



TELESCOPIC SEATING INSTALLATION (MANUAL OPERATION)

EFFECTIVE FEBRUARY 2013

JOB NUMBER: TGS- _____

JOB NAME: _____

LOCATION: _____

The information in this document was in effect at the time of printing. Products were designed & built in accordance with national building requirements. Interkal reserves the right to make updates, product improvements & changes in specifications or design, without notice & without incurring obligation. Contact Interkal & Dealer/Agent to confirm possible approved updates or revisions. Thank You for purchasing your seating system from Interkal!

***** WARNING *****

YOU are responsible for reading ALL instructions completely BEFORE starting work!

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MANDATORY INSTRUCTIONS

All manuals **MUST BE READ THOROUGHLY** by all trained/authorized personnel, installers & dealers/agents responsible for this product. Installation & operation of this product **MUST BE** performed only **AFTER** all approved plans, documents, & manuals are read. These plans, documents, & manuals contain useful information & directions to provide ease of installation & operation, as well as to ensure overall safety.

- Confirm **ALL** measurements, drawings/plans, documents & manuals **BEFORE** starting installation & operation.
- Follow **ALL** instructions & proper component staging, as parts are unloaded from truck, which will lead to substantial timesavings, cost savings, & less operational callback problems. See Staging Layout Below.
- Read miscellaneous documents, which may include approved Seating Plans, Elevations, & Materials Layout Work Sheets, etc. These documents have been approved by the Architect or the Owner & are job site/field checked by the dealer/agent who sold the product.
- If any issue such as deviations, modifications, corrective actions, unusual building conditions, manufacturing errors, part shortages arise or other problems occur, Interkal Service Department & Dealer/Agent **MUST BE** contacted **IMMEDIATELY** for approval **PRIOR** to making **ANY** revisions. See Below:

INTERKAL LLC
ATTENTION: PARTS & SERVICE DEPARTMENT
5981 E. Cork Street
P.O. Box 2107
Kalamazoo, MI 49003-2107
Email Customer Service: service@interkal.com
Visit our Website: <http://www.interkal.com>
Phone: (269) 349-1521 or Fax: (269) 349-6530

***** Interkal will NOT accept collect calls for any reason *****

Please have the following information with you when you place the call:

- Job Number: TGS - _ _ _ _ _
- Job Name: _____
- Part Number & Name: _____
- Quantity Received: _____
- Quantity Required: _____

***** WARNING *****

YOU are legally responsible for correctly installing the product in STRICT compliance with ALL Interkal approved plans, documents, & manuals. YOU are legally responsible for ANY CHANGES not approved & not shown.

If you are installing for the Dealer/Agent, they are responsible for this installation & the following conditions apply:

- It is understood that Dealer/Agent Installation personnel must be trained, qualified, & experienced in installing Interkal's products.
- If the Dealer requires/desires the field assistance of Interkal's personnel, they will be provided at Dealer's expense.
- The Dealer **MUST NOTIFY** Interkal & have a Backcharge Authorization Number before proceeding with any extra work for which reimbursement by Interkal is expected. (You may expect the same treatment in reverse.)
- Guarantee's covering defects in material & factory workmanship are in the Owner's manual. Upon request Interkal will issue signed guarantees. The Dealer/Agent will guarantee the installation workmanship.
- During the one (1) year warranty period, Interkal will provide replacement parts to correct product defects. This warranty does not cover product abuse or unauthorized modifications.
- Interkal will not be responsible for labor or travel costs involved in performing the replacement or corrective action.
- Interkal reserves the right to inspect installations. It is the responsibility of the Dealer/Agent to inspect Installations. If the product is not installed in accordance with Interkal's instructions & layout prints, Interkal will require the Dealer/Agent to re-install or re-work the bleachers at the Dealer's/Agent's expense.

ASSEMBLY CREW REQUIREMENTS

On the basis of field experience, it is recommended that an assembly crew consist of three TRAINED personnel. Two of these personnel will be assigned to the assembly of the section while the third person supplies the subassemblies and other materials. The number of crews required for any given installation will be determined by the Installer.

TOOLS REQUIRED

Experience has shown that the following tools and equipment are required for assembling bleachers:

- Impact Wrench (Variable Torque) - Electric 1/2" Drive qty of two (2) per crew
- Sockets & Wrenches 1/4" - 1/2" - 7/16" - 9/16" - 3/4" & 1-1/8" Inch Sizes
- Allen Type Drive Attachment (3/16")
- Electric Screwdriver
- Magnetic Socket (5/16")
- Drift Pins
- Dollies for Material Movement
- Bar Clamps
- Large Rubber Mallet
- Hammer
- Pry Bar for unloading
- Electric Hand-Drill
- Electric Hammer-Drill (TORX T-30: Assembly of Wood seats & Notchouts)

MATERIAL SORTING

PRIOR to sorting the materials, refer to the seating plan & note:

- Accessories (Scorer's Table, End Rails, End Panels, Aisles)
- Special Requirements (last row built in around columns, balcony access steps)
- If sections are not wall attached (forward fold) refer to supplementary instructions included with seating plan drawings

