

Mr. Bill Korman  
Korman Signs, Incorporated  
3029 Lincoln Avenue  
Richmond, VA 23228

Dear Mr. Korman:

Thank you for your letter of January 7, 2004, requesting Federal Highway Administration (FHWA) acceptance of a modification to your company's crashworthy Type III Barricades as for use in work zones on National Highway System (NHS). Accompanying your letter were detailed drawings and descriptions of the Stub Tee Bracket and a Hinge Plate Bracket. You requested that we find these modified devices acceptance for use on NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

The FHWA accepted your company's perforated square steel tube (PSST)-framed Type III Barricades via the original WZ-100 dated June 20, 2002. Further modifications to the devices in WZ-100 were made in three subsequent amendments. Your present request is to allow either a Stub Tee Bracket or a Hinge Plate Bracket to form the connection of the horizontal skid to the upright support. These connections are shown in the enclosed drawings for reference.

The Stub Tee Bracket functions like the generic welded stub based barricades described in WZ-85 where the upright tubes fit into a square tube welded to the ski. The Stub Tee Bracket is formed by welding two short sections of PSST together to form a "tee" which can be bolted to the skid. The Stub Tee Bracket may also be used to support the PSST to form the Stub Tee Bracket you can join various sizes of frame elements.

The Hinge Plate Bracket is a splice plate bracket consisting of one or two hinge plates that are bolted or welded to the horizontal skid. It may also be fastened to an upright in order to support a horizontal PSST stiffener. The hinge plates may also be welded to a short section of PSST that is used to fix the splice in place. When the barricade is struck the bolts slip up and out of the slot.

### **Findings**

We concur that these two splice schemes are similar in nature to generic splice details that have already been found acceptable. Therefore, the Stub Tee Bracket and a Hinge Plate Bracket described above and detailed in the enclosed drawings are acceptable for use on NHS under the range of conditions tested, when proposed by a State.

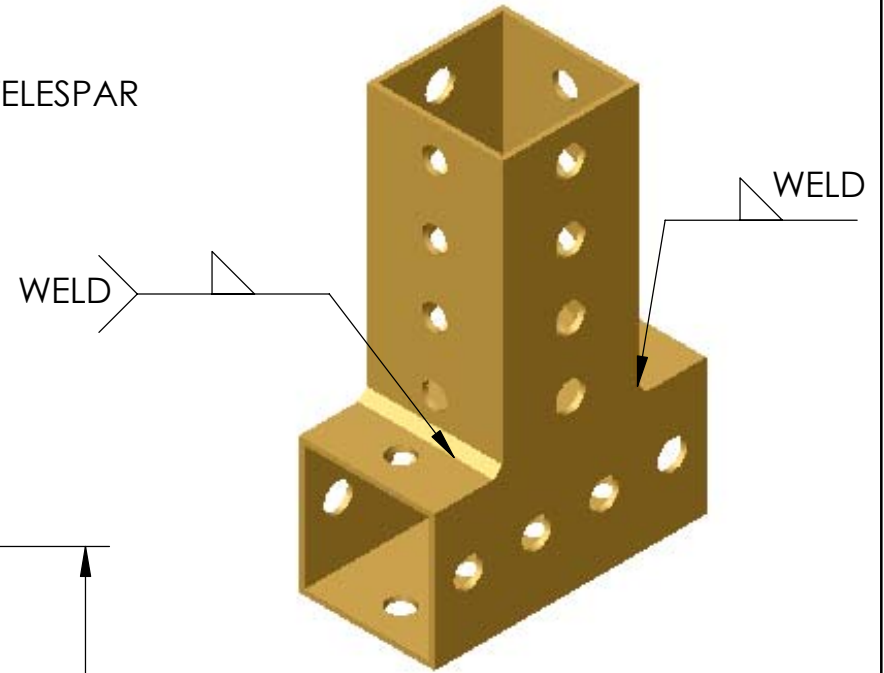
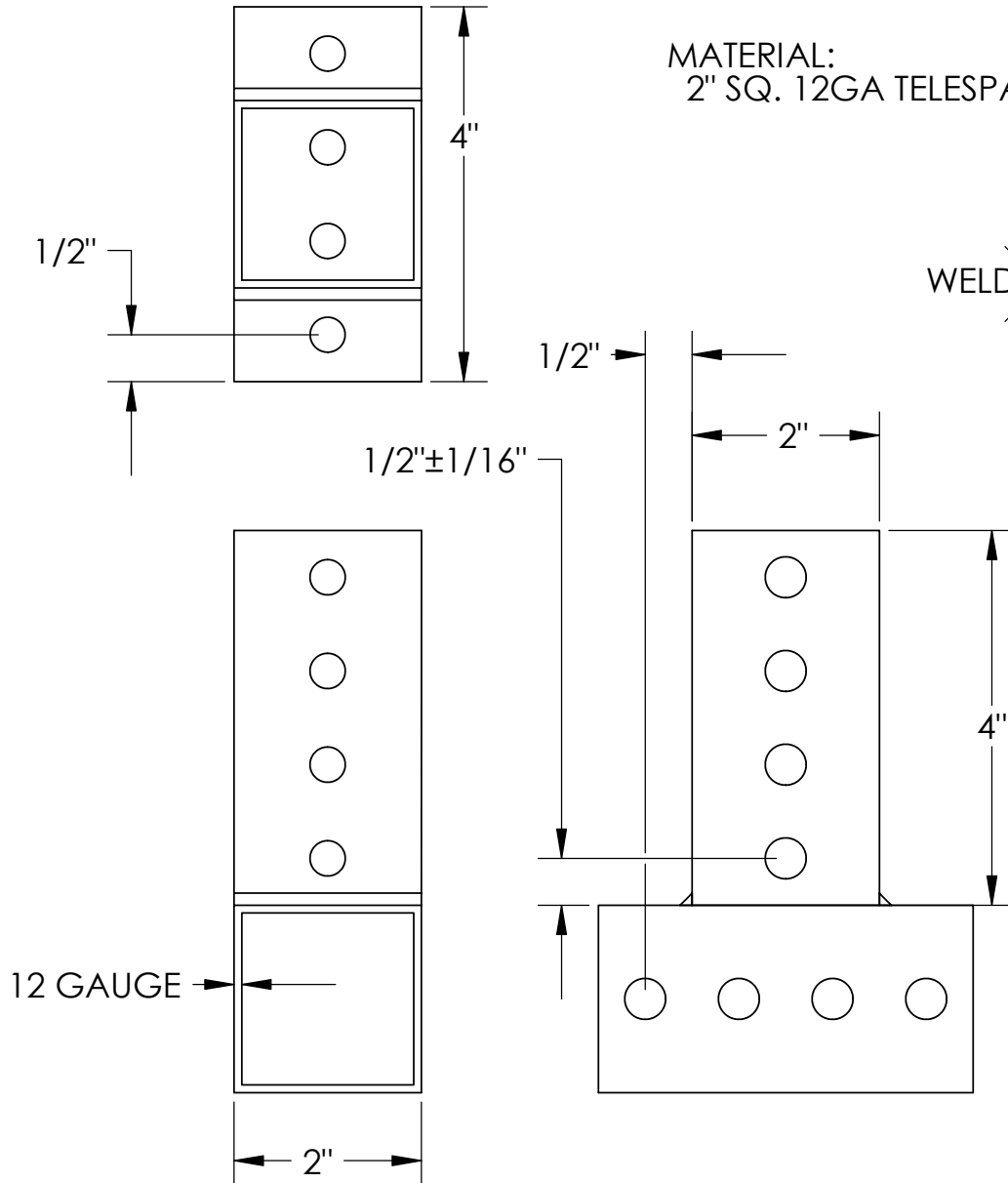
Please note the following standard provisions that apply to FHWA letters of acceptance

