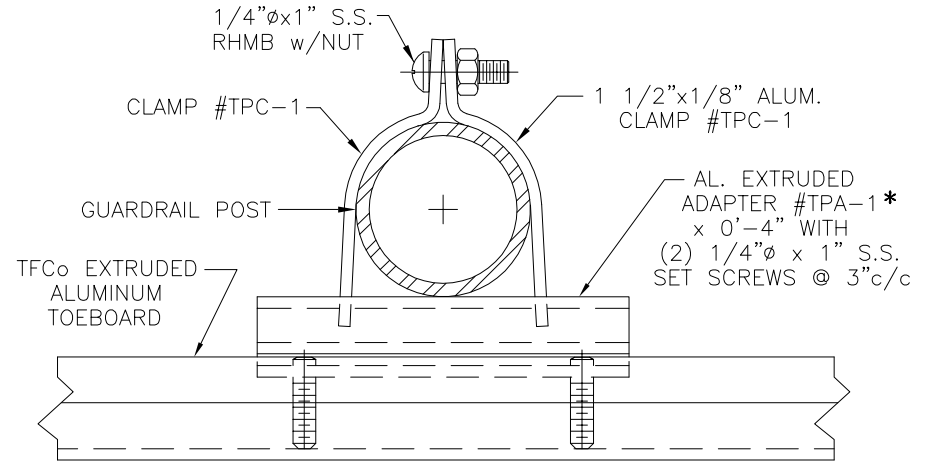


PLAN VIEW OF CLAMP

NOTE:
TOEBOARD SHIPPED
IN 20'-0" LENGTHS.
FIELD TRIM AS REQD.

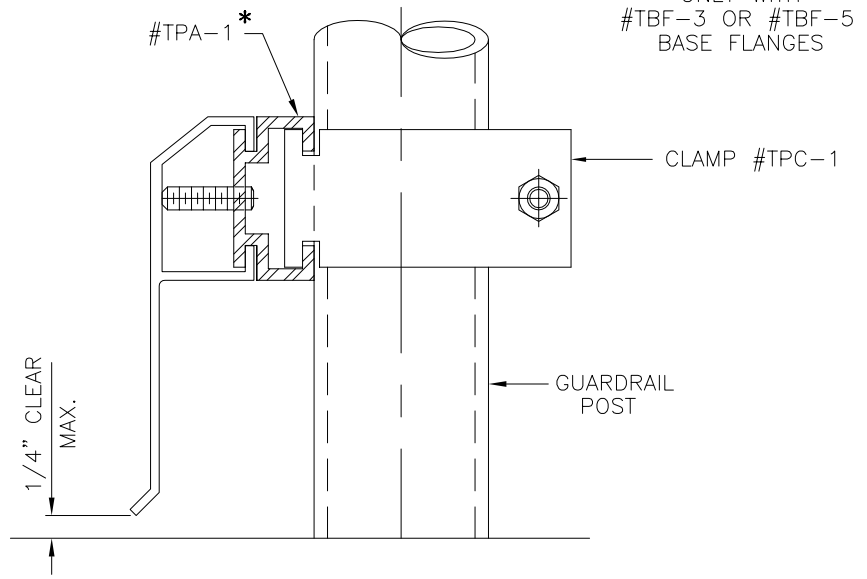


ELEVATION OF CLAMP

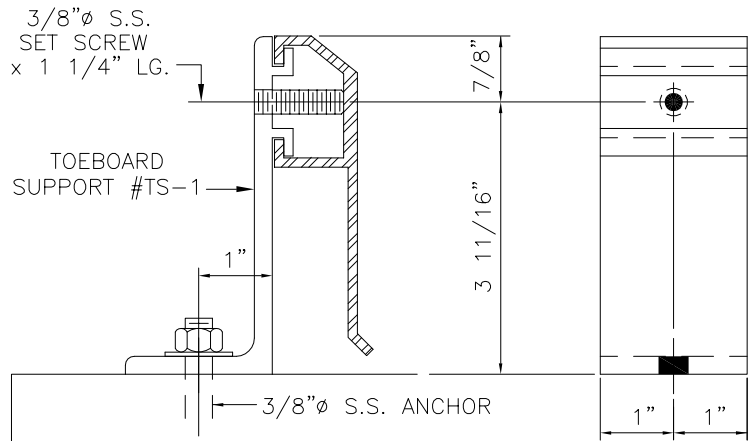


PLAN VIEW OF CLAMP

*TO BE USED
ONLY WITH
#TBF-3 OR #TBF-5
BASE FLANGES

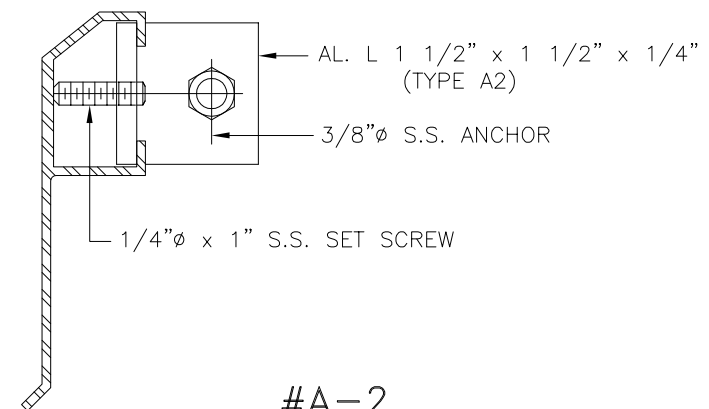


ELEVATION OF CLAMP

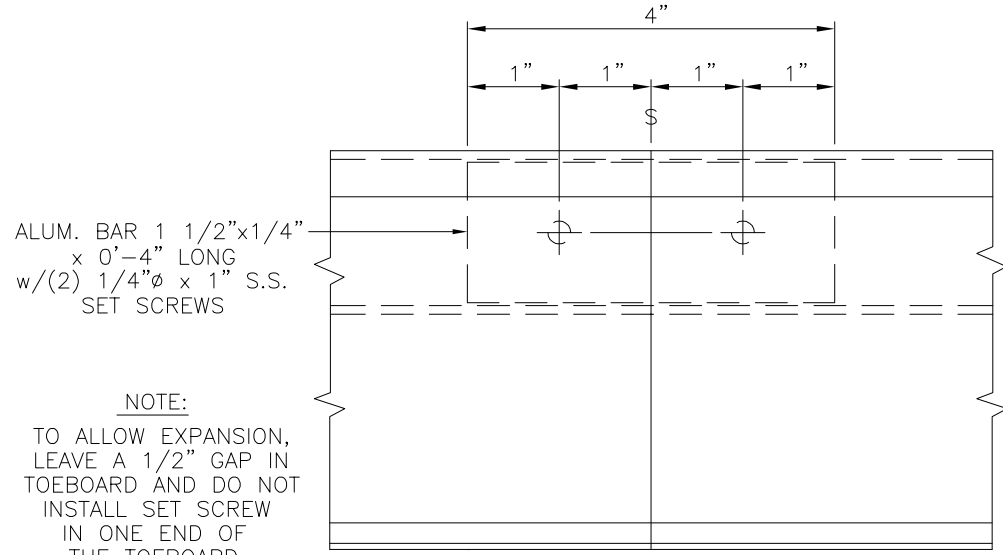


TOEBOARD SUPPORT #TS-1

TO SUPPORT FREE END OF TOEBOARD



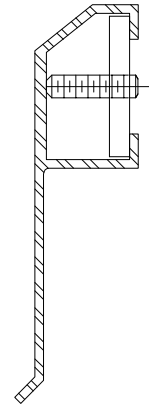
#A-2
TOEBOARD CONNECTION TO WALL

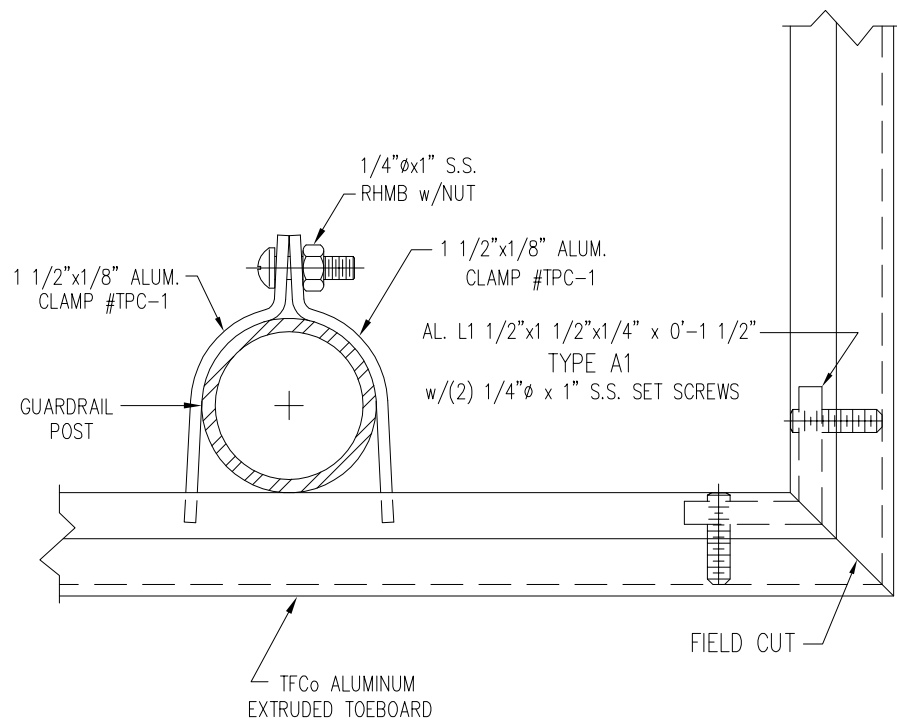


ALUM. BAR 1 1/2"x1/4"
x 0'-4" LONG
w/(2) 1/4"Ø x 1" S.S.
SET SCREWS

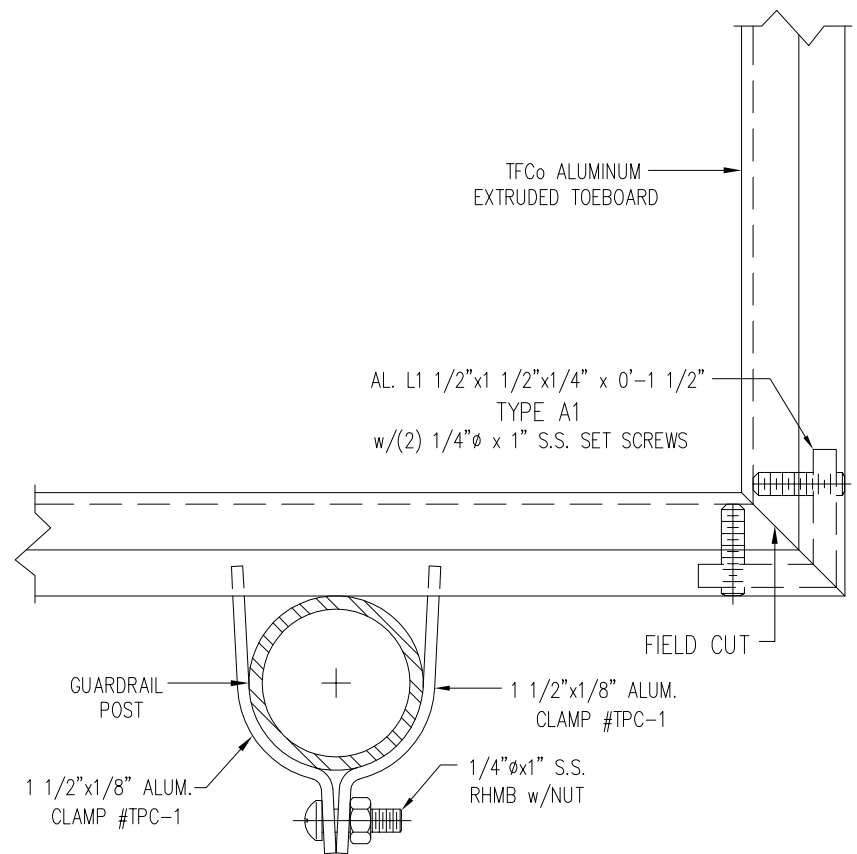
NOTE:
TO ALLOW EXPANSION,
LEAVE A 1/2" GAP IN
TOEBOARD AND DO NOT
INSTALL SET SCREW
IN ONE END OF
THE TOEBOARD.