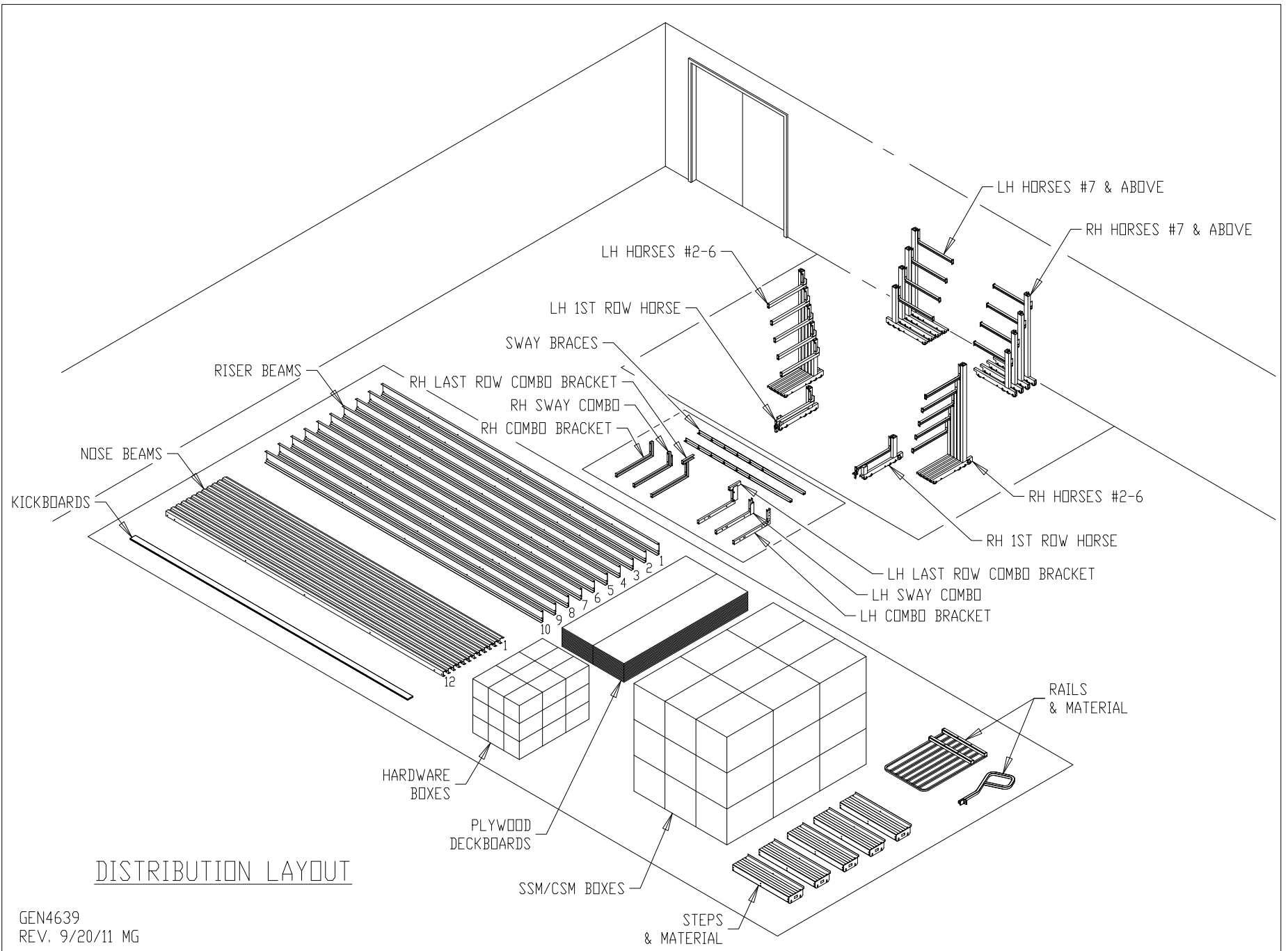
***** WARNING *****

YOU are legally responsible for protecting the floors & floors MUST BE protected at ALL times!

All parts related to special requirements and/or accessories must be identified and set aside in the sorting operation. Refer to seating plan & note extended bleacher dimensions. Add approximately four (4) feet to this dimension. The area bound by the wall & the extended bleacher plus four (4) feet should be kept clear of parts for a working area during the construction phase. All lumber should be oriented with the manufacturing control code to the left of the section.

NOTES ON DISTRIBUTION

1. Proper distribution requires the placement of materials as close to the final installation area as possible. All materials for balcony units should be placed on the balcony or adjacent areas on the same level.
2. Unloading and distribution is a single task, with its own cost allowance and is not to be separated.
3. Unloading requires that all materials be placed under cover (indoors) at the closest possible location with ready access to the installed position.
4. It is to the installer's advantage to contract unloading and distribution in most cases as this can be combined with staging to improve the overall efficiency.
5. The recommended layout may not be the best for everyone, or for every job. Vary the procedure to suit job conditions and your personal preferences, but do it with common sense and in a logical manner.
6. Parts inventory should be completed as soon as the staging is completed. You will find that proper staging makes shortages and incorrect items almost self-evident. Order your corrective or replacement items as soon as possible. Waiting until you find a shortage by running out simply does not make good sense.

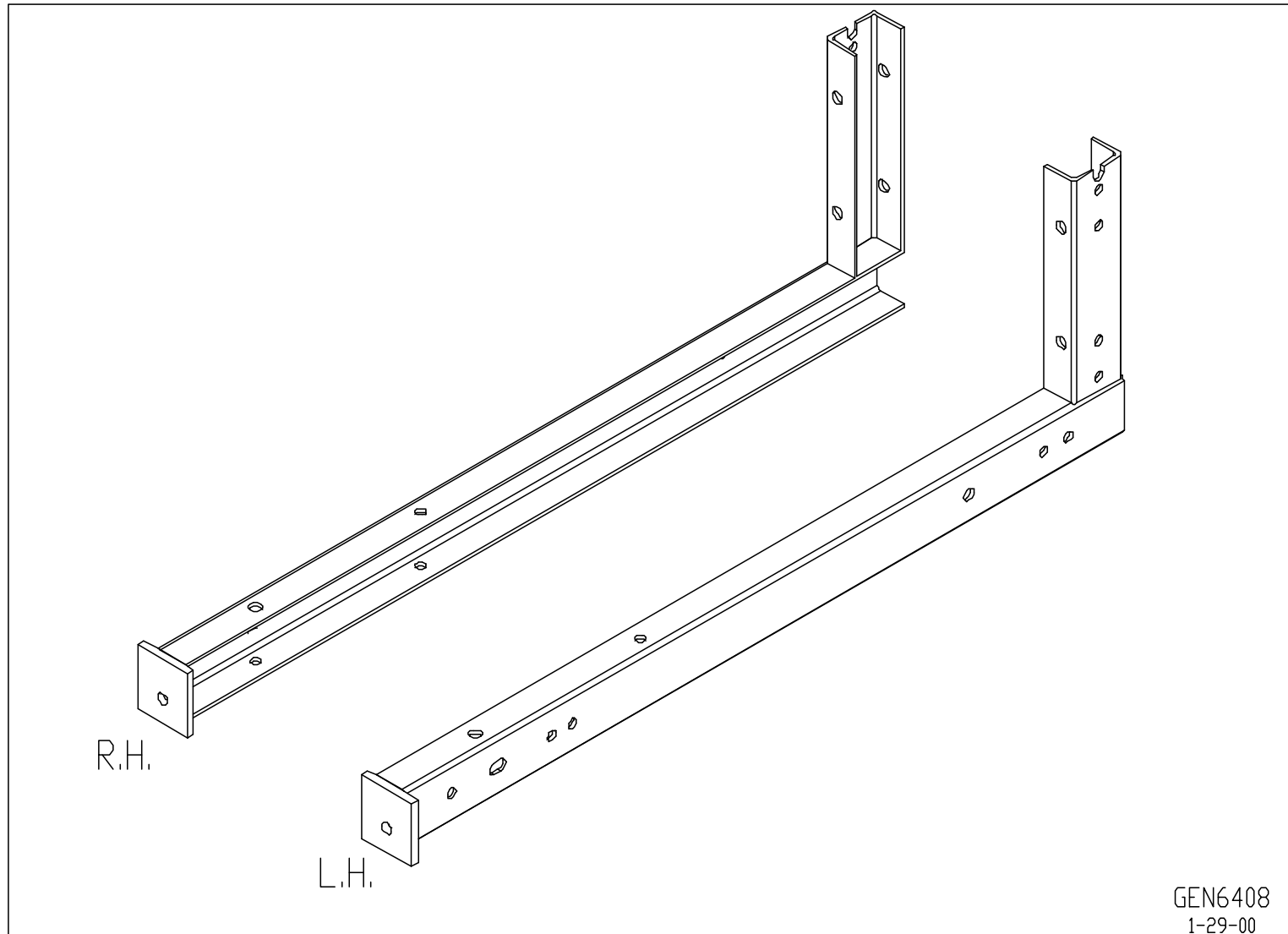


DISTRIBUTION LAYOUT

GEN4639
REV. 9/20/11 MG

PARTS ORIENTATION

The position of parts designated Right Hand (R.H.) or Left Hand (L.H.) is determined by **facing the front** of the bleacher row. R.H. parts are usually positioned on your right and L.H. on your left. Combo brackets **DO NOT** follow this rule. The channel-shaped horizontal leg of a Right Hand combo forms the letter "C". Combo brackets are normally installed with the flat side out, like this:



FASTENER TIGHTENING RECOMMENDATIONS

The structural connections used on Interkal telescopic bleacher products are designed in accordance with the “Specification for the Design of Cold-Formed Steel Structural Members” as published by the American Iron and Steel Institute (AISI). This specification does not provide for “slip critical” or “friction” type connections and therefore has no provisions for minimum fastener pretension. Therefore no special inspections are required.