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of FHWA and NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-100, Amendment #4, shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- This acceptance letter shall not be construed as authorization or consent by FHWA to use, manufacture, or sell any patented device. Patent issues are to be resolved by the applicant and the patent owner.

Sincerely yours,  
John R. Baxter, P.E.  
Director, Office of Safety Design  
Office of Safety

ENCLOSURE 1

MATERIAL:  
2" SQ. 12GA TELESPAR



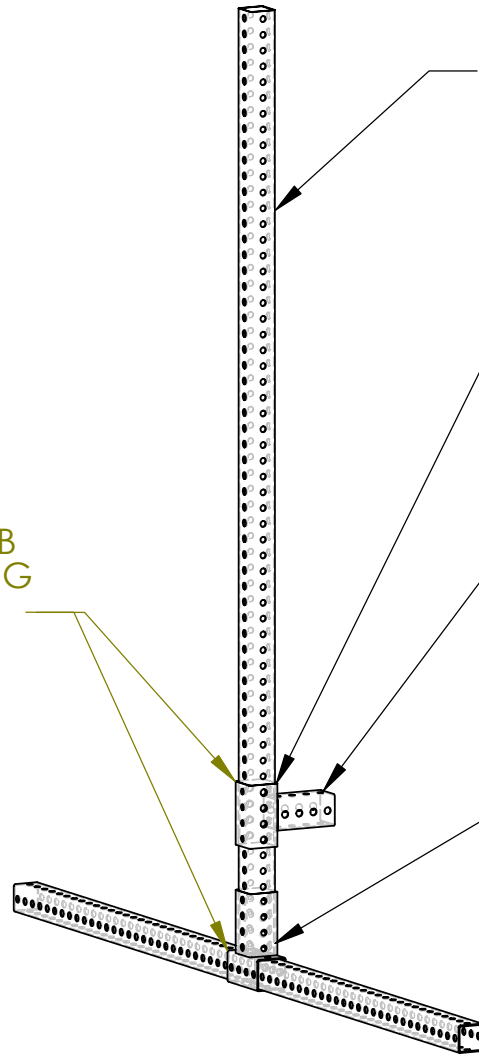
**Korman Signs**  
INC.

STUB TEE, 2" FOR 1-3/4" PSST  
TYPE III BARRICADE

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/18/03	DRAWN BY: DCC	DWG. NO. C121803B