TOEBOARD SPLICE #TPS-1

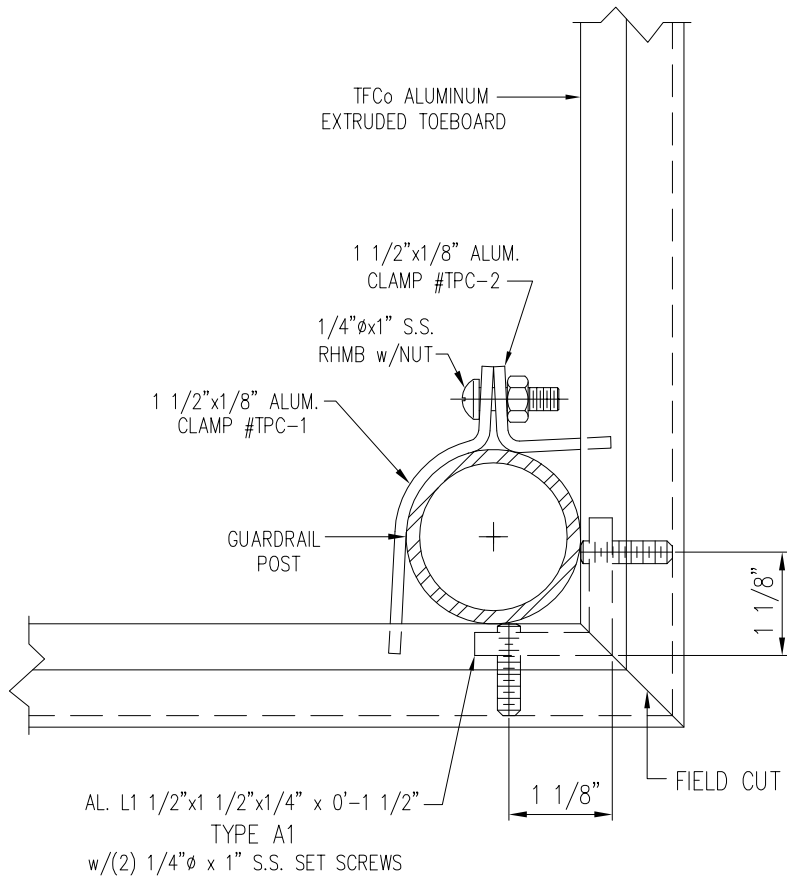




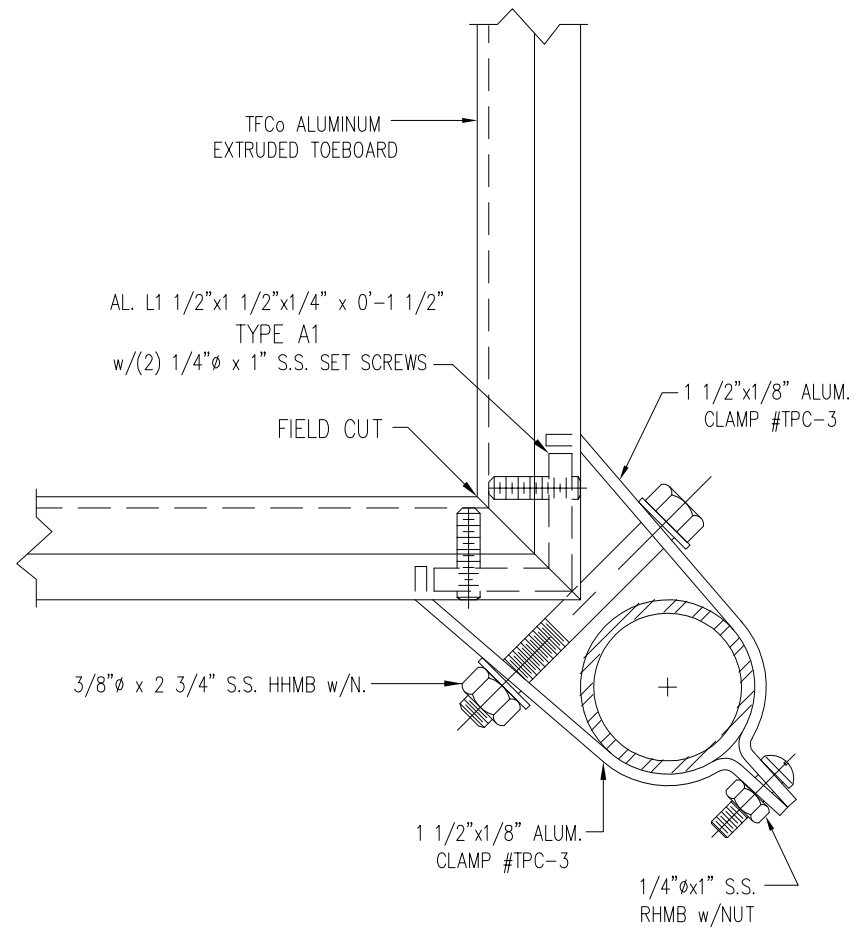
OUTSIDE CORNER



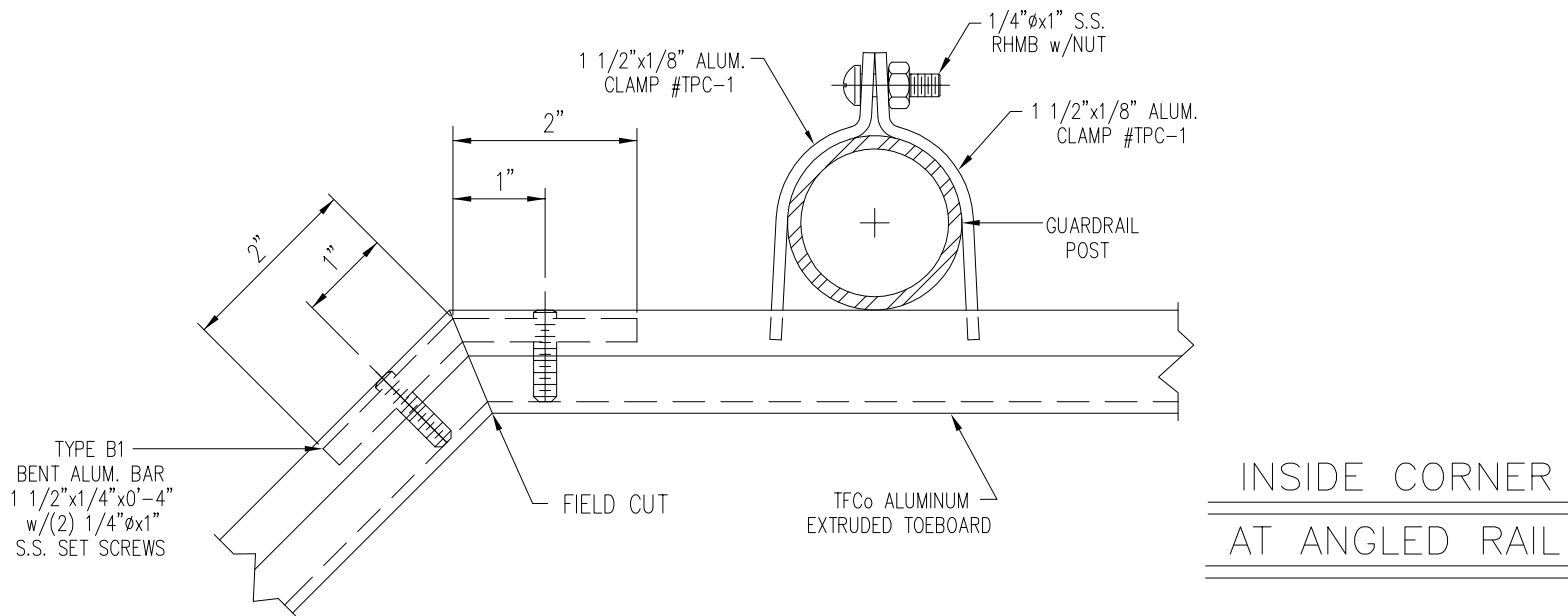
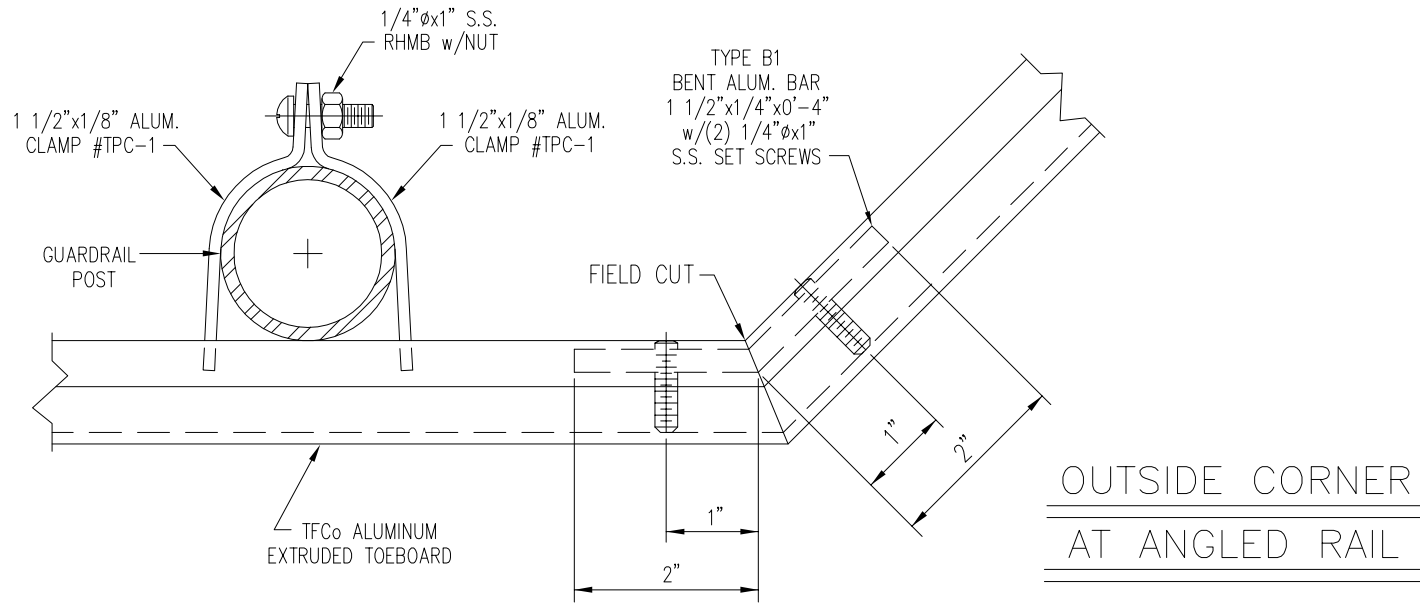
INSIDE CORNER