The commentary section on E3 does however state that the specifications apply only when there are **no gaps between plies** and that it is essential that **installation be done in a manner which ensures that the assembly will not come apart during service**. It also states that experience has shown that bolts installed to a **snug tight** condition do not loosen or “back-off” under normal building conditions.

Snug tight has been defined by the American Institute of Steel Construction (AISC) to mean “the tightness attained by a few impacts of an impact wrench or the full effort of a worker with an ordinary spud wrench and must bring the connection plies into contact.” It should be noted that this specification was written for thicker hot rolled structural sections with minimum 1/2” diameter bolts. Since Interkal Products are telescopic and intended to move from open to closed positions, they do not fall under “normal building conditions” and require additional measures to make certain that the fasteners do not loosen. Typically lock washers, KEPS type locking nuts or WHIZ type locking nuts are provided in addition to specifying the connection to be snug tight.

Below is a table of recommended Tightening-Torque values which, by experience, meet the intent of “snug tight” by closing gaps and preventing loosening. It should be noted that applying AISC’s “full effort of a worker with an ordinary spud wrench” may actually damage fasteners or, in the case of wood members, damage the member itself.

RECOMMENDED TIGHTENING TORQUES				
MATERIALS	DIAMETER (Inches)	TORQUE (lb-ft)	TORQUE (lb-in)	TORQUE (N-m)
GROUND SCREWS IN ELECTRICAL BOXES	#10-32	1.5	24	2.7
STEEL TO STEEL	1/4	5.0	60	6.8
	5/16	12.5	150	16.9
	3/8	25.0	300	33.9
	1/2	60.0	720	81.3
WOOD TO STEEL	1/4	2.0	24	2.7
	5/16	2.5	30	3.4

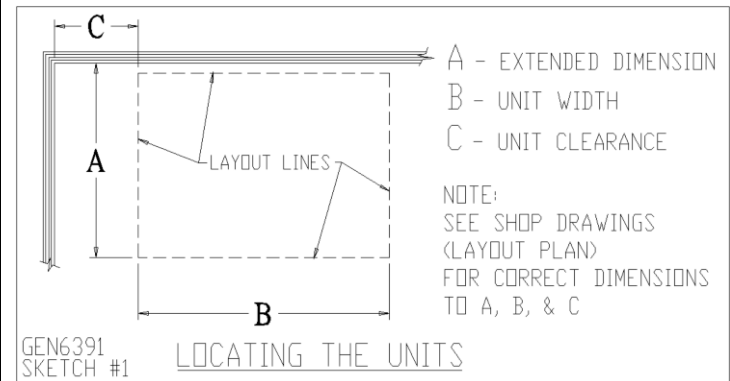
INSTALLATION PROCEDURE

INTRODUCTION:

The **telescopic seating** section applies to most seating structures. Before you begin assembly, review instructions for the specific seating surfaces (SSM, CSM, VOS, Wood, or VIP) to be installed. Some **accessories** (rails, steps, etc.) require components different from those shown in the general section. A separate section for accessories follows the general section. For **powered installations**, a separate section will be found toward the end of the manual.

AREA LAYOUT:

1. Refer to the field installation drawings for seating unit locations and dimensions to fixed building reference points.
2. Lay out the extended border lines of each unit on the floor.
3. Check vertical clearances above areas to be occupied by seating units.
4. When making the layout, be sure to observe correct spacing between units as shown on the shop drawing.
5. Check the locations shown (and especially those not shown) on the drawing. If an obstacle to installation or proper operation is discovered, notify your dealer, agent, or factory representative at once.



PREPARING & LOCATING WALL BUCKS FOR WALL ATTACHED UNITS:

1. Prepare upper & lower wall bucks for various locations as shown in Sketches #3 and #4.
2. Make upper wall bucks from supplied 2 x 10 lumber. Cut to 24" lengths.
3. Position an upper wall attachment bracket over the 2 x 10 buck and mark the hole locations.
4. Drill four holes in the buck per Sketch #3. Assemble the bracket to the buck with fasteners shown.
5. For the lower wall ties, sub-assemble the fully threaded bolt to the wall attachment plate with a jam nut per Sketch #3.
6. Position the wall tie assembly over the buck and mark two hole locations per Sketch #3.
7. Drill two holes in the buck and assemble the bracket to the buck with fasteners shown.

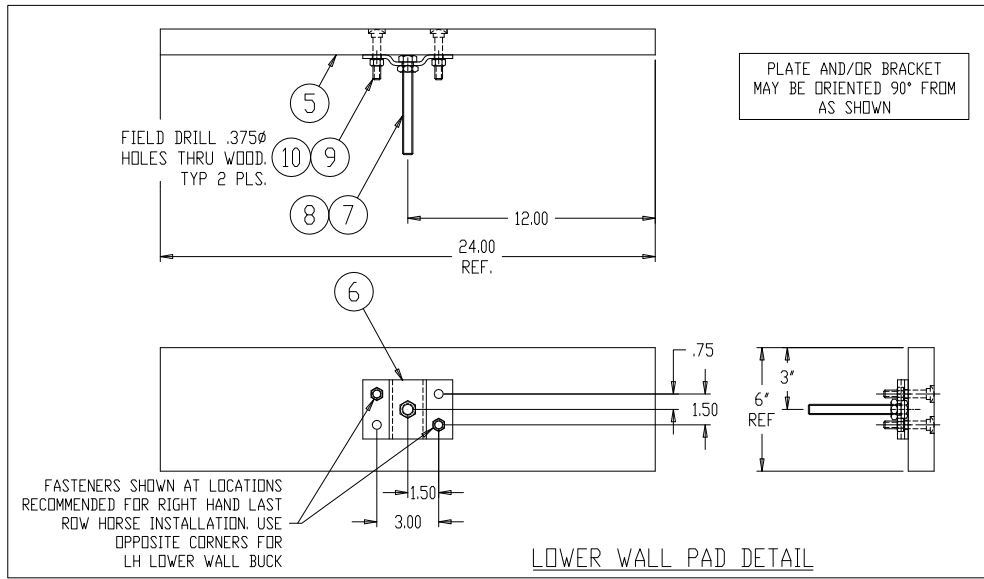
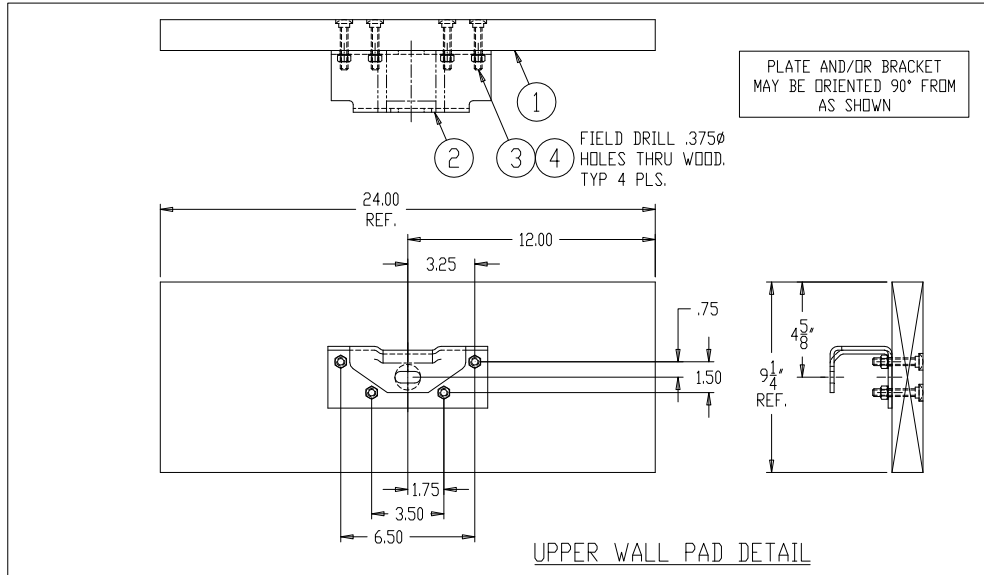
***** WARNING *****