ENCLOSURE 2

2" EXTERNAL STUB  
TEE PER DRAWING  
C121603A



1-3/4" 12 OR 14 GAUGE PSST FOR  
VERTICAL UPRIGHT AND HORIZONTAL LEG

USE 5/16" SMALL CORNER BOLTS, 7/16" OR 3/8"  
THROUGH BOLTS TO SECURE STUB TEE TO UPRIGHT

THIS TEE FOR OPTIONAL  
CROSS BRACE USING PIN,  
BOLT OR SNAP BUTTON TO  
CONNECT

USE 5/16" SMALL CORNER BOLTS, 7/16" OR 3/8"  
THROUGH BOLTS TO SECURE STUB TEE TO LEG

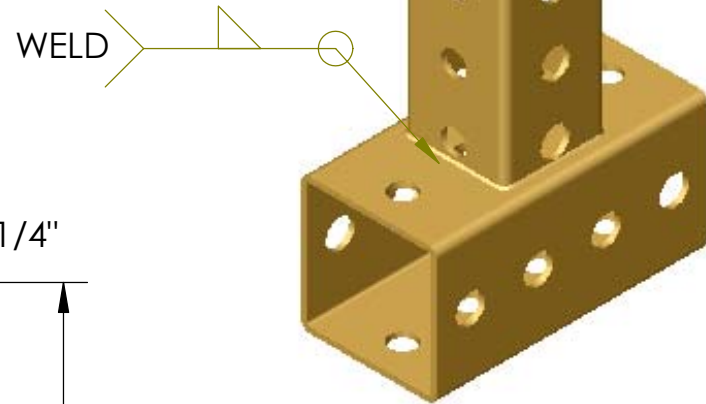
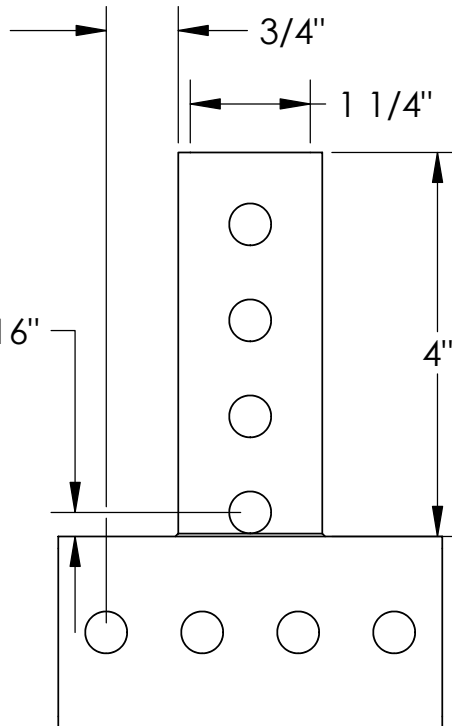
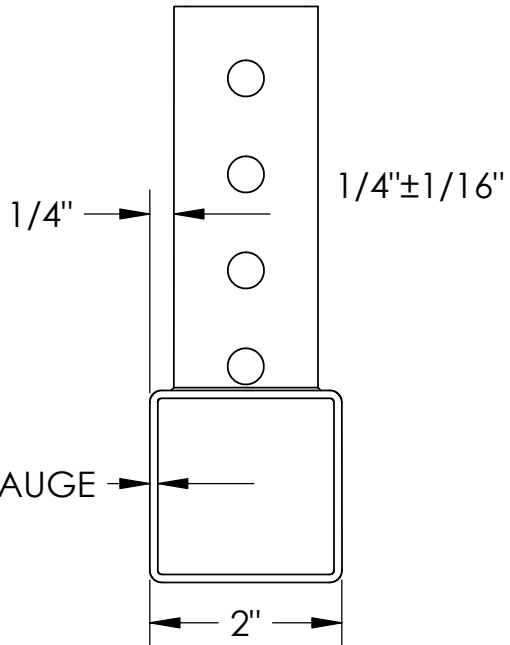
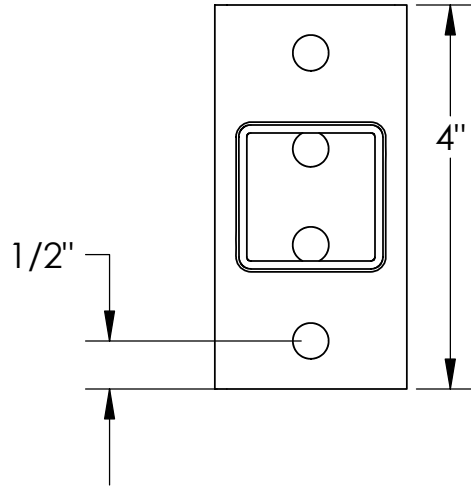


TYPE III BARRICADE END ASSEMBLY USING  
2" STUB TEE WITH 1-3/4" PSST

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 8/25/03	DRAWN BY: DCC	DWG. NO. C082503C