OUTSIDE CORNER AT POST



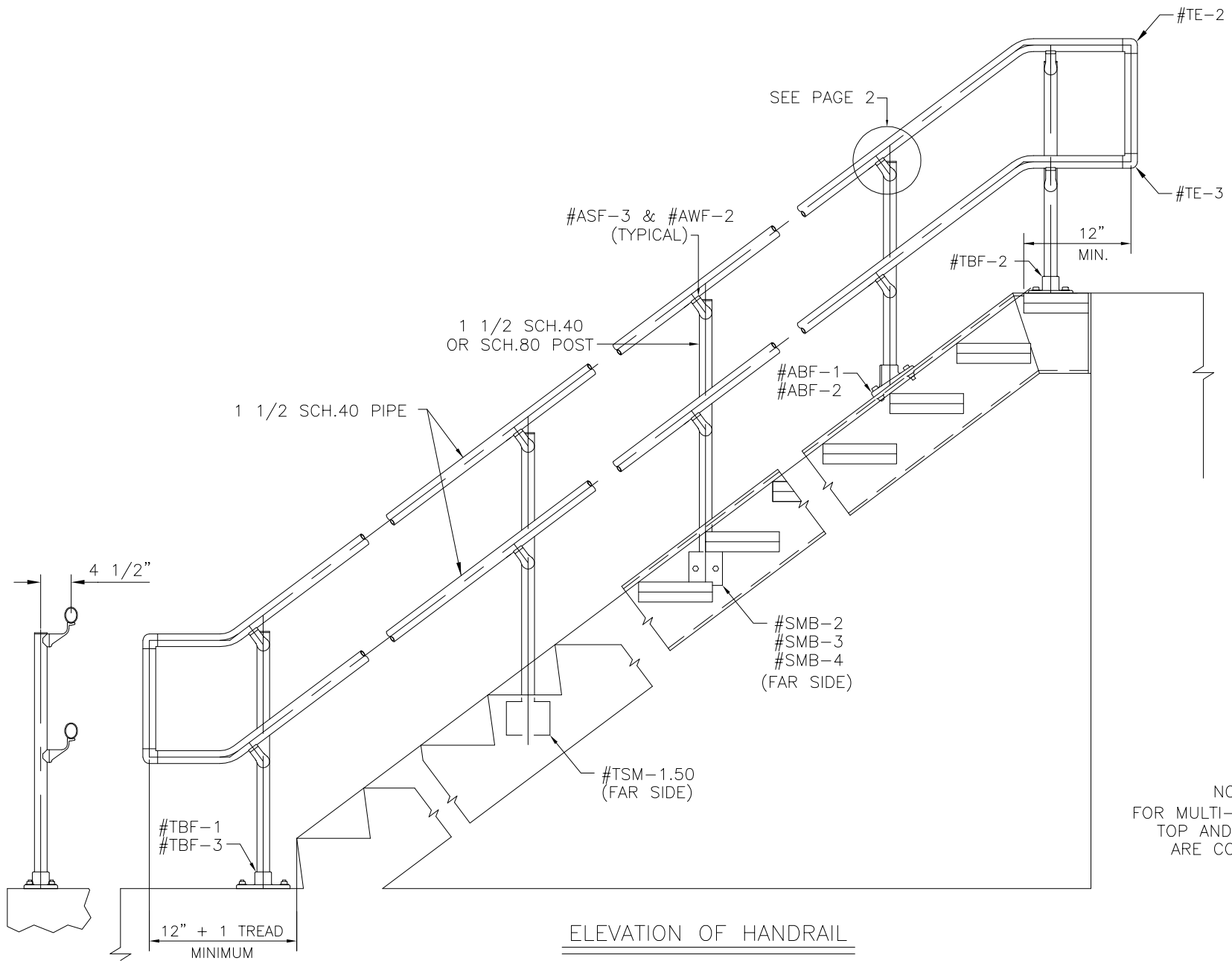
INSIDE CORNER AT POST



System ADA-1

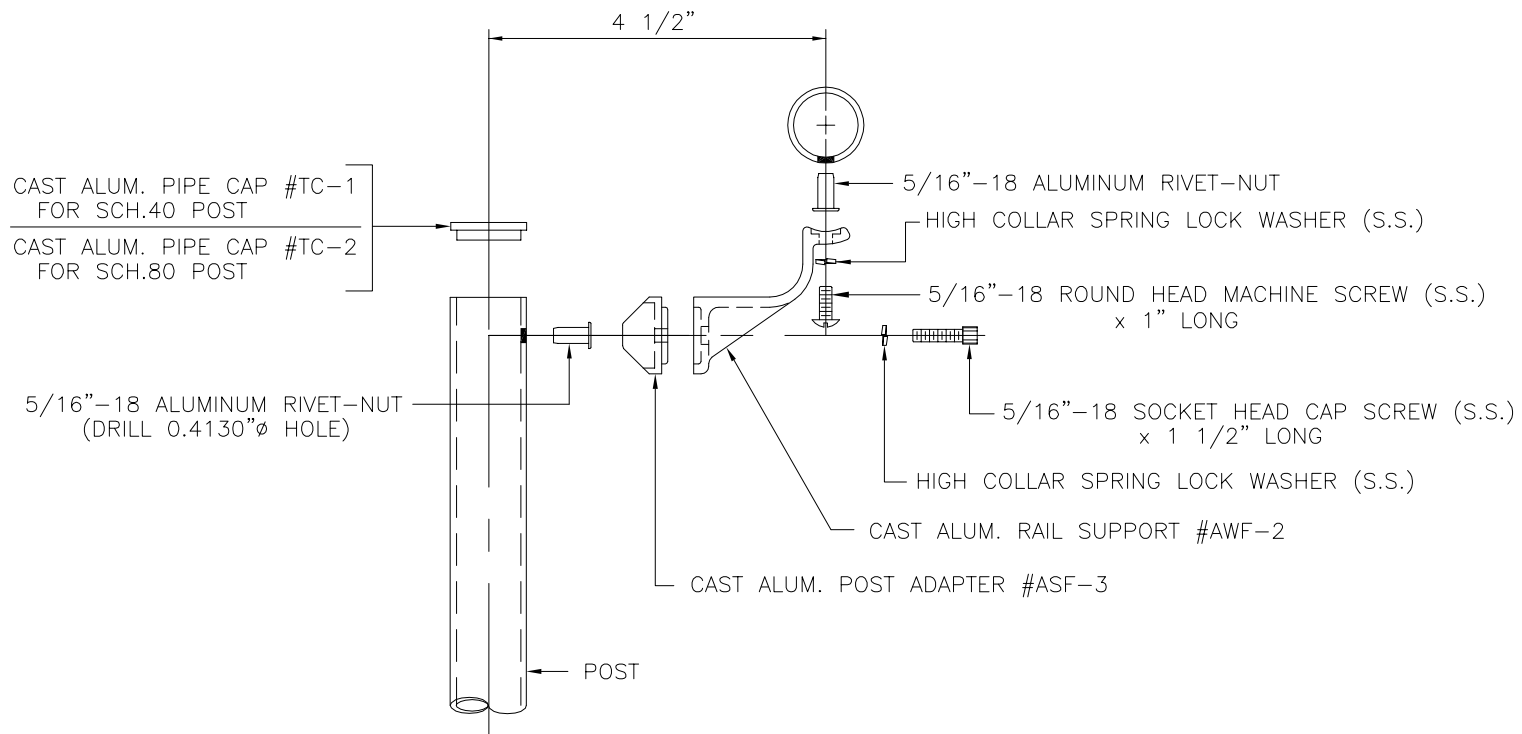
Off-Centerline Railing System

SECTION 7



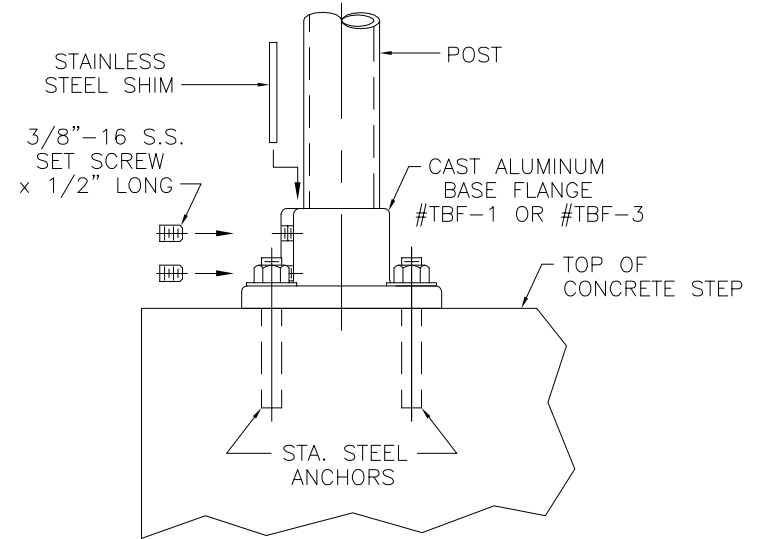
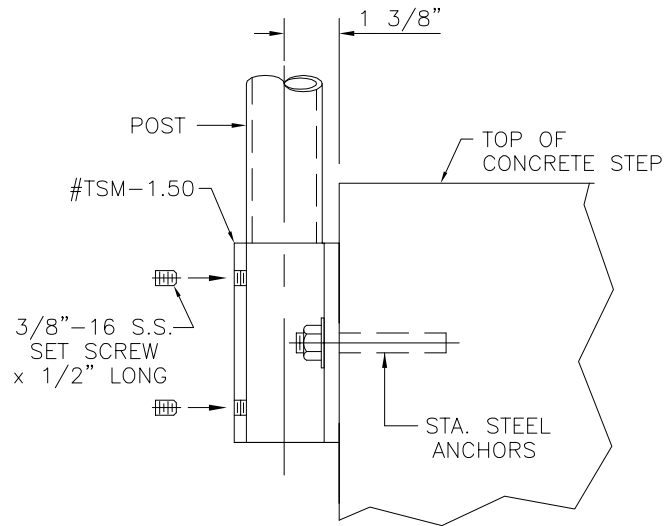
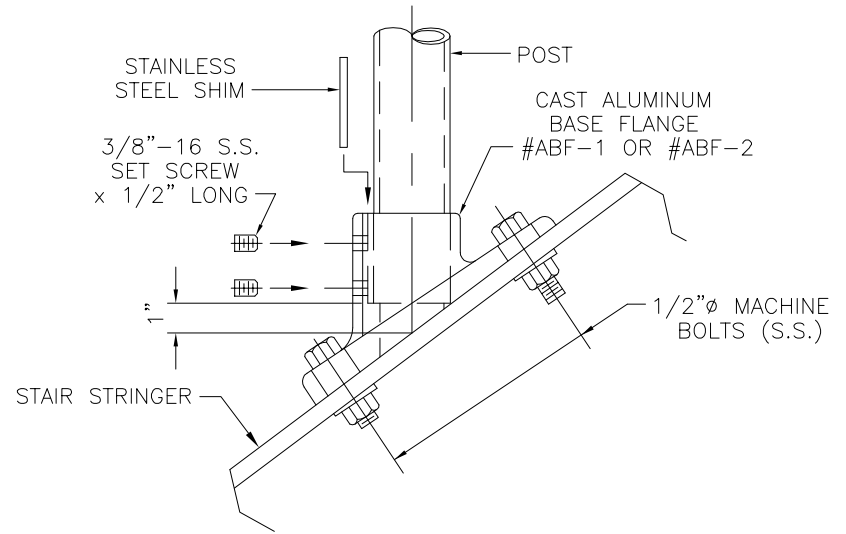
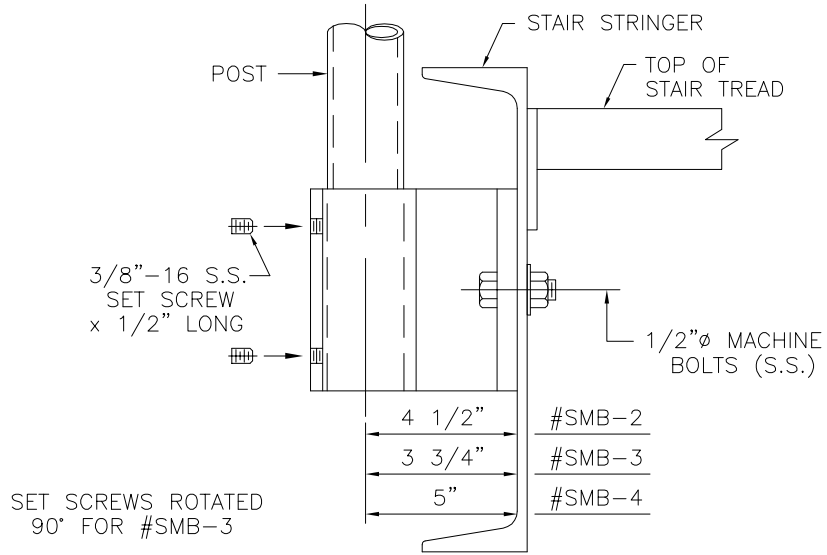
ELEVATION OF HANDRAIL

NOTE:
FOR MULTI-FLIGHT STAIRS
TOP AND MID-RAILS
ARE CONTINUOUS.



#ASF FITTING AT TOP RAIL

(MID-RAIL CONNECTION SIMILAR)



INSTALLATION OF SIDE-MOUNT BRACKETS

INSTALLATION OF BASE FLANGES

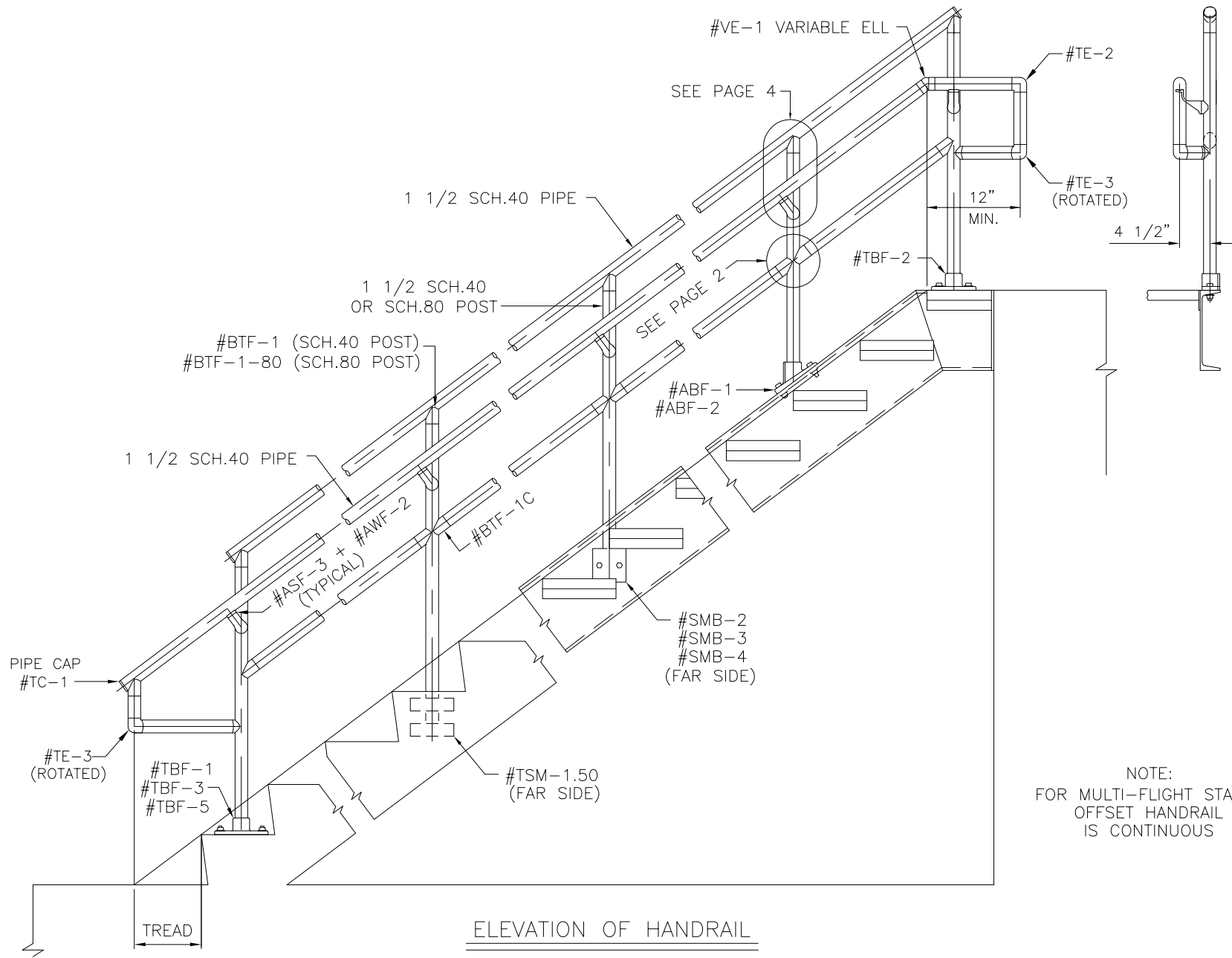
INSTRUCTIONS FOR ASSEMBLY

1. Measure pipe, cut to length, deburr.
2. Drill posts.
3. Drill rails.
4. Install rivet-nuts on posts.
5. Install #ASF-3/#AWF-2 fittings on posts, adjust to proper bevel. Place rail in saddle, using holes in saddle as a template. Mark location of holes on underside of rail. Drill holes with letter "Z" drill (.4130") for rivet-nuts. Install rivet-nuts. Install rails on fittings with 5/16"-18 S.S. round head machine screws.
6. Install pipe cap #TC-1/#TC-2 in top of posts.
7. Check completed rail for alignment and correct dimensions.