ATTACHMENT OF WALL BUCKS TO WALL IS OF EXTREME IMPORTANCE FOR PROPER OPERATION & SAFETY. IF YOU HAVE ANY DOUBTS OR QUESTIONS CONCERNING THE ADEQUACY OF WALL ATTACHMENTS SPECIFIED ON APPROVED DRAWINGS CONTACT SERVICE DEPARTMENT AT ONCE.

SKETCH # 3

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE:
 2 PLACE DECIMAL ± .00 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .000 ANGULAR ± 1'



	PART NO.	DESCRIPTION	APPLICATION
ITEM #1	184142	2x10x16' CUT TO 24'	NON-DSA UPPER WALL BUCK W/FINISH
	184143	2x10x16' CUT TO 24'	DSA UPPER WALL BUCK W/FINISH
	519847	2x10x16' CUT TO 24'	UPPER WALL BUCK
ITEM #5	184145	2x6x16' CUT TO 24'	LOWER WALL BUCK W/FINISH
	126185	2x6x16' CUT TO 24'	LOWER WALL BUCK

SKETCH # 3

10	601629		3/8-16 KEPS NUT
9	613010		3/8-16 x 2-1/4 CARRIAGE BOLT
8	601081		1/2-13 HEX JAM NUT
7	600415		1/2-13 x 4-1/2 CAPSCREW GRADE 5
6	183312		WALL ATTACH PLATE
5	CHARTED		LOWER WALL BUCK
4	601629		3/8-16 KEPS NUT
3	613010		3/8-16 x 2-1/4 CARRIAGE BOLT
2	183079		WALL ATTACH BRACKET
1	CHARTED		2 x 10 x 16' SOLID LUMBER-CUT TO 24'
ITEM	PPR	PART NUMBER	QTY
DESCRIPTION			



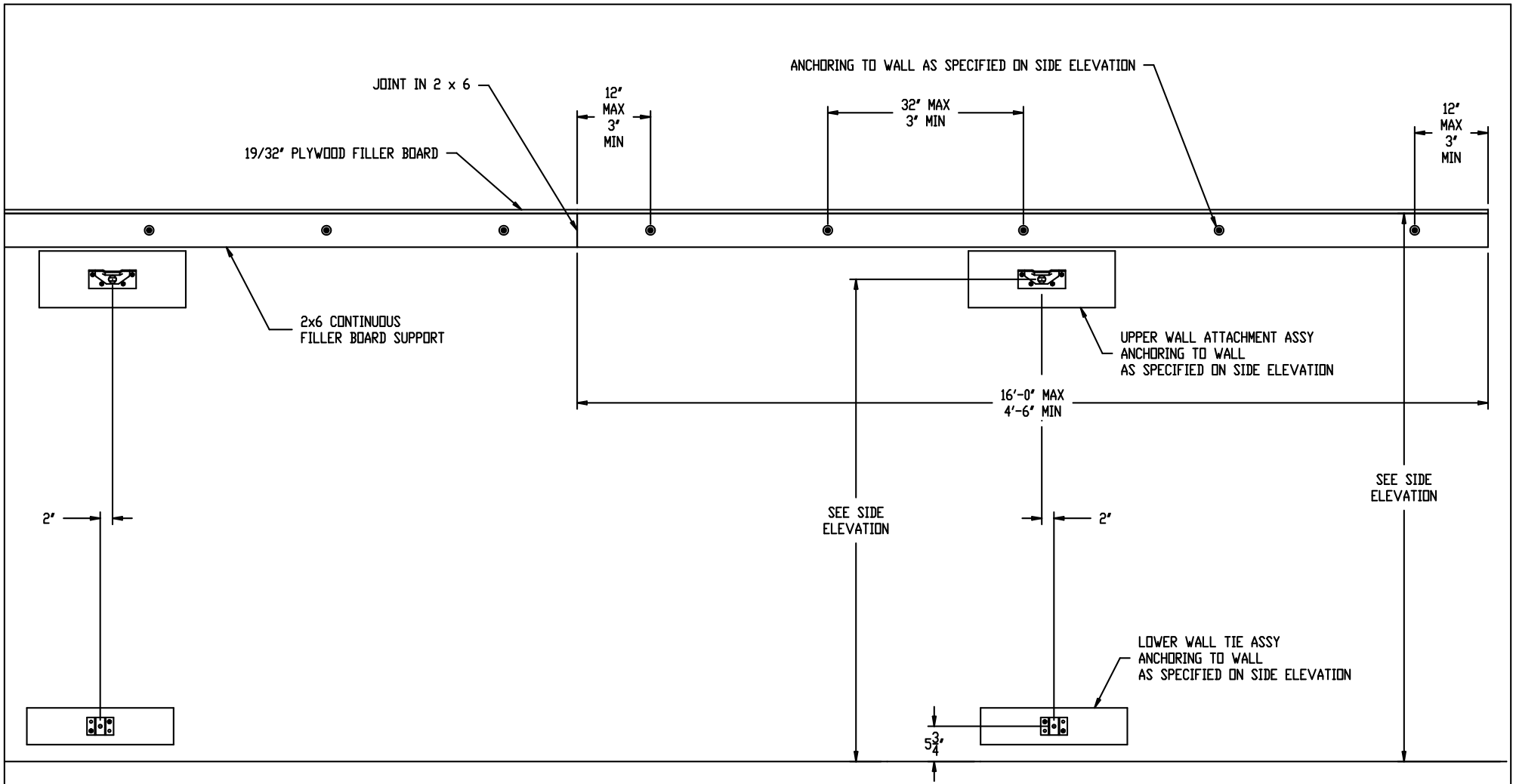
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49008


TITLE		SCALE 1/4" = 1"	
WALL BUCK PREPARATION FOR 3 THRU 20 ROWS			
MATERIAL	FINISH	REF. NO. GEN6517(A) (D13) PPR PART OR DRWG. NO.	
DRAWN BY	CHECKED BY	APPROVED BY	
D. MCCOY	7-24-02	C	