ENCLOSURE 3

MATERIAL:  
1-1/2" & 2" SQ. 12GA TELESPAR

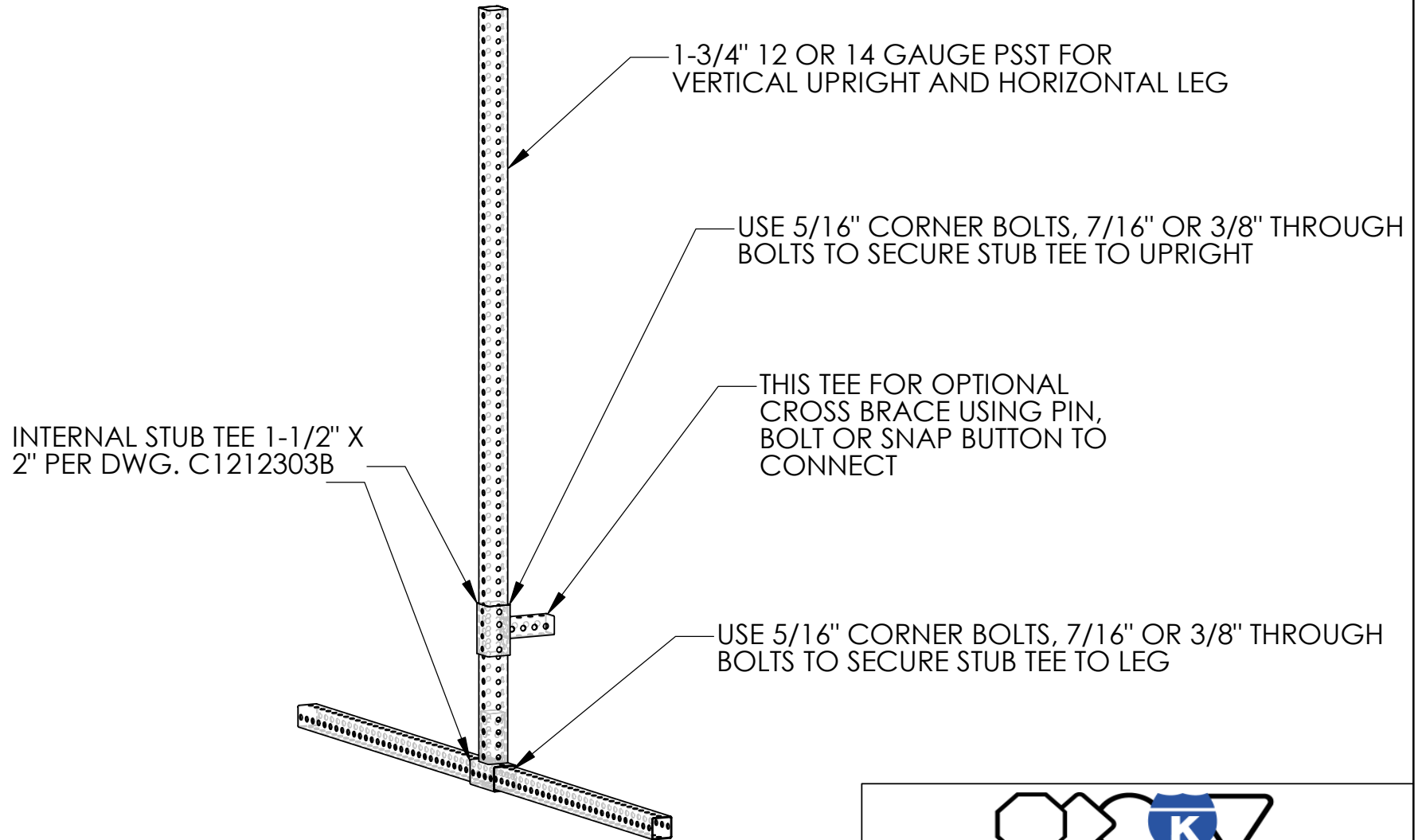


**Korman Signs**  
INC.

STUB TEE INTERNAL, 2" X 1-1/2"

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/23/03	DRAWN BY: DCC	DWG. NO. C122303B