System ADA-2

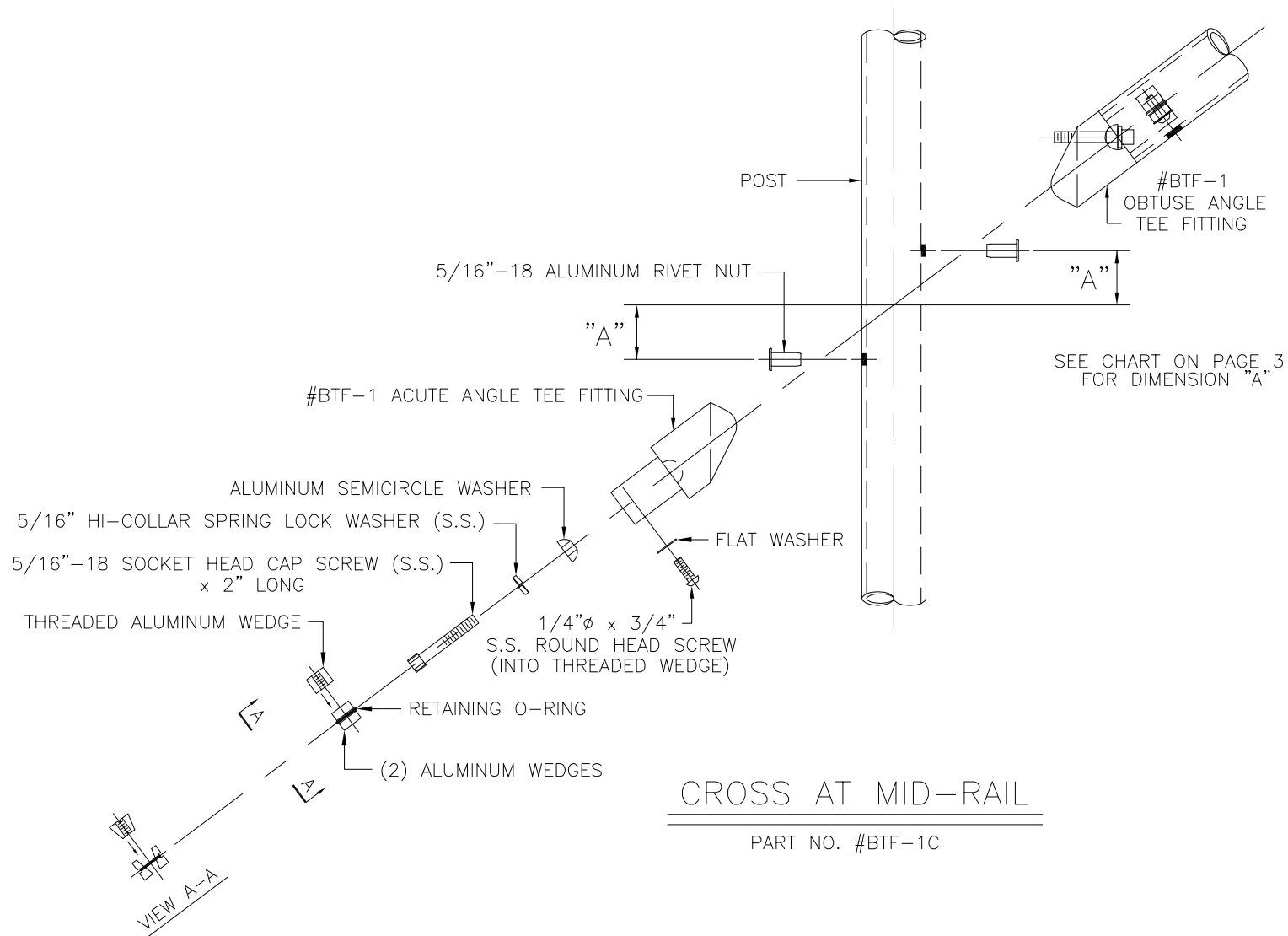
In-Line Stair Rail
with Offset Handrail

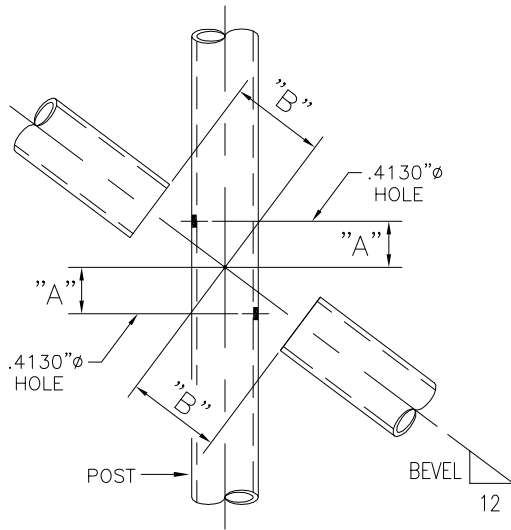
SECTION 8



NOTE:
FOR MULTI-FLIGHT STAIRS
OFFSET HANDRAIL
IS CONTINUOUS

ELEVATION OF HANDRAIL

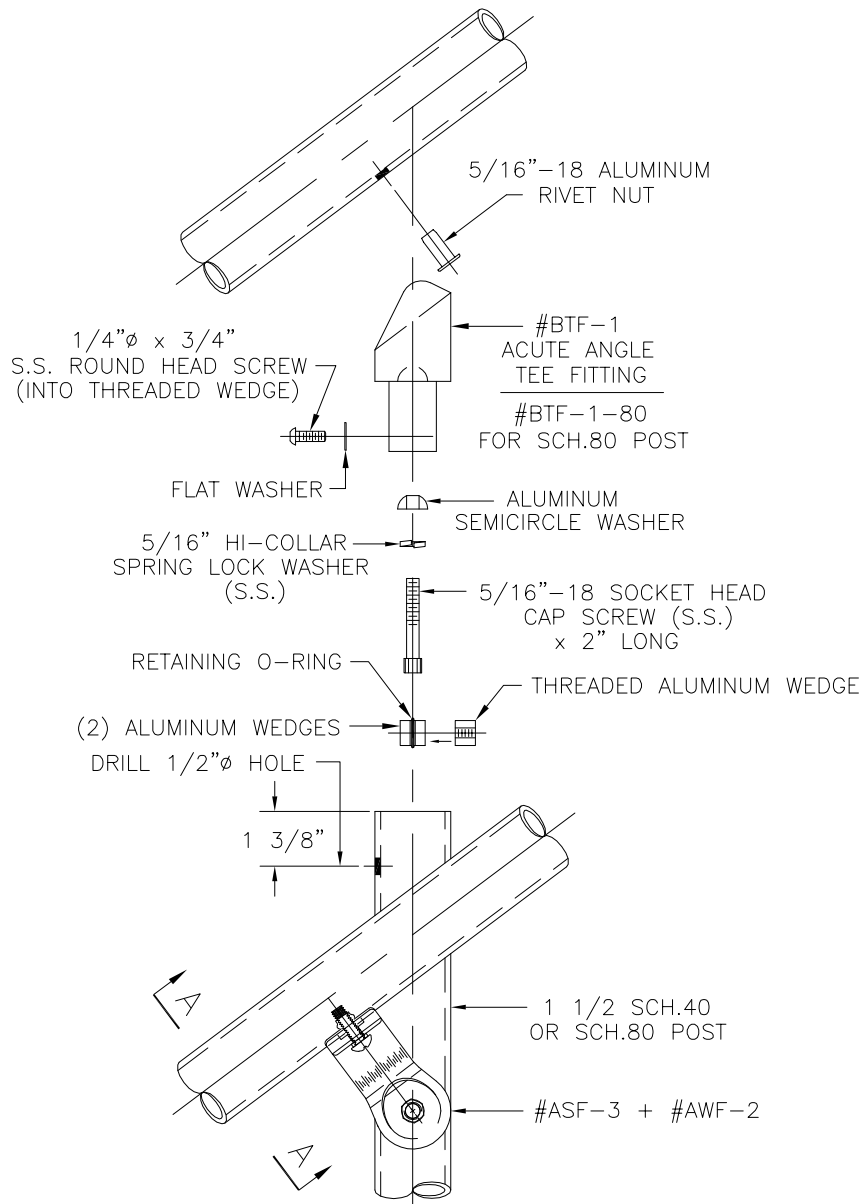




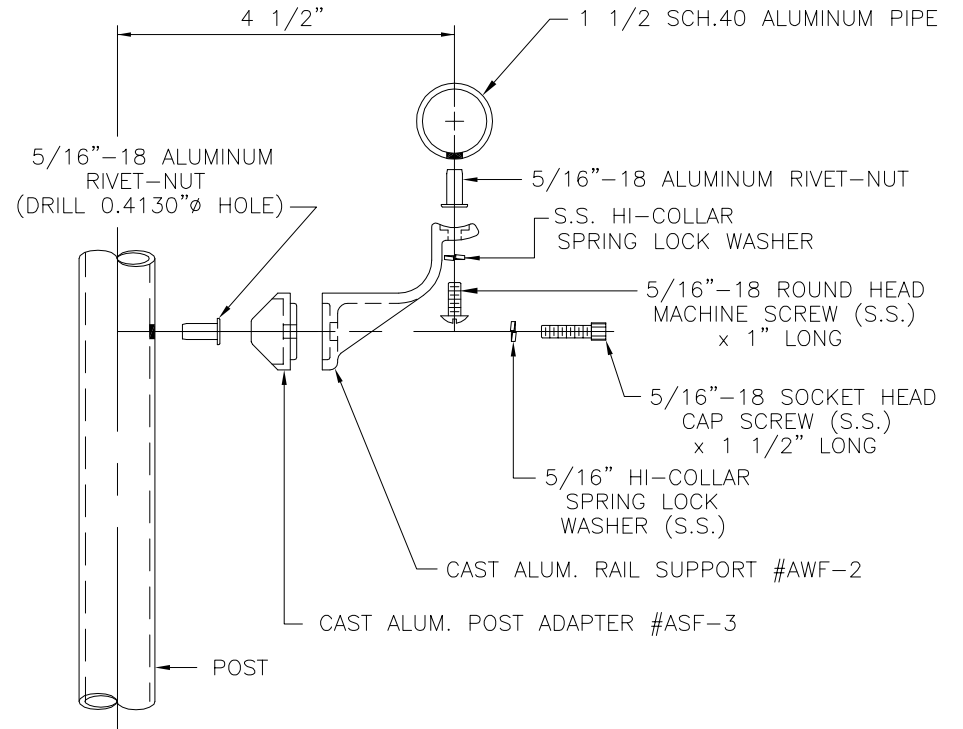
Bevel	Degree	"A"	"B"
6	26.5651	1"	2 5/16"
6 1/16	26.8033	1 1/16"	2 5/16"
6 1/8	27.0405	1 1/16"	2 5/16"
6 3/16	27.2768	1 1/16"	2 5/16"
6 1/4	27.5120	1 1/16"	2 5/16"
6 5/16	27.7462	1 1/16"	2 5/16"
6 3/8	27.9795	1 1/16"	2 5/16"
6 7/16	28.2117	1 1/16"	2 5/16"
6 1/2	28.4429	1 1/8"	2 5/16"
6 9/16	28.6731	1 1/8"	2 5/16"
6 5/8	28.9024	1 1/8"	2 5/16"
6 11/16	29.1306	1 1/8"	2 5/16"
6 3/4	29.3578	1 1/8"	2 5/16"
6 13/16	29.5839	1 1/8"	2 5/16"
6 7/8	29.8091	1 1/8"	2 5/16"
6 15/16	30.0333	1 3/16"	2 5/16"
7	30.2564	1 3/16"	2 5/16"

Bevel	Degree	"A"	"B"
7 1/16	30.4786	1 3/16"	2 5/16"
7 1/8	30.6997	1 3/16"	2 5/16"
7 3/16	30.9199	1 3/16"	2 5/16"
7 1/4	31.1390	1 3/16"	2 5/16"
7 5/16	31.3571	1 3/16"	2 5/16"
7 3/8	31.5742	1 1/4"	2 5/16"
7 7/16	31.7903	1 1/4"	2 5/16"
7 1/2	32.0054	1 1/4"	2 5/16"
7 9/16	32.2195	1 1/4"	2 3/8"
7 5/8	32.4326	1 1/4"	2 3/8"
7 11/16	32.6446	1 1/4"	2 3/8"
7 3/4	32.8557	1 1/4"	2 3/8"
7 13/16	33.0658	1 5/16"	2 3/8"
7 7/8	33.2749	1 5/16"	2 3/8"
7 15/16	33.4830	1 5/16"	2 3/8"
8	33.6901	1 5/16"	2 3/8"
8 1/16	33.8962	1 5/16"	2 3/8"
8 1/8	34.1013	1 5/16"	2 3/8"
8 3/16	34.3054	1 5/16"	2 3/8"
8 1/4	34.5085	1 3/8"	2 3/8"
8 5/16	34.7107	1 3/8"	2 3/8"
8 3/8	34.9118	1 3/8"	2 3/8"
8 7/16	35.1120	1 3/8"	2 3/8"
8 1/2	35.3112	1 3/8"	2 3/8"
8 9/16	35.5094	1 3/8"	2 3/8"
8 5/8	35.7067	1 3/8"	2 3/8"
8 11/16	35.9030	1 3/8"	2 3/8"
8 3/4	36.0983	1 7/16"	2 3/8"
8 13/16	36.2926	1 7/16"	2 3/8"
8 7/8	36.4860	1 7/16"	2 3/8"
8 15/16	36.6784	1 7/16"	2 3/8"
9	36.8699	1 7/16"	2 7/16"
9 1/16	37.0604	1 7/16"	2 7/16"
9 1/8	37.2500	1 7/16"	2 7/16"
9 3/16	37.4386	1 1/2"	2 7/16"
9 1/4	37.6262	1 1/2"	2 7/16"
9 5/16	37.8130	1 1/2"	2 7/16"
9 3/8	37.9987	1 1/2"	2 7/16"
9 7/16	38.1836	1 1/2"	2 7/16"
9 1/2	38.3675	1 1/2"	2 7/16"