△	ADDED NEW EXPORT FINISH WALL BUCKS	36053	TSC	2/27/07
NO.	DESCRIPTION	CHANGE NO.	CH BY	RELEASED DATE

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SKETCH #4

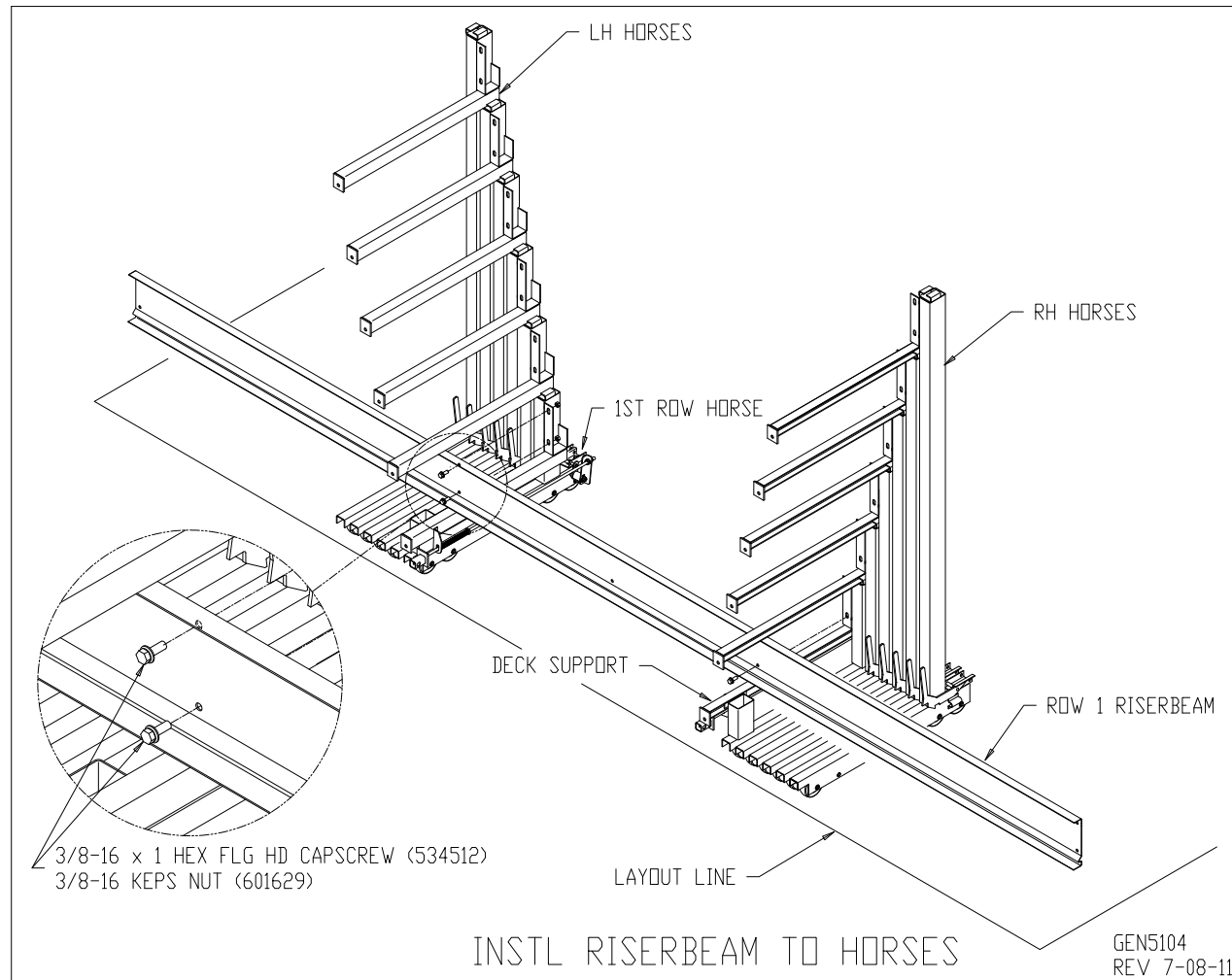


						GEN6524(A) (D11)	
						DRWN D. McCOY 8-2-8-02	
						CHKD	
						APVD	
						SCALE 3/4" = 1'	
						SHEET 0F	
						DRG.ND	
△						 INTERKAL 5981 EAST CORK STREET KALAMAZOO, MICHIGAN 49048	
REV.			DRWN.	CHKD.	APVD.		

SKETCH #7

UNIT ASSEMBLY

1. Place first row **horses** on the layout line per Sketch #7. (If first row horses are in a banded group of horses, place the groups.) Use the layout plan to locate them properly.
2. Install the Row #1 **riser beam** on the first row horses with the deck slot in the riser beam down and to the rear. Fasten the riser beam to each horse with two 3/8-16 x 1 hex flanged cap screws (534512) & two 3/8 keps nuts (601629). Plumb each horse as fasteners are tightened. It is **very important** that the riser beam rests on the deck supports with no gap after fasteners are tightened.