ENCLOSURE 4

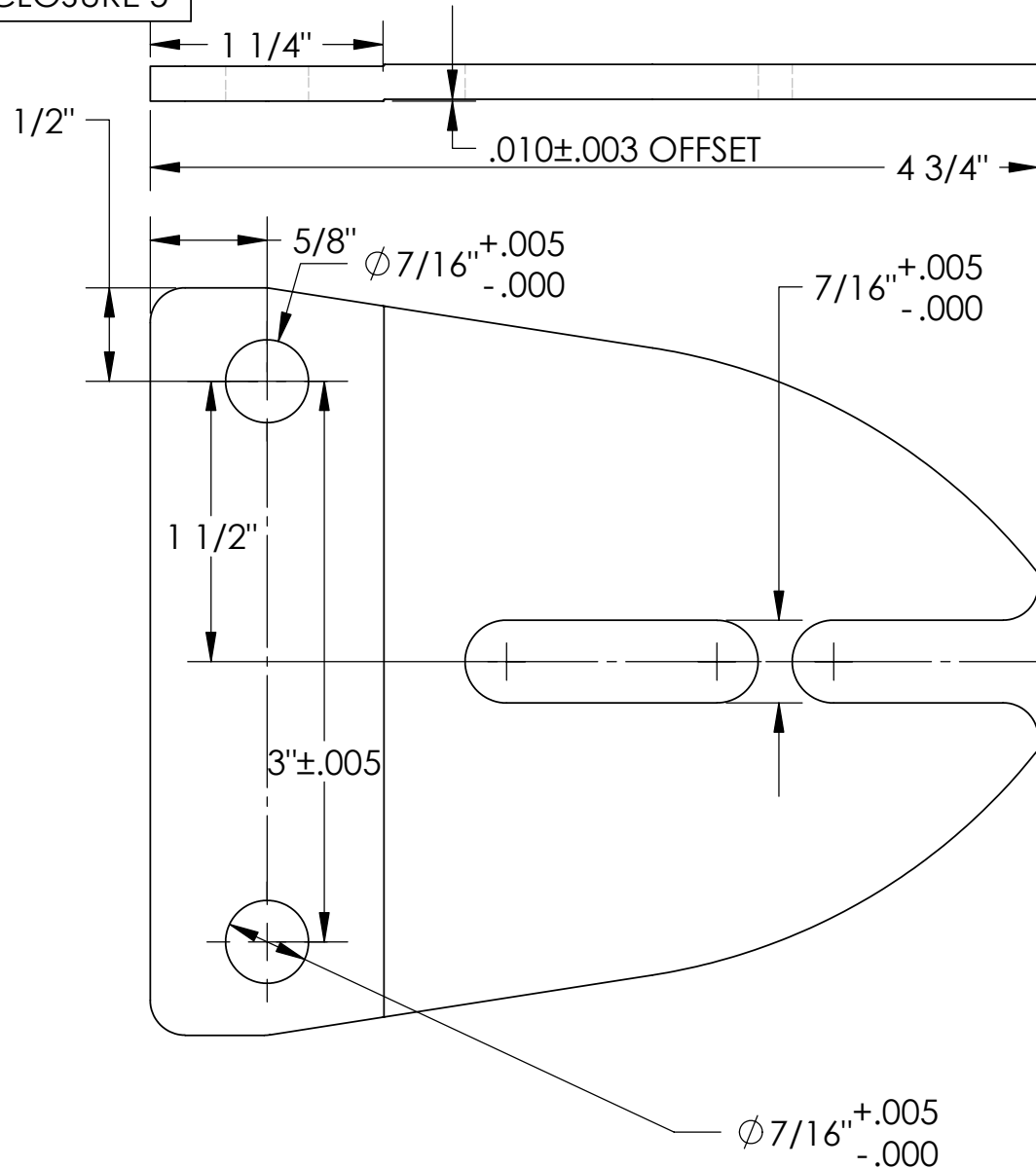


TYPE III BARRICADE END ASSEMBLY USING 2" X 1-1/2" INTERNAL STUB TEE WITH 1-3/4" PSST

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/23/03	DRAWN BY: DCC	DWG. NO. C122303C

ENCLOSURE 5

REVISIONS



MATERIAL:

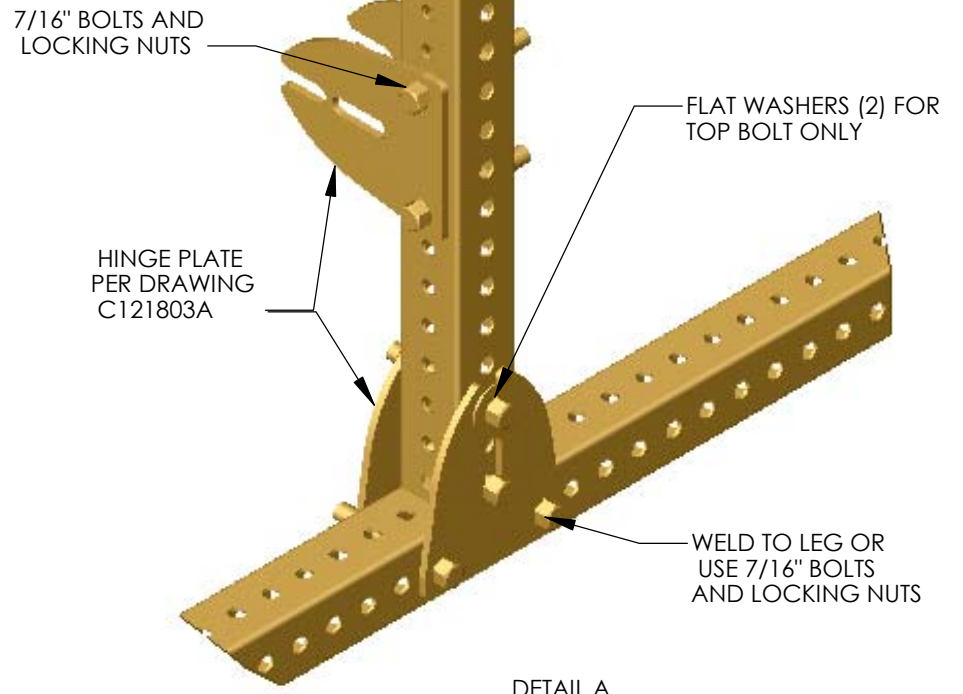
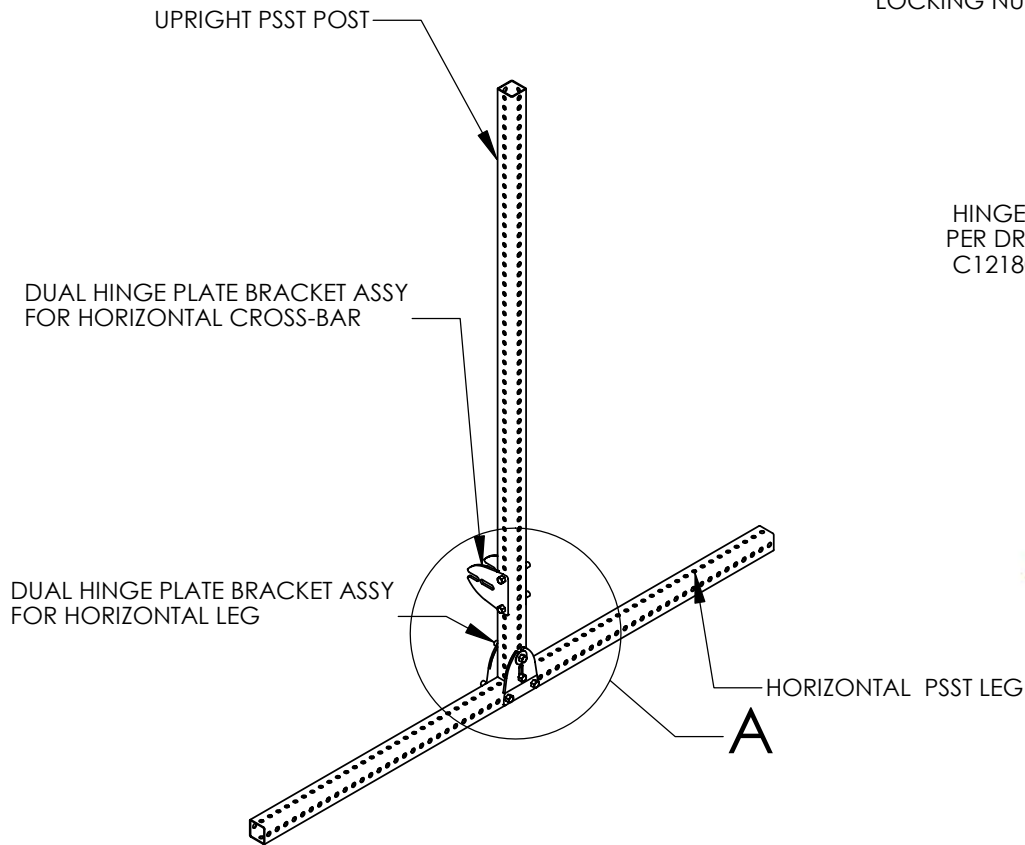
6 GAUGE HRS, 42,000 PSI MIN. YIELD STRENGTH  
 ZINC PLATED WITH YELLOW CHROMATE CONVERSION COATING  
 PER ASTM B-633 TYPE 2 FOR > 96 HRS. SALT SPRAY RESISTANCE