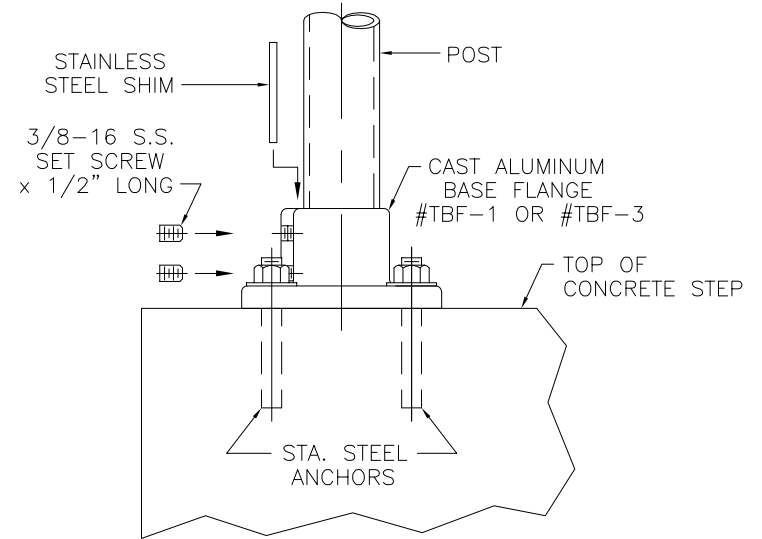
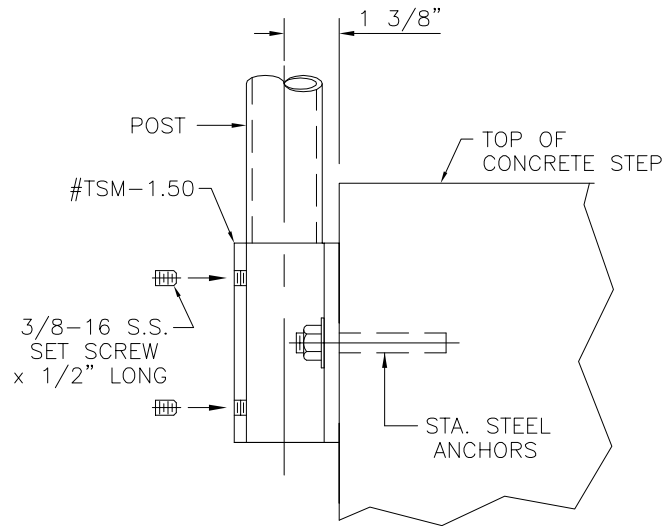
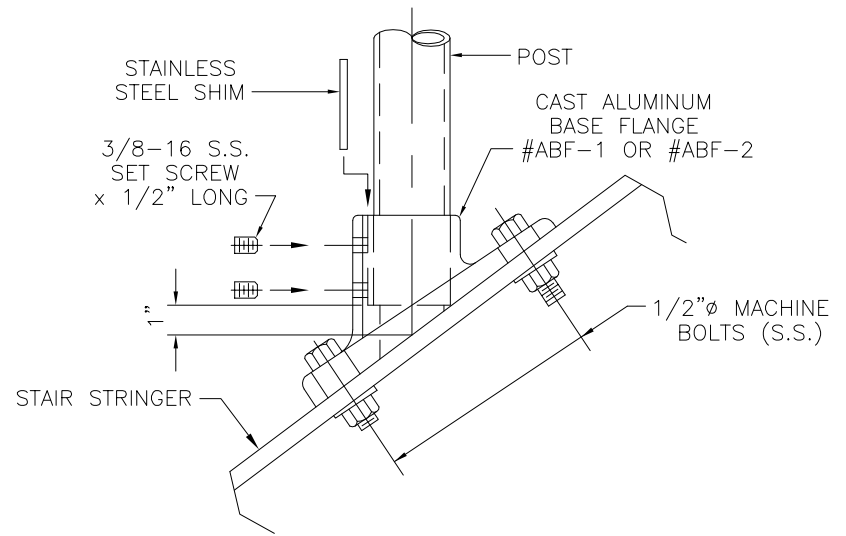
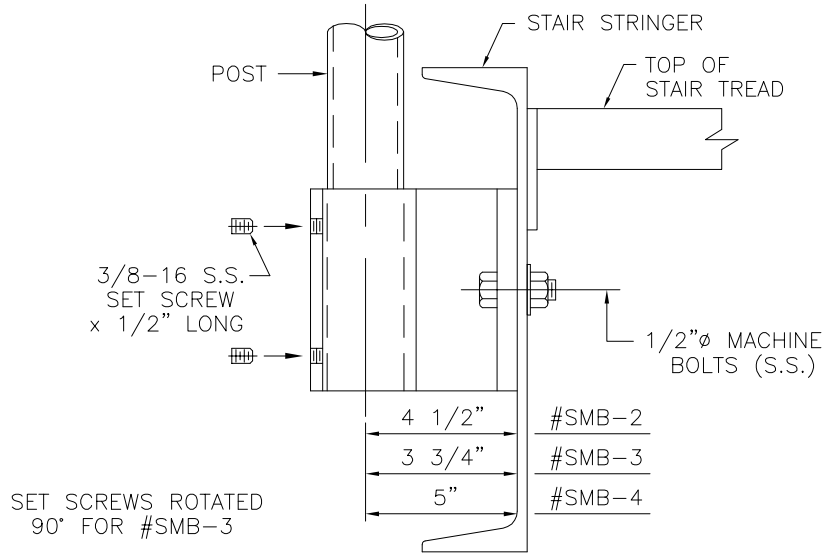
Bevel	Degree	"A"	"B"
9 9/16	38.5505	1 1/2"	2 7/16"
9 5/8	38.7325	1 1/2"	2 7/16"
9 11/16	38.9136	1 9/16"	2 7/16"
9 3/4	39.0939	1 9/16"	2 7/16"
9 13/16	39.2732	1 9/16"	2 7/16"
9 7/8	39.4515	1 9/16"	2 7/16"
9 15/16	39.6290	1 9/16"	2 7/16"
10	39.8056	1 9/16"	2 7/16"
10 1/16	39.9812	1 9/16"	2 7/16"
10 1/8	40.1560	1 9/16"	2 7/16"
10 3/16	40.3299	1 5/8"	2 7/16"
10 1/4	40.5028	1 5/8"	2 1/2"
10 5/16	40.6749	1 5/8"	2 1/2"
10 3/8	40.8461	1 5/8"	2 1/2"
10 7/16	41.0165	1 5/8"	2 1/2"
10 1/2	41.1859	1 5/8"	2 1/2"
10 9/16	41.3545	1 5/8"	2 1/2"
10 5/8	41.5222	1 5/8"	2 1/2"
10 11/16	41.6891	1 11/16"	2 1/2"
10 3/4	41.8550	1 11/16"	2 1/2"
10 13/16	42.0202	1 11/16"	2 1/2"
10 7/8	42.1844	1 11/16"	2 1/2"
10 15/16	42.3479	1 11/16"	2 1/2"
11	42.5104	1 11/16"	2 1/2"
11 1/16	42.6722	1 11/16"	2 1/2"
11 1/8	42.8331	1 11/16"	2 1/2"
11 3/16	42.9932	1 11/16"	2 1/2"
11 1/4	43.1524	1 3/4"	2 1/2"
11 5/16	43.3108	1 3/4"	2 1/2"
11 3/8	43.4684	1 3/4"	2 1/2"
11 7/16	43.6252	1 3/4"	2 9/16"
11 1/2	43.7811	1 3/4"	2 9/16"
11 9/16	43.9363	1 3/4"	2 9/16"
11 5/8	44.0906	1 3/4"	2 9/16"
11 11/16	44.2442	1 3/4"	2 9/16"
11 3/4	44.3969	1 13/16"	2 9/16"
11 13/16	44.5489	1 13/16"	2 9/16"
11 7/8	44.7000	1 13/16"	2 9/16"
11 15/16	44.8504	1 13/16"	2 9/16"
12	45.0000	1 13/16"	2 9/16"



TOP RAIL FITTING #BTF-1



SECTION A-A



INSTALLATION OF SIDE-MOUNT BRACKETS

INSTALLATION OF BASE FLANGES

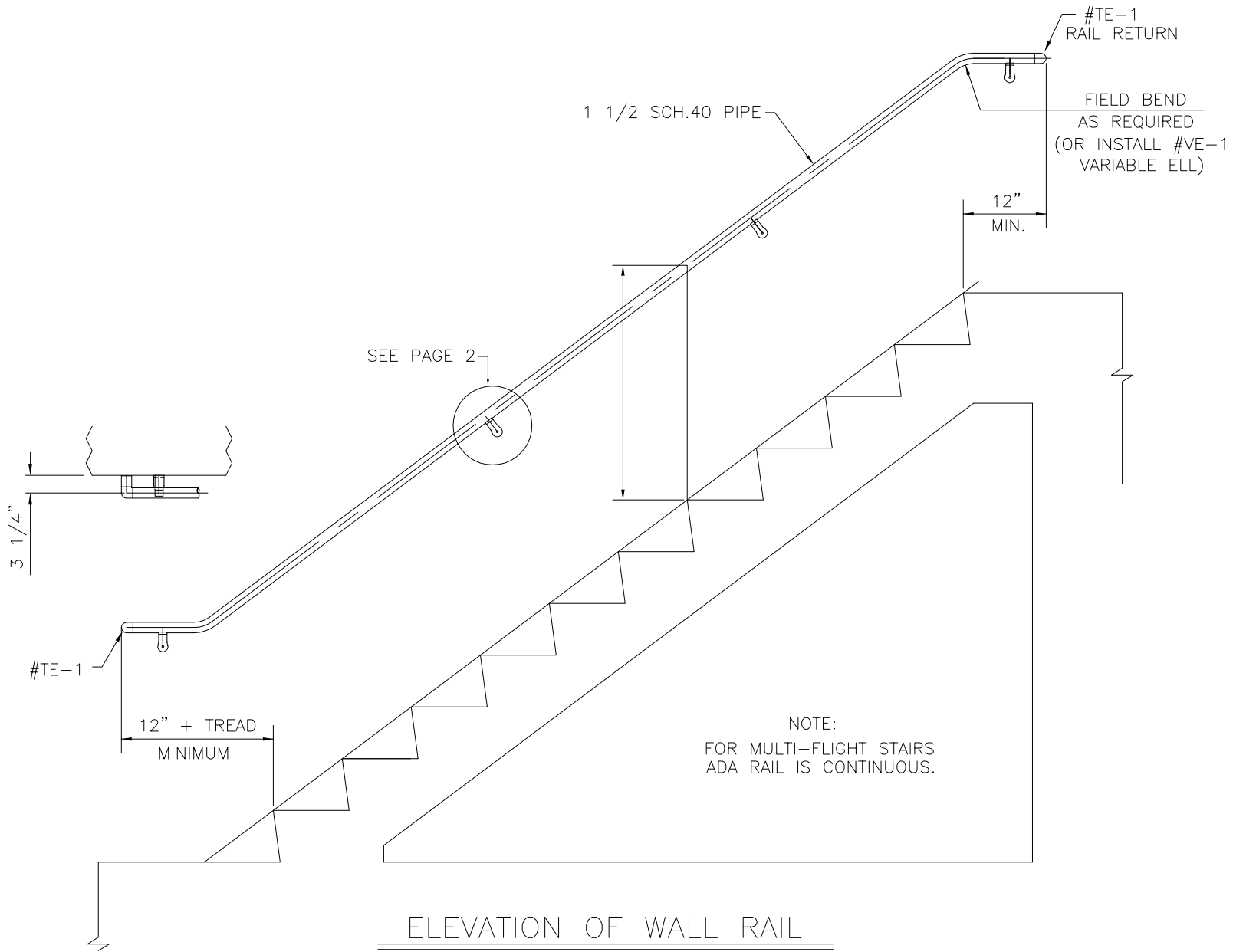
INSTRUCTIONS FOR ASSEMBLY

1. Measure pipe, cut to length, deburr.
2. Drill posts and top rail for rivet nut installation.
Obtain hole locations from chart on page 3.
Use letter "Z" drill (.4130").
3. Complete drilling of posts, mid-rails and top rails with $1/2"$ ϕ holes for screws.
4. Install rivet-nuts in posts and top rail.
5. Install #BTF-1 fittings on posts and top rails.
Tighten $5/16"$ ϕ -18 socket head cap screws.
Install offset fittings, adjust to proper bevel.
6. Install mid-rails on post #BTF-1 fittings, tighten screws.
7. Place offset rail in saddle, using holes in saddle as a template. Mark location of holes on underside of rail. Drill holes with letter "Z" drill (.4130") for rivet-nuts. Install rivet-nuts. Install rails on fittings with $5/16"$ -18 S.S. round head machine screws.
8. Check completed rail for alignment and correct dimensions.