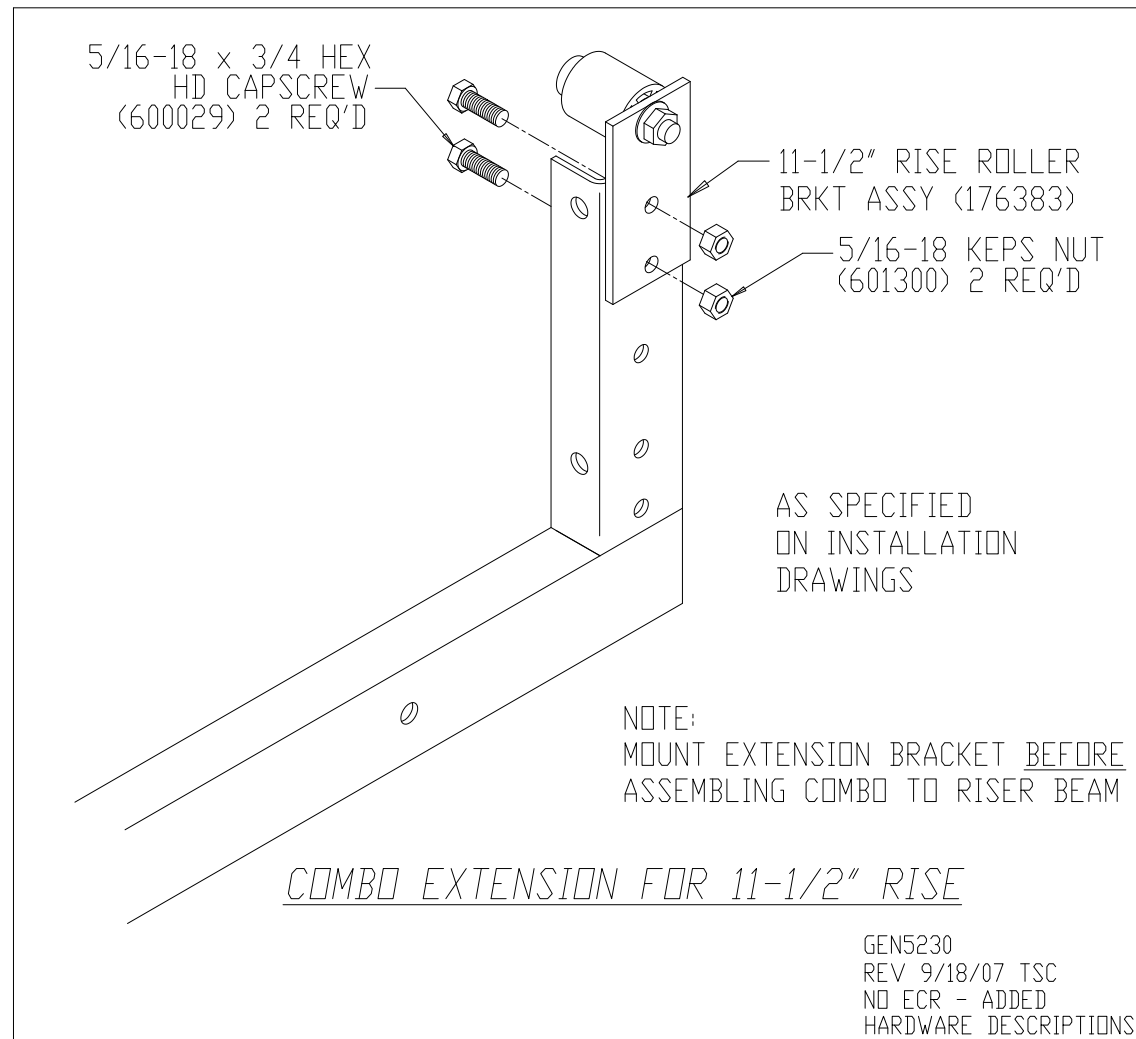


EXTENSION & ROLLER BRACKETS

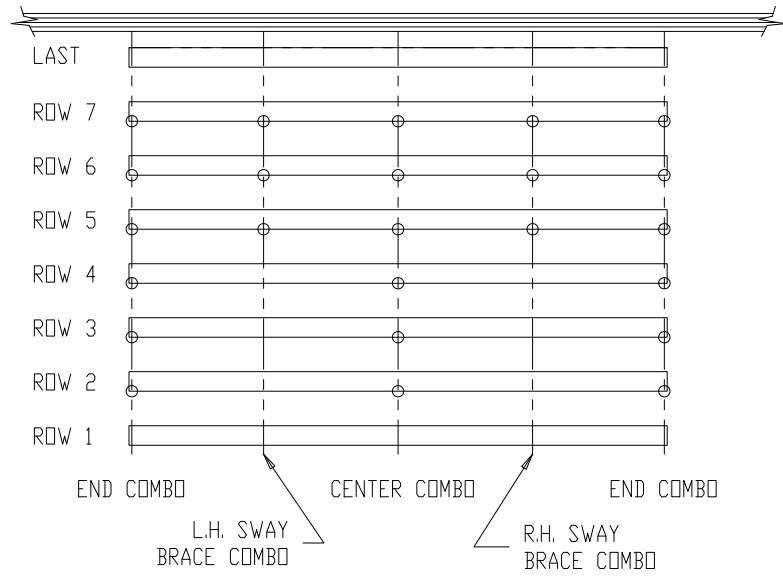
SKETCH #8

11.50" RISE EXTENSION/ROLLER BRACKETS:

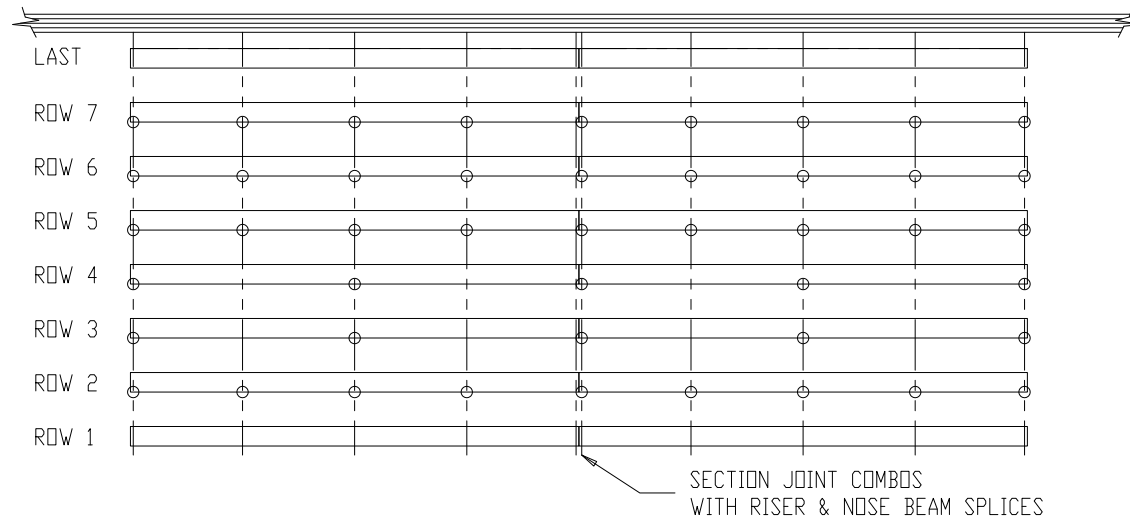
If the unit has 11.50" Rise Roller Bracket must be fastened to certain combo brackets **BEFORE** they are attached to riser beams. Fasten the roller bracket to the top two holes in the rear leg of the combo bracket per Sketch #8. Attach roller brackets to combos to be used at locations shown in Sketch #9.