**Korman Signs**  
 INC.

ANGLED HINGE PLATE FOR WELDED OR BOLTED LEG

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/15/03	DRAWN BY: DCC	DWG. NO. C121803A



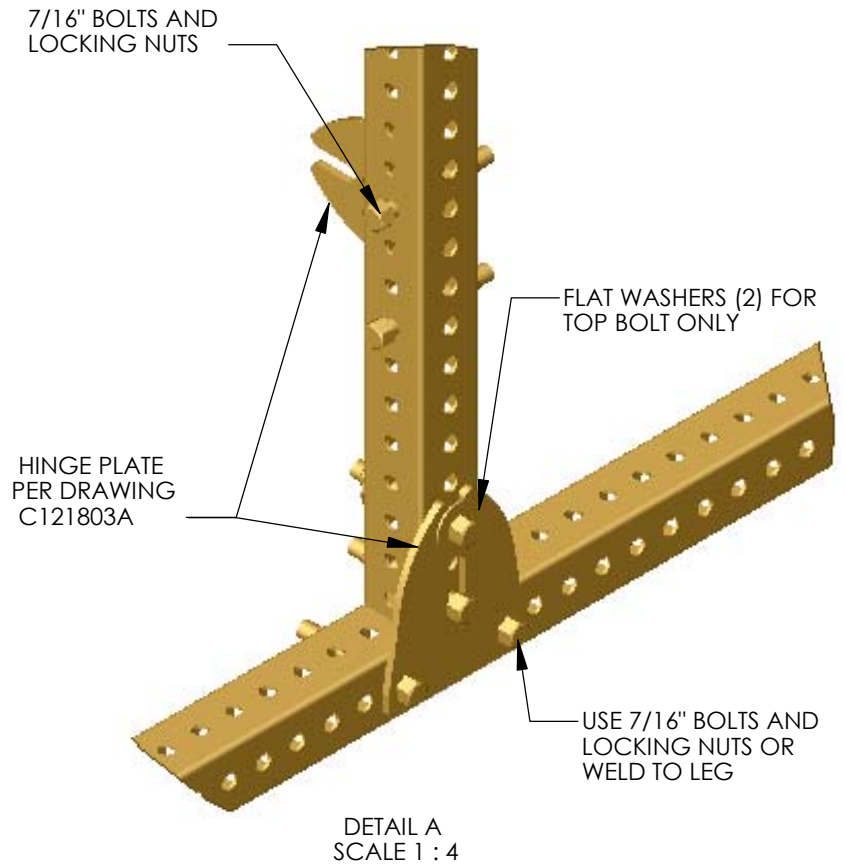
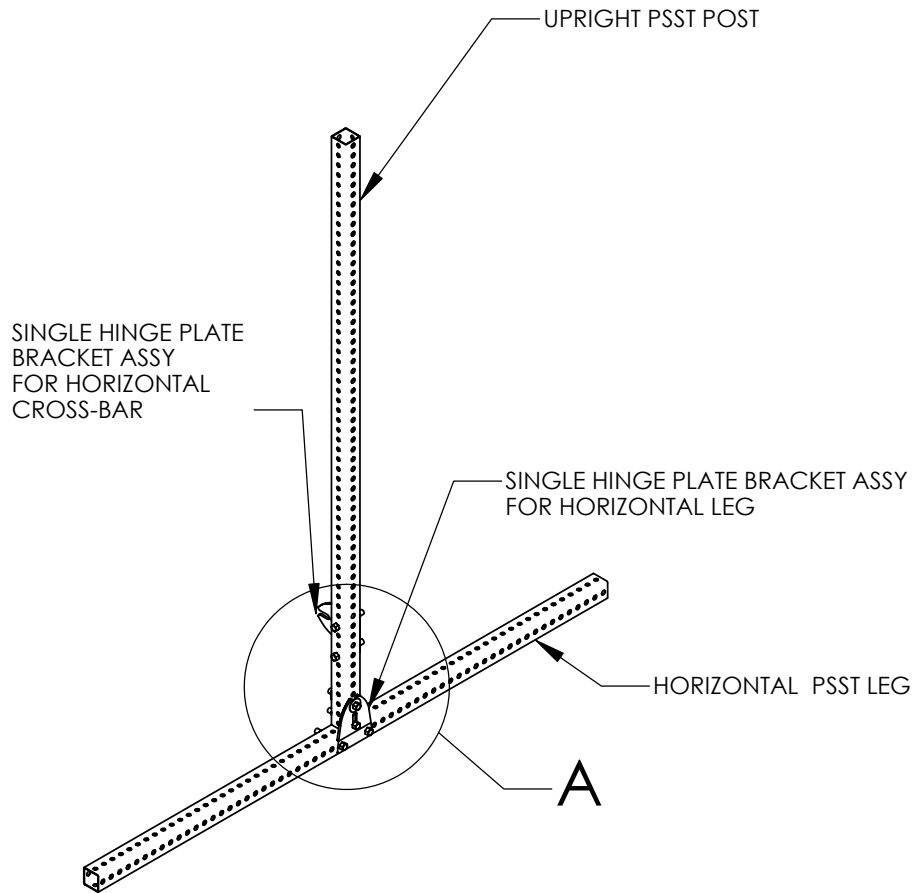
DETAIL A  
SCALE 1 : 4