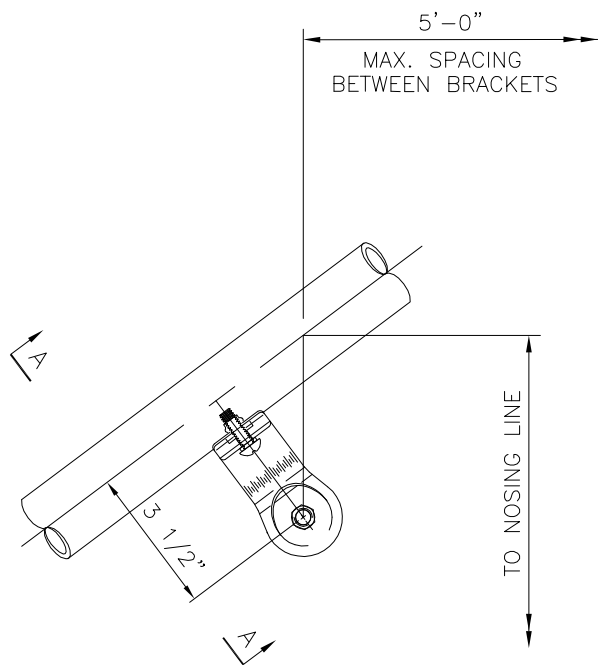
System ADA-3

WALL-MOUNTED HANDRAIL

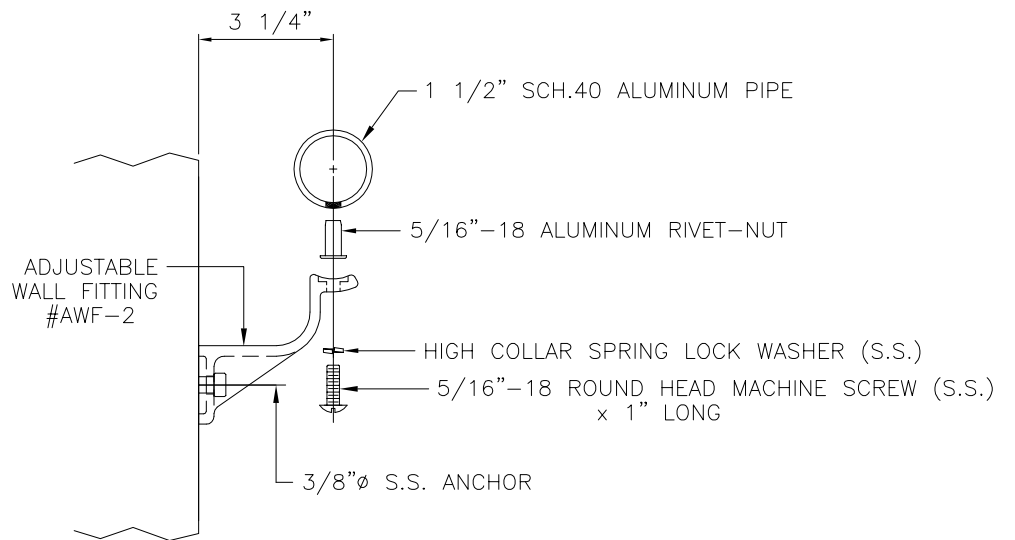
SECTION 9



ELEVATION OF WALL RAIL



WALL RAIL ELEVATION



SECTION A-A

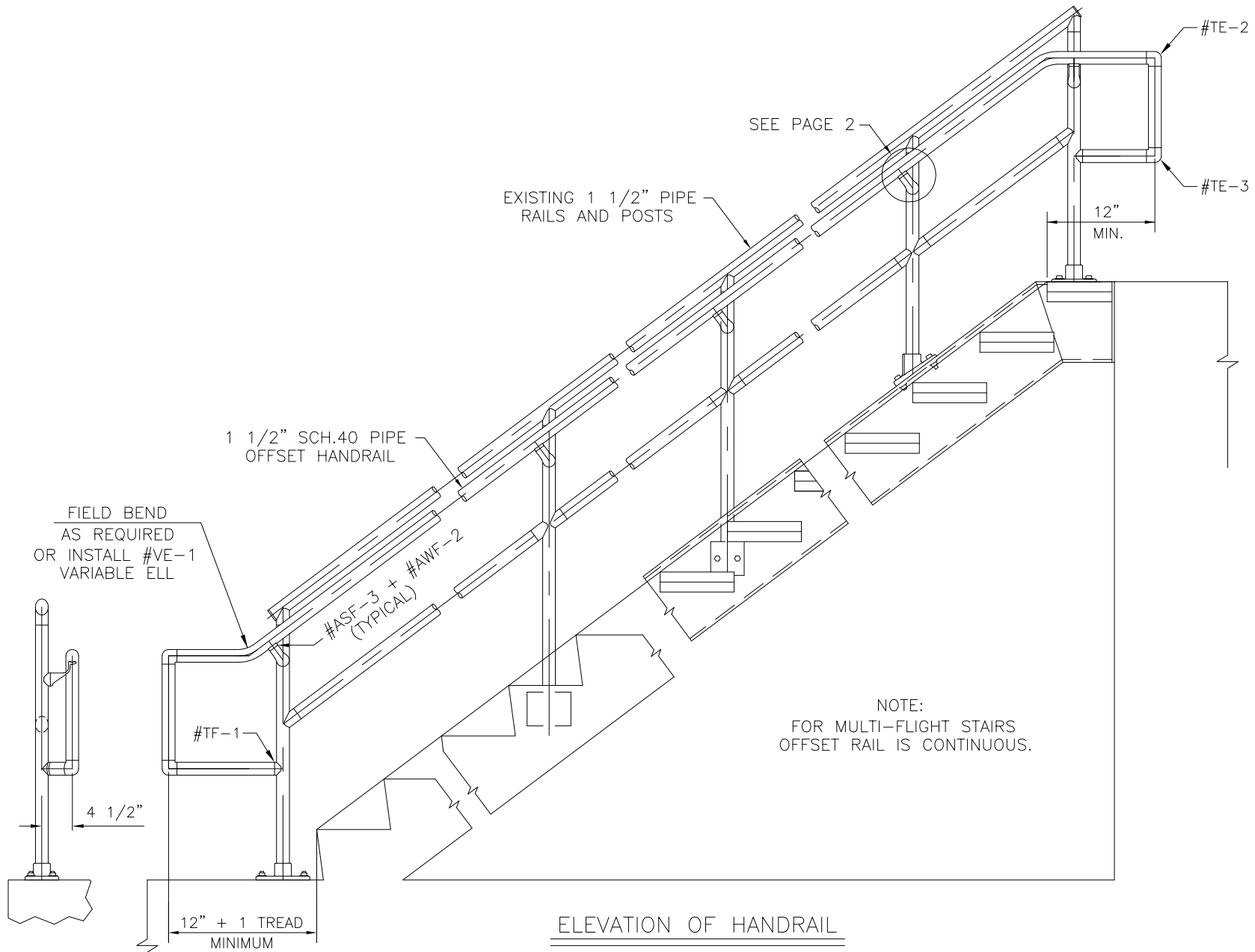
INSTRUCTIONS FOR ASSEMBLY

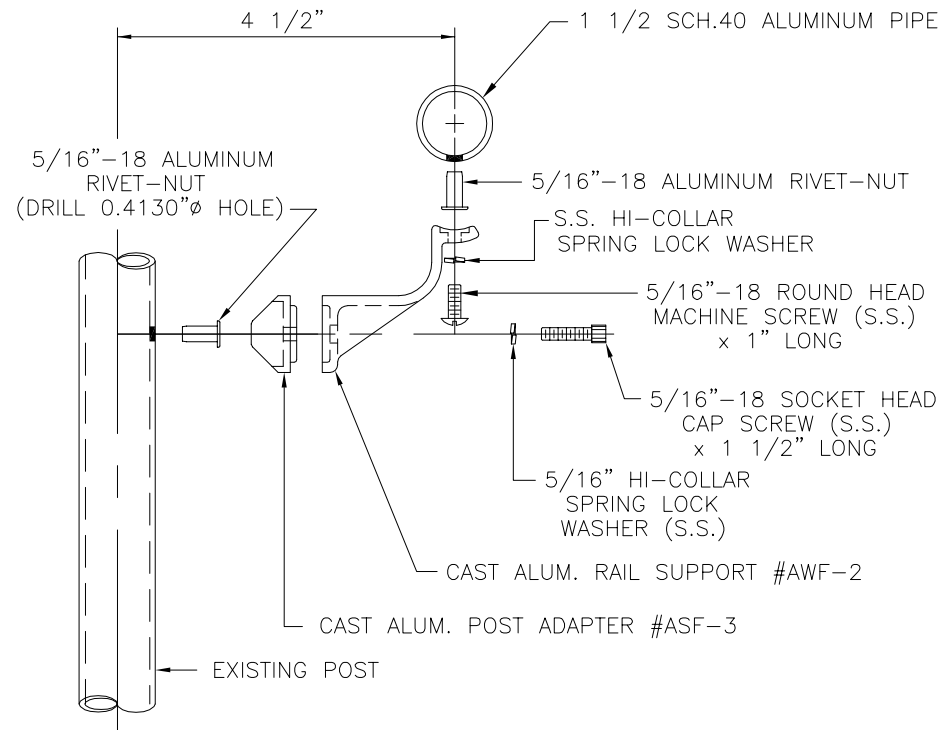
1. Cut pipe to length, bend as required and deburr.
2. Align base of #AWF-2 fittings on wall, drill and install fasteners using the base as a drill template.
3. Place rail in saddles of #AWF-2, using holes in saddle as a template. Mark location of holes on underside of rail. Drill holes with letter "Z" drill (.4130") for rivet-nuts. Install rivet-nuts. Install rails on fittings with 5/16"-18 S.S. round head machine screws.

System ADA-4

RETROFIT EXISTING RAILING SYSTEMS
WITH SIDE-MOUNTED HANDICAP RAIL

SECTION 10





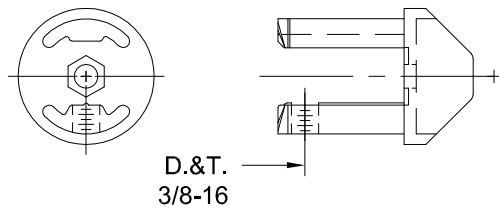
#ASF FITTING TO EXISTING POST

INSTRUCTIONS FOR ASSEMBLY

1. Measure pipe, cut to length, deburr.
2. Drill one 0.4130"Ø (letter Z) hole in existing posts, install 5/16"Ø rivet-nuts.
3. Install #ASF/#AWF fittings on existing posts.
4. Place rail into position in #ASF/#AWF saddle.
5. If required, mark location of bottom pipe on end post, drill 0.4130"Ø hole on end post and install #TF-1 fitting (see drawing).
6. Reinstall offset rail and clamp into position.
Note: If Step 5 is required it will be necessary to drill 1/2"Ø hole in rail for access to 3/8"Ø set screw in #TF-1 fitting.
7. Using holes in #ASF/#AWF saddle as a template, mark location of holes on underside of rail. Drill holes with letter "Z" drill (.4130") for rivet-nuts. Install rivet-nuts. Install rails on fittings with 5/16"-18 S.S. round head machine screws.
8. Tighten 3/8"Ø set screw in #TF-1 fitting, if required.
9. Check completed rail for alignment and correct dimensions.

TFCo Fittings and Post Mount Brackets

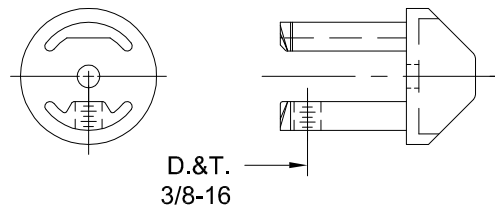
SECTION 11



#TF-1

ALUMINUM TEE FITTING

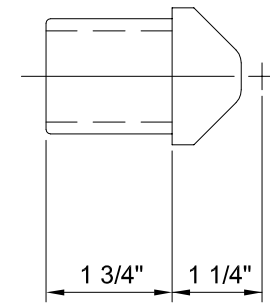
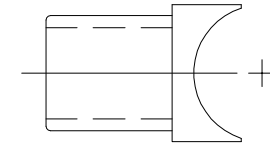
FOR USE WITH 1 1/2" SCH.40 PIPE



#TF-2

ALUMINUM TEE FITTING

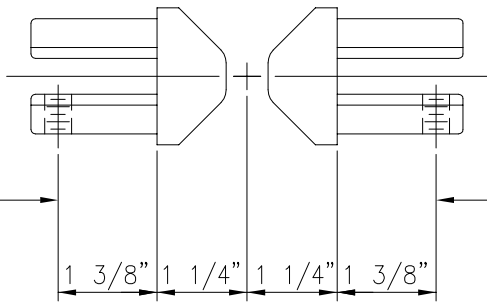
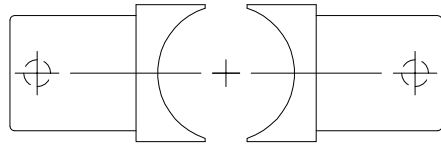
FOR USE WITH 1 1/2" SCH.80 PIPE



#TX-1

ALUMINUM TEE FITTING

FOR USE AT MIDRAIL ON POST
ADJACENT TO EXPANSION SPLICE

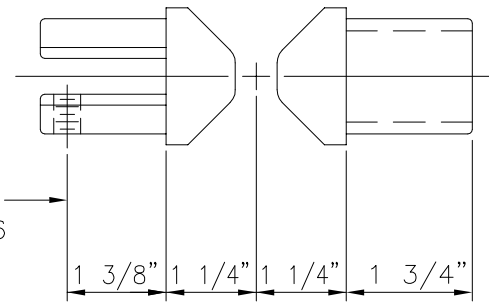
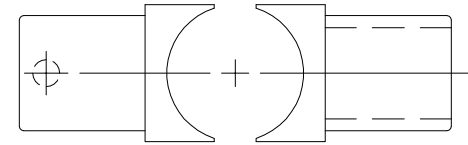


D.&T.
3/8-16

D.&T.
3/8-16

#TF-1C

CAST ALUM. CROSS FITTINGS

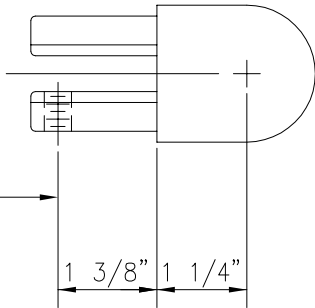
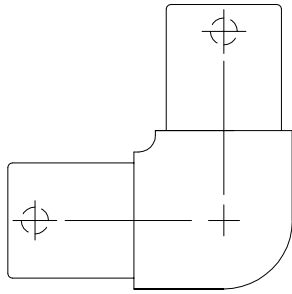


D.&T.
3/8-16

#TX-1C

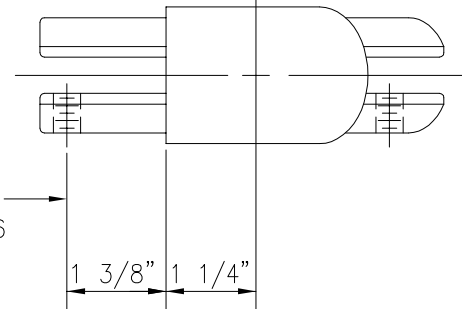
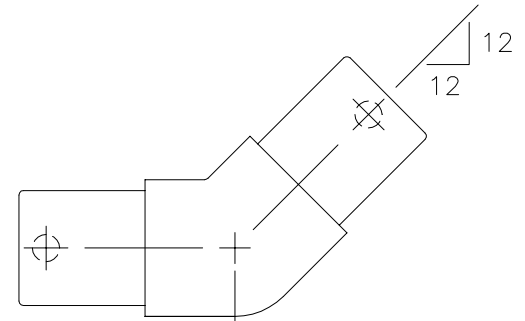
CAST ALUM. CROSS FITTINGS

FOR USE AT MIDRAIL ON POST
ADJACENT TO EXPANSION SPLICE



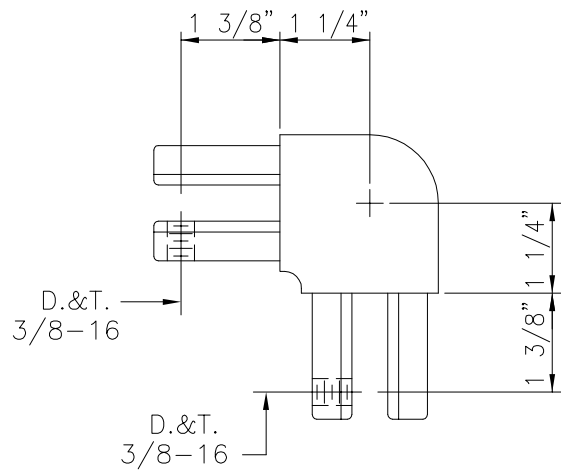
#TE-1

CAST ALUM. 90° ELL FITTING



#TE-4

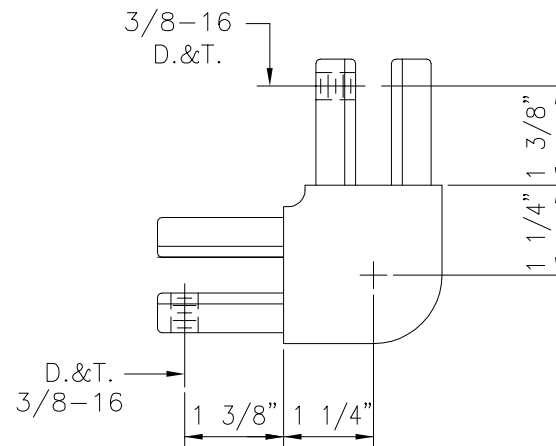
CAST ALUM. 45° ELL FITTING



#TE-2

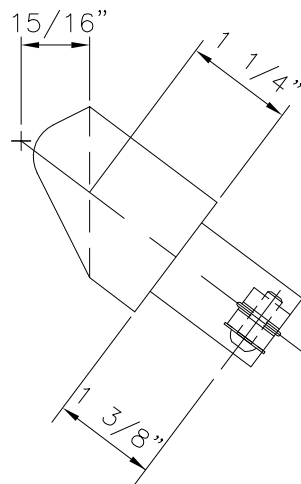
CAST ALUM. 90° ELL FITTING

(USE #TE-2-80 FOR SCHEDULE 80 POSTS)