SKETCH #9



MANUAL UNITS



POWERED UNITS

○ - LOCATION OF 11 1/2" Rise ROLLER BRKT. ASSY

GEN6528
8-16-02

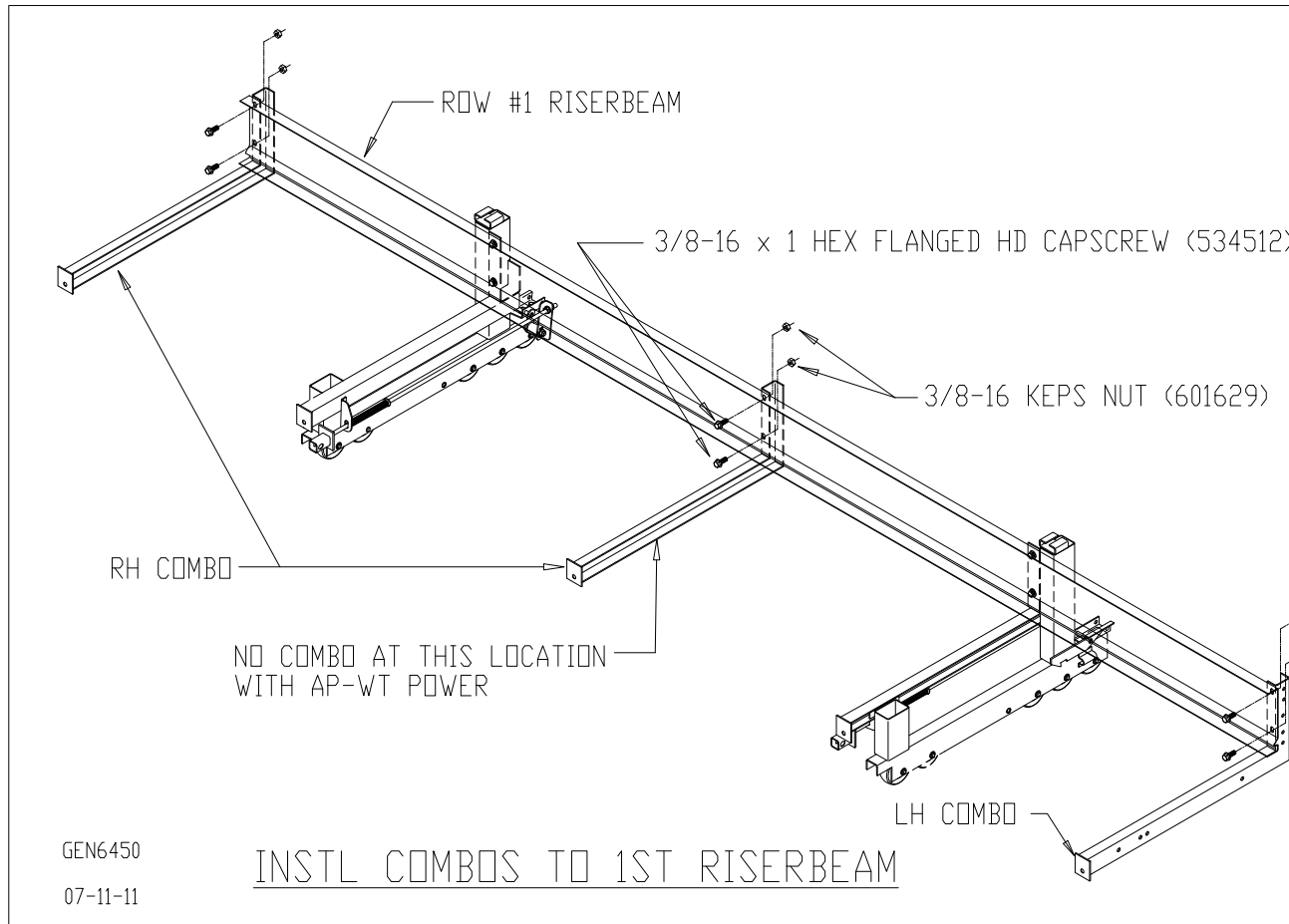
COMBO BRACKETS

SKETCH #10

COMBO BRACKETS ON FIRST ROW:

Attach a RH combo bracket to the row #1 riser beam at the center location. Use 3/8-16 x 1 hex flanged cap screws (534512) & keps nuts (601629). Hold the combo up tight against the lower riser beam flange when tightening the screws. See Sketch #10.

Install a LH & RH pair of combo brackets at the ends of the Row #1 riser beam. Hold the combo bracket up tight against the lower riser beam flange while tightening the screws. See Sketch #10.



OUTRIGGERS

SKETCH #11

OUTRIGGER ASSEMBLY:

On manual units install an outrigger at the center and at each end of the first row.
Fasten outrigger assemblies to first row combos with hardware shown on Sketch #11 or Sketch #11A depending on rise.

FIELD DRILL 5/16" Ø HOLE IN PLYWOOD

DECK BOARD

FLOOR

"A" FROM COMBO BOLT

"B" FROM COMBO BOLT

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .010 ANGULAR ± 1°

(REF. D4 CALIFORNIA DRAWING)

24.25 FROM FRONT OF NB

3.97 FROM FRONT OF NB

NOSEBEAM

REAR OUTRIGGER FIELD DRILL .344 Ø HOLE IN COMBO

1.59 REF

WOOD KICKBOARD

.50 REF

ITEM #8 WASHER TO BE USED ON EACH OUTRIGGER WITH OR WITHOUT A SPACER.

ADDITIONAL OUTRIGGER REQ'D @ END OF ALL BANKS WHEN SECTION CANTILEVER IS 60" OR GREATER ON MANUAL OR 61" OR GREATER ON POWER. SEE CANTILEVER DETAIL. EXCEPTION: ADDITIONAL OUTRIGGER NOT REQ'D @ POWER SPLICED SECTION JOINTS.

AT CENTER COMBOS AND AT SECTION JOINTS

AT ENDS OF BANK RIGHT END OF BANK SHOWN LEFT END SYMMETRICALLY OPPOSITE

RISE	"A"	"B"
10-1/4 RISE	3.75	3.94
11-1/2 RISE	2.5	2.69

SECTION CANTILEVER IS THE DISTANCE BETWEEN THE END OF THE BANK & THE 1ST ROW HORSE CANTILEVER DETAIL

ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
8		602259	1	5/16 FLAT WASHER
7		600294	2	5/16-18 x 1 HEX HD CAP SCREW
6		VARIES		COMBO BRACKET
5		183116	2	SPACER TUBE
4		613031	1	5/16-18 x 1 1/4 TRUSS WASHER HEAD TORX SCREW
3		601300	3	5/16-18 KEPS NUT
2		651037	2	5/16-18 x 2 HEX HD CAP SCREW GR 5
1		183115	1	OUTRIGGER BRACKET ASSEMBLY-11.5' RISE
1		183114	1	OUTRIGGER BRACKET ASSEMBLY-10.25' RISE

5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

TITLE		SCALE 1/4" = 1'	
OUTRIGGER ATTACHMENT ASSEMBLY AT COMBO		REF. NO. GEN6442(A)	
22-26 SPAN - 10.25-11.5 RISE		PPR PART OR DRWG. NO.	
MATERIAL	FINISH	REF. NO.	
CHARTED	NONE	GEN6442(A)	
DRAWN BY	CHECKED BY	APPROVED BY	
FLS	03-18-02	B	