TYPE III BARRICADE END ASSEMBLY USING  
DUAL HINGE PLATE BRACKET ASSEMBLIES

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/22/03	DRAWN BY: DCC	DWG. NO. C122203A

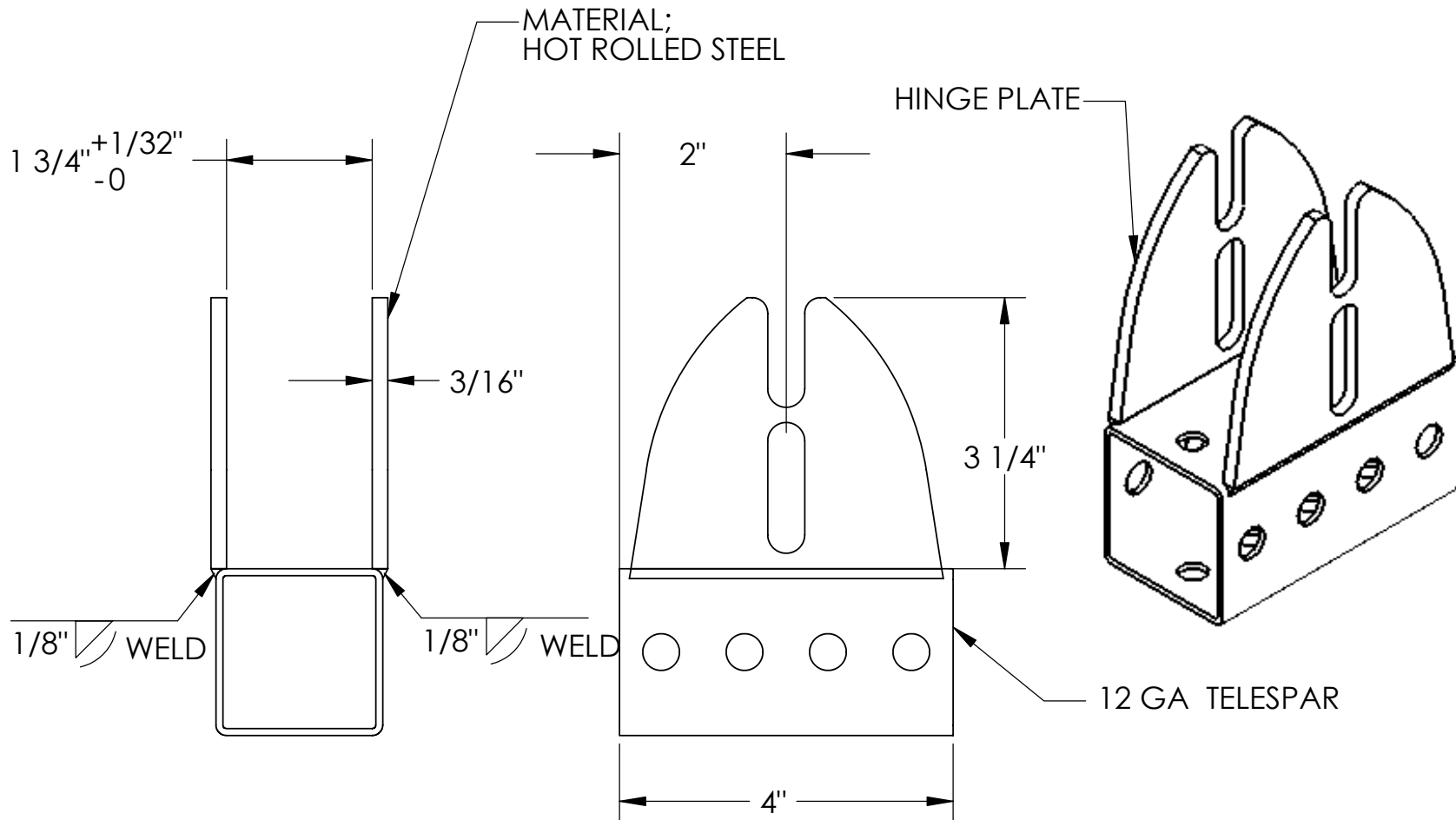




**Korman Signs**  
INC.

TYPE III BARRICADE END ASSEMBLY USING  
SINGLE HINGE PLATE BRACKET ASSEMBLIES

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/22/03	DRAWN BY: DCC	DWG. NO. C122203B