#TE-3

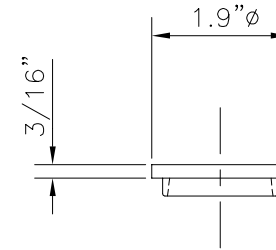
CAST ALUM. 90° ELL FITTING



#BTF-1

CAST ALUM. BEVEL TEE FITTING

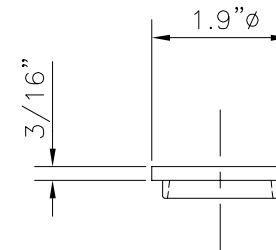
USE #BTF-1-80 FOR SCHEDULE 80 POSTS



#TC-1

CAST ALUM. PIPE CAP

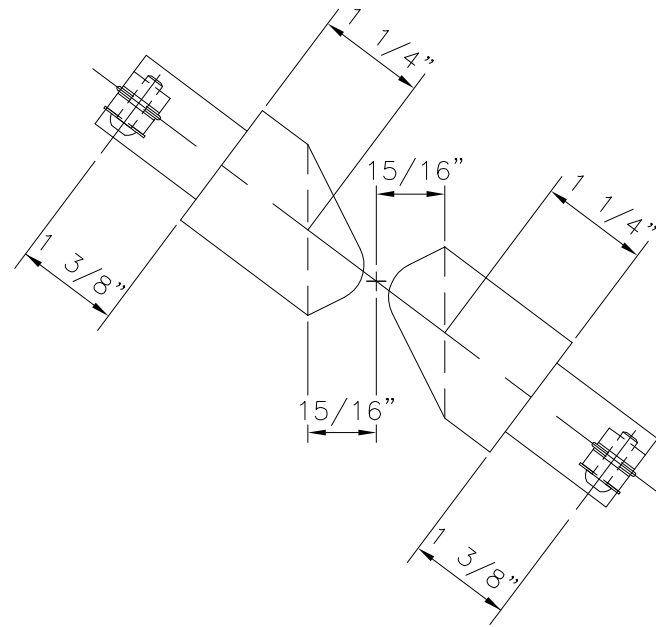
FOR USE WITH SCHEDULE 40 PIPE



#TC-2

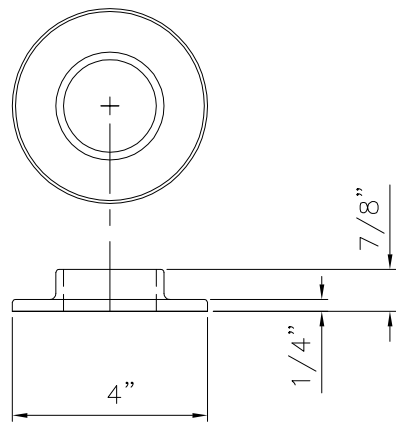
CAST ALUM. PIPE CAP

FOR USE WITH SCHEDULE 80 PIPE

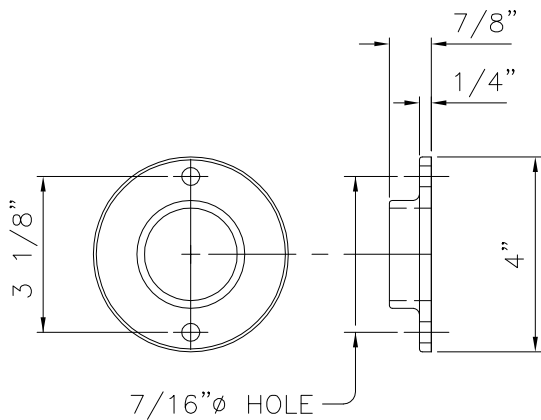


#BTF-1C

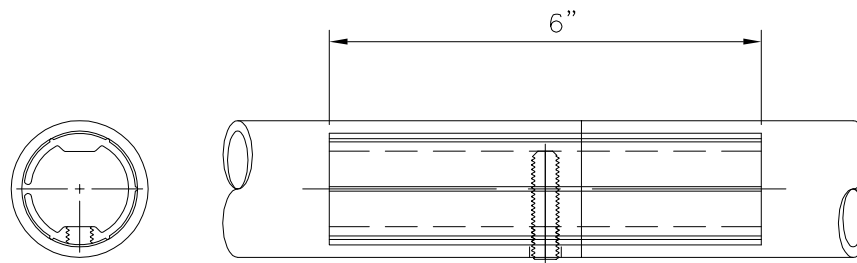
CAST ALUM. BEVEL CROSS FITTINGS



COVER FLANGE #CF-1

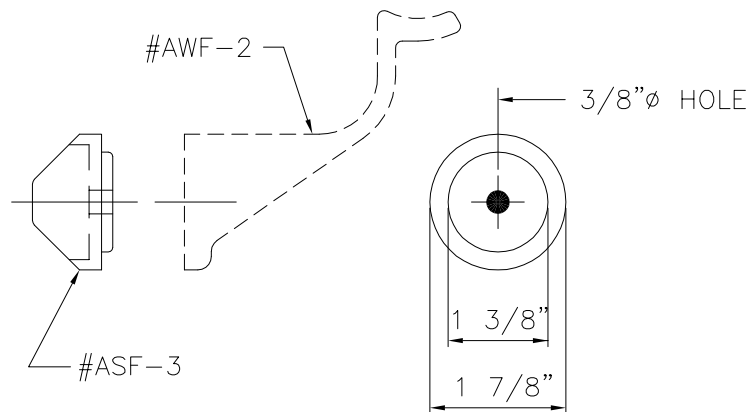


WALL TERMINAL FLANGE #CF-2

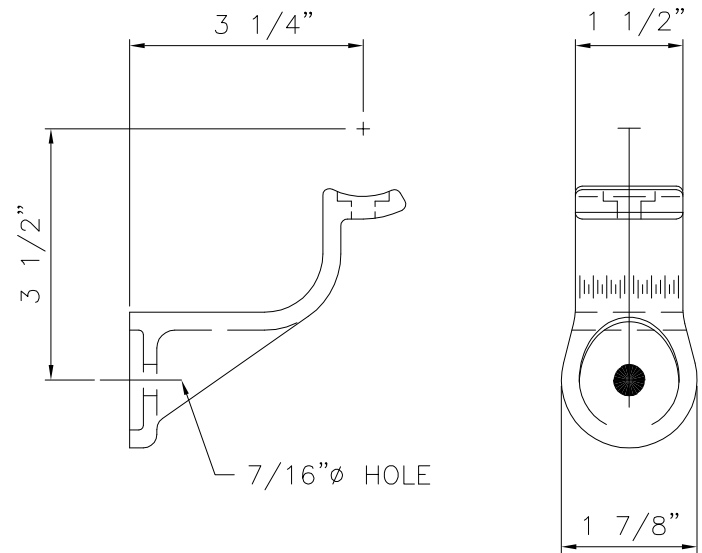


3/8"-16 x 1 1/2"
Socket Head
S.S. Set Screw

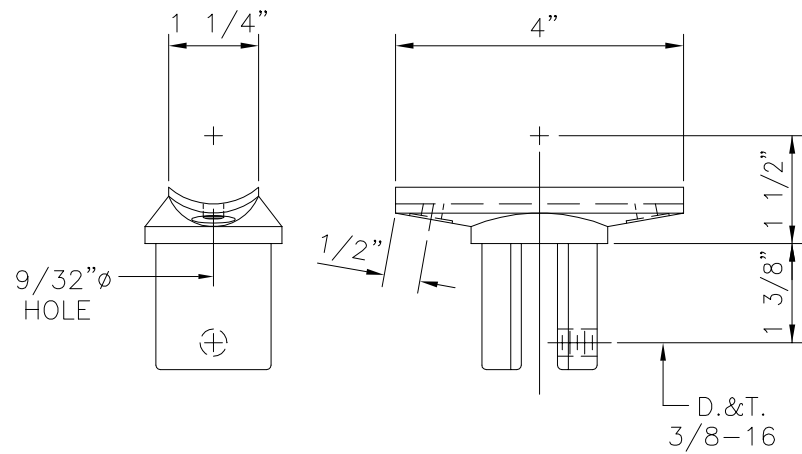
SPLICE INSERT #SL-3



#ASF-3
ADJUSTABLE STAIR FITTING



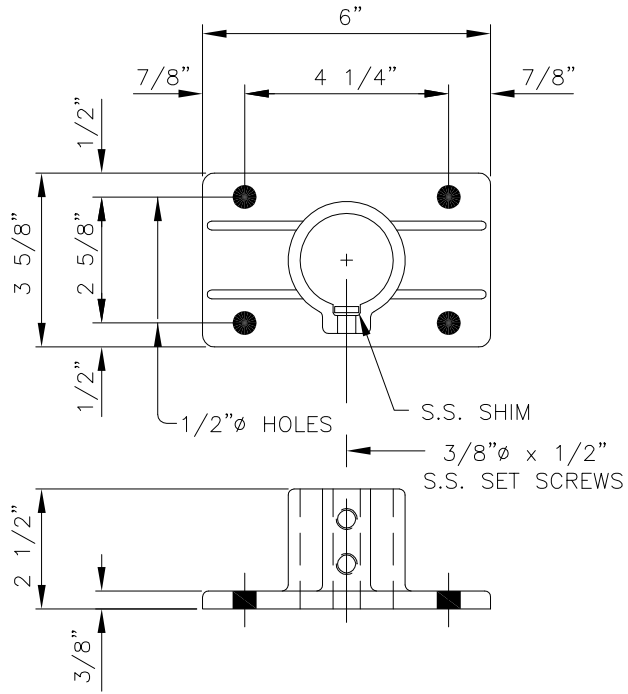
#AWF-2
ADJUSTABLE WALL RAIL FITTING



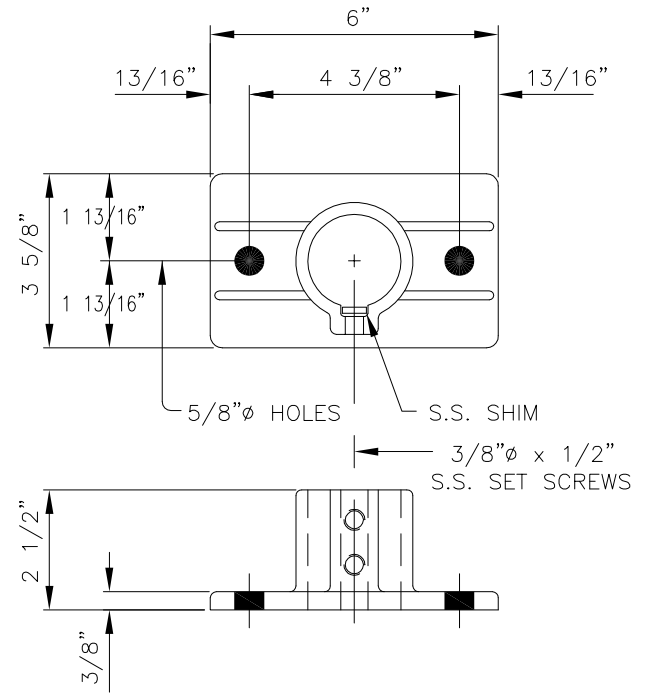
#FT-1

CAST ALUMINUM TEE FITTING

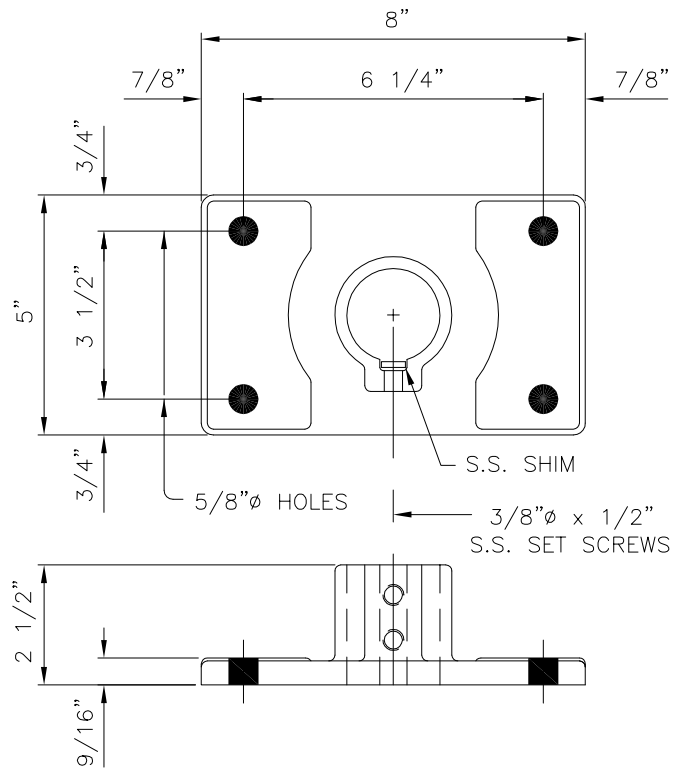
FOR USE WITH SCHEDULE 40 PIPE
(USE #FT-2 FOR SCHEDULE 80 POSTS)



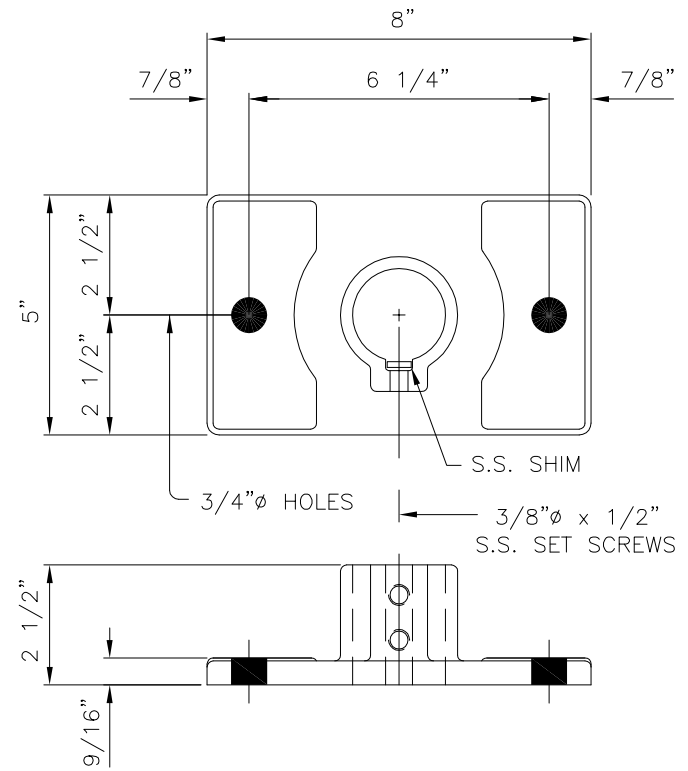
CAST ALUMINUM
BASE FLANGE
#TBF-1.4



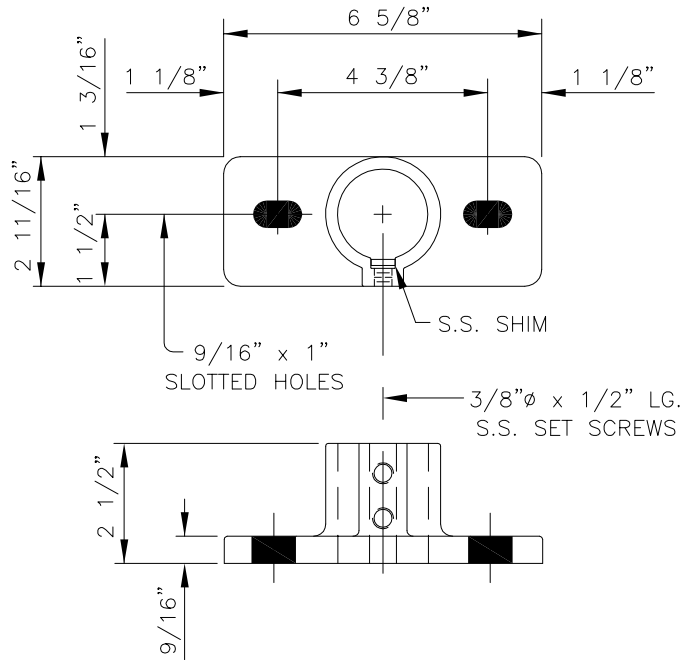
CAST ALUMINUM
BASE FLANGE
#TBF-1.2



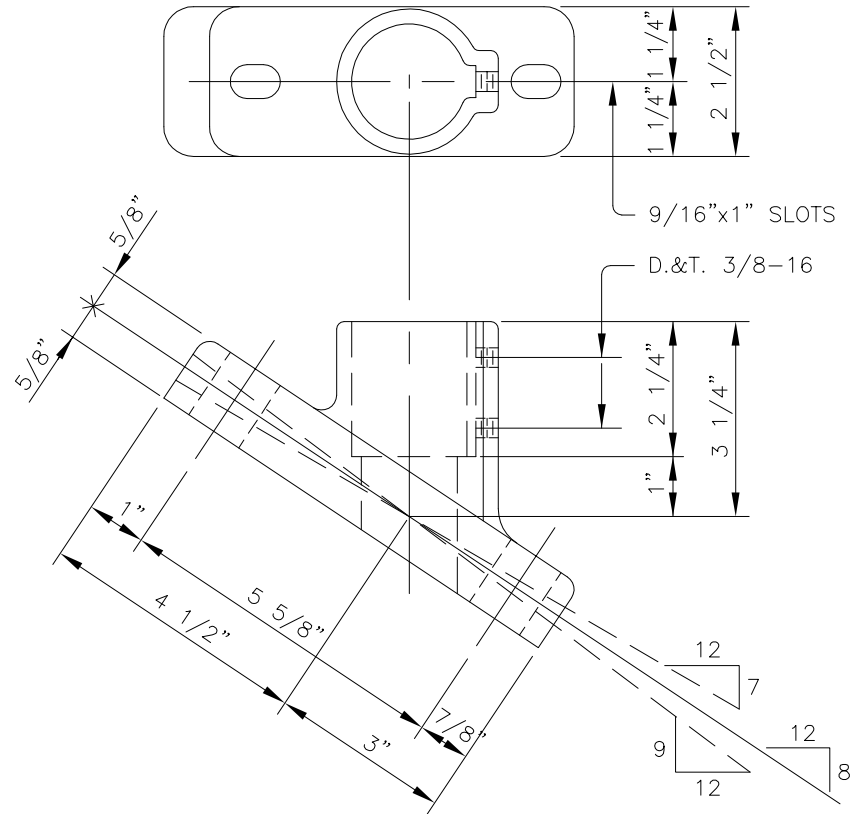
CAST ALUMINUM
BASE FLANGE
#TBF-3.4



CAST ALUMINUM
BASE FLANGE
#TBF-3.2

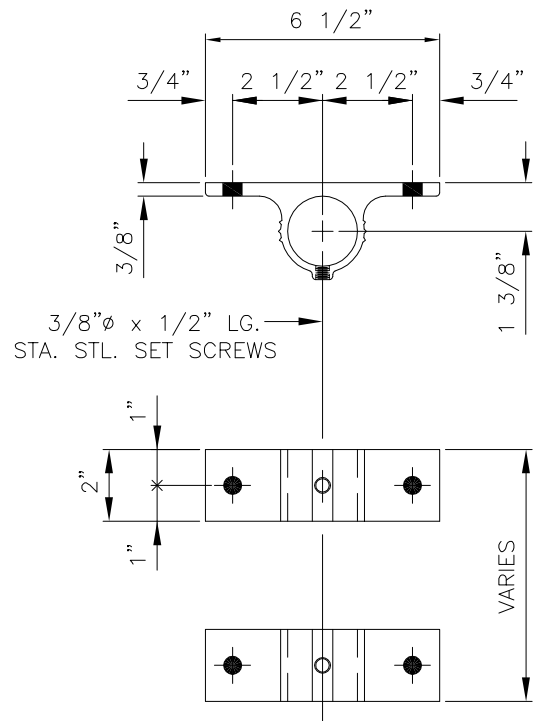


CAST ALUMINUM
BASE FLANGE
#TBF-2



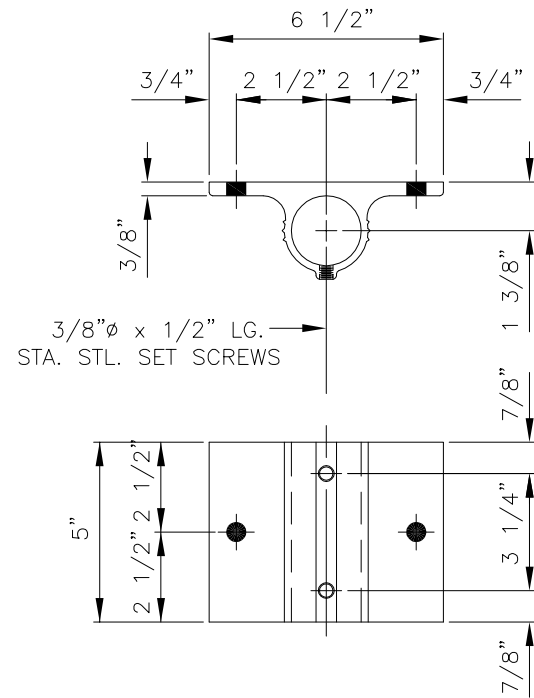
CAST ALUMINUM
BASE FLANGE
#ABF-1
 (#ABF-2 SIMILAR)

RANGE	
37° \pm 7° = 30°-44° (7:12 - 11 3/4:12)	
#ABF-1:	33 1/2' (30° - 37°)
#ABF-2:	40 1/2' (37° - 44°)



EXTRUDED ALUMINUM
SIDE-MOUNT BRACKET

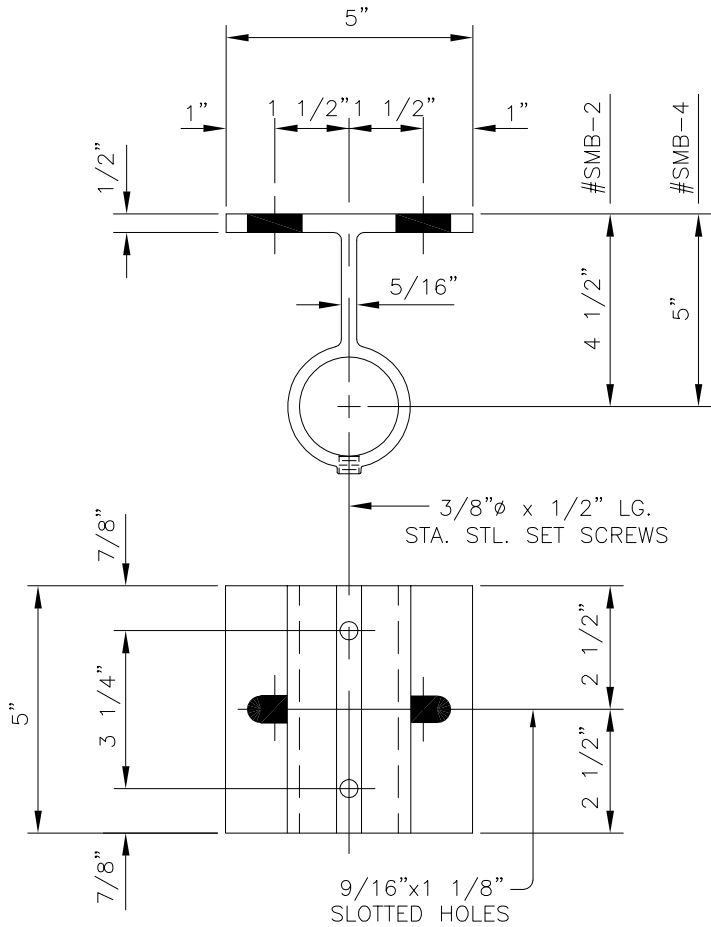
#TSM-1.50



EXTRUDED ALUMINUM
SIDE-MOUNT BRACKET

#TSM-1.50

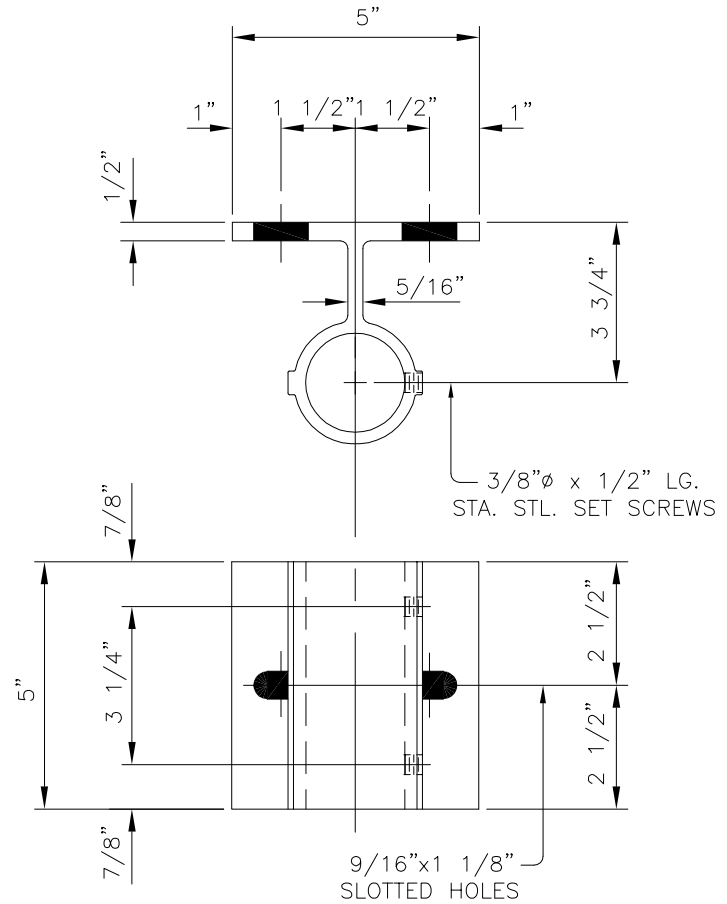
(6" LONG BRACKET SIMILAR)



EXTRUDED ALUMINUM
SIDE-MOUNT BRACKET

#SMB-2 #SMB-4

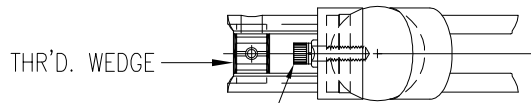
(6" LONG BRACKET SIMILAR)



EXTRUDED ALUMINUM
SIDE-MOUNT BRACKET

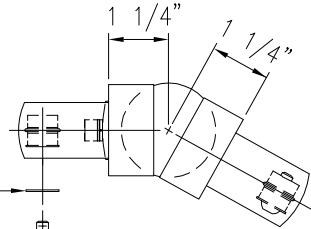
#SMB-3

(6" LONG BRACKET SIMILAR)



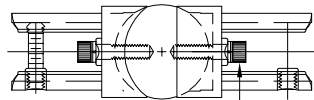
THR'D. WEDGE
 5/16" SOCKET HEAD
 S.S. CAP SCREW
 w/HI-COLLAR
 LOCK WASHER

PLAN



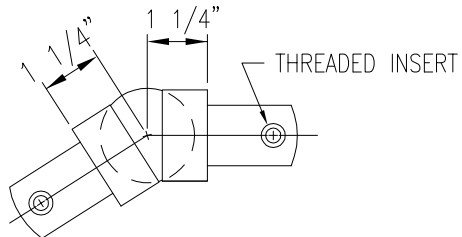
FLAT
 WASHER
 1/4"Ø x 3/4" S.S.
 ROUND HEAD SCREW

ELEVATION



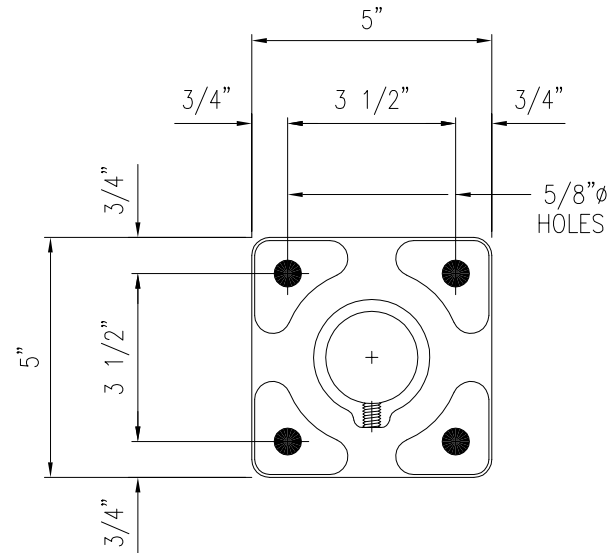
5/16" SOCKET HEAD
 S.S. CAP SCREW
 w/HI-COLLAR
 LOCK WASHER

3/8"Ø x 1 1/4" LG.
 S.S. SOCKET HEAD
 SET SCREW

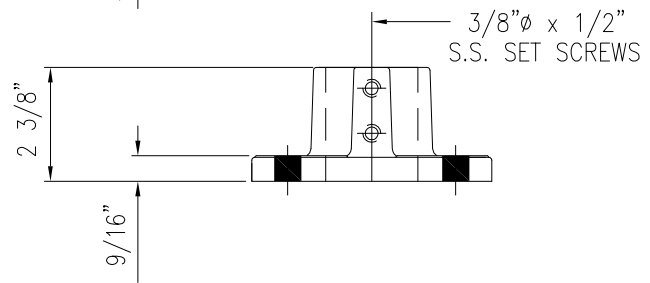


PLAN

#VE-1 CAST ALUM. VARIABLE ELL



5/8"Ø
 HOLES



3/8"Ø x 1/2"
 S.S. SET SCREWS

CAST ALUMINUM

BASE FLANGE

#TBF-5