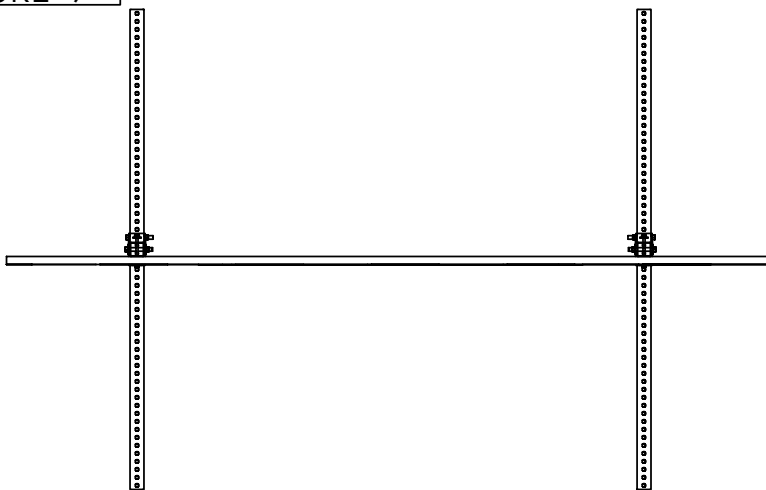


**Korman Signs**  
INC.

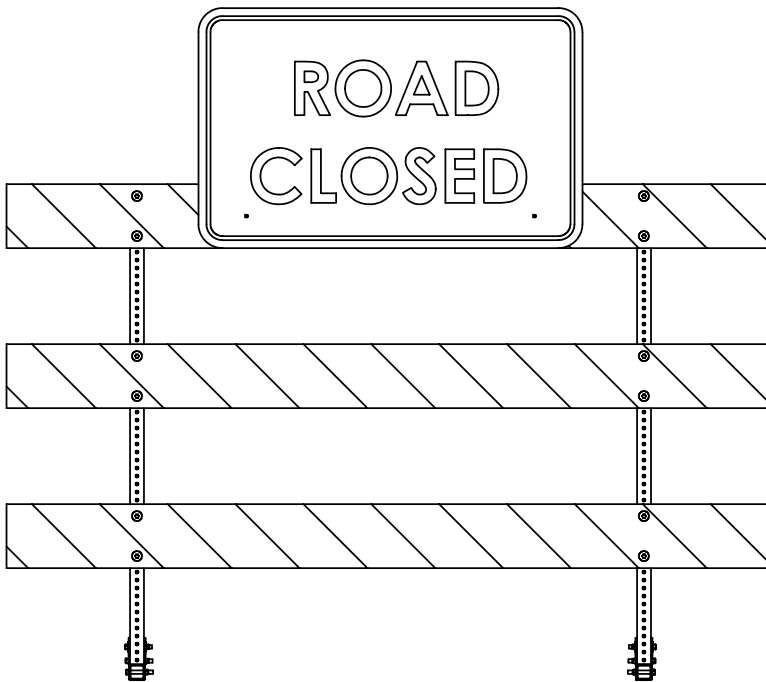
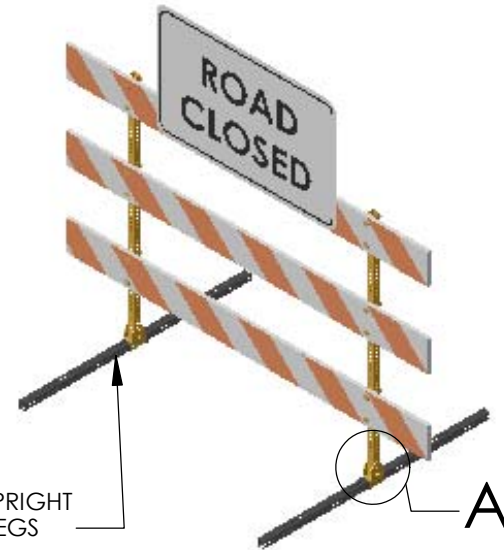
HINGE TEE, FOR 1-3/4" SQUARE LEG

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/22/03	DRAWN BY: DCC	DWG. NO. C122203C

ENCLOSURE 9

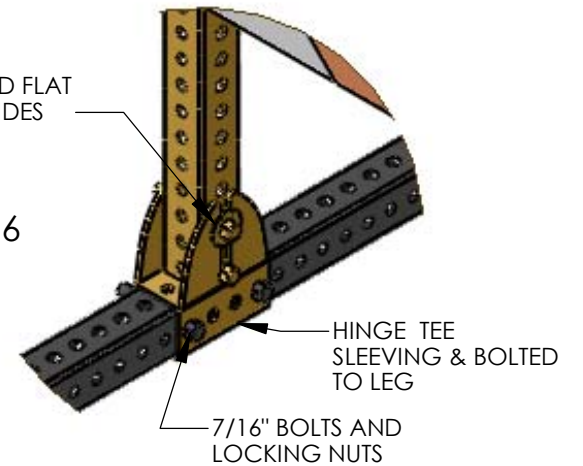


1-3/4" PSST UPRIGHT  
POSTS AND LEGS



1/2" ID X 1-1/4" OD FLAT  
WASHERS BOTH SIDES

DETAIL A  
SCALE 1 : 6



**Korman Signs**  
INC.

TYPE III BARRICADE WITH  
HINGE TEE BRACKET

SCALE: NOT TO SCALE	REV.	APPROVED:
DATE: 12/23/03	DRAWN BY: DCC	DWG. NO. C122303A