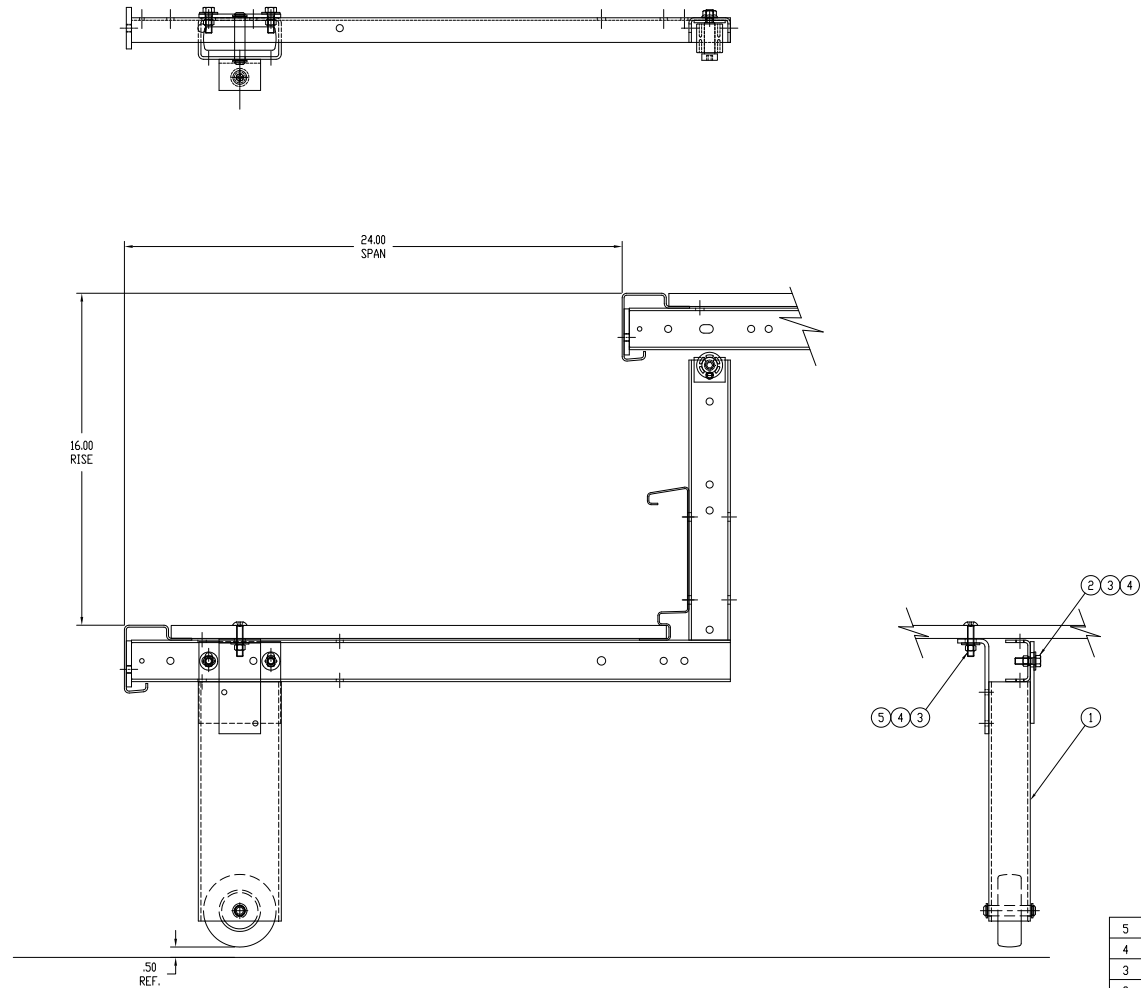
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NO.	DESCRIPTION	CHANGE NO.	CH BY	RELEASED DATE
△	UPDATED NOTE/ADDED NOTE FOR CLARITY	N/A	TSC/DV	9/10/08
△	UPDATED NOTE/ADDED NOTE FOR CLARITY	N/A	JC	3/12/07
△	ADD ITEM 8	36035	FLS	12/22/06
△	CHANGED ADDITIONAL OUTRIGGER NOTE	36029	TSC	9/21/06
△	REV MTG & HARDWARE AT INTERIOR LOC	.	DMc	11-21-03
△	CORRECTED BOLTS IN PLAN VIEW	.	DMc	6-10-02

SKETCH #11A

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .002 ANGULAR ± 1°



ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
5		600418	1	5/16-18 x 1-1/2 TRUSS HD PH MS
4		602259	3	5/16 FLAT WASHER
3		601300	3	5/16-18 KEPS NUT
2		600294	2	5/16-18 x 1 HEX HD CAP SCREW
1		183799	1	OUTRIGGER WELD ASS'Y, 16' RISE

 <small>5961 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048</small>			
TITLE <i>OUTRIGGER POST FINAL ASS'Y 16' RISE</i> <i>22-26 SPAN (24 SHOWN)</i>			
MATERIAL CHARTED		FINISH NONE	
DRAWN BY CHRISTIE		CHECKED BY 06/02/06	
APPROVED BY		C GEN6633	
SCALE 1/4" = 1'		REF. NO.	
PPR PART OR DRWG. NO.			

NO.	DESCRIPTION	CHANGE NO.	CH BY	RELEASED DATE
	STANDARDIZED 16' OUTRIGGER ASS'Y	36018	TSC	

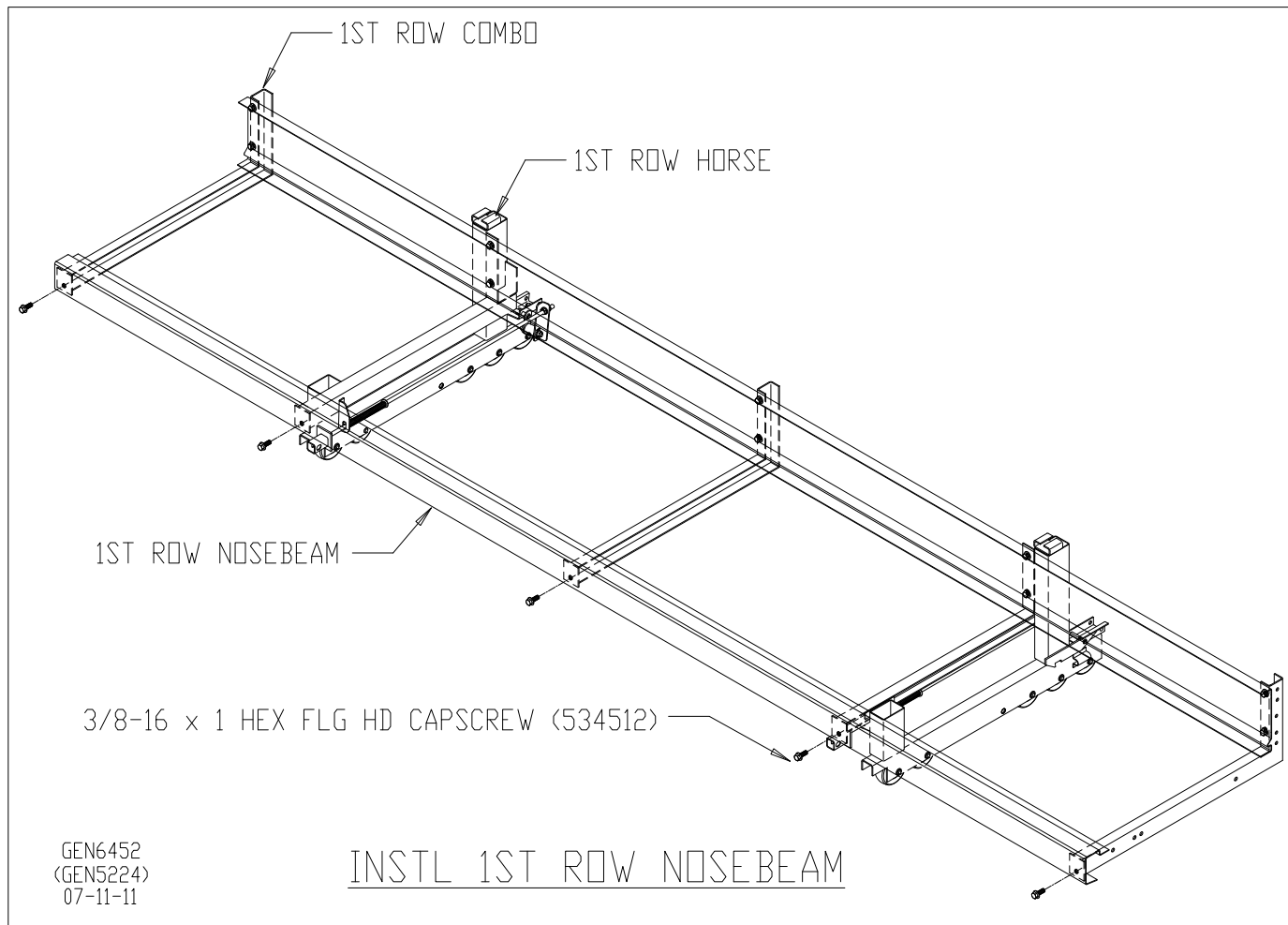
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SKETCH # 12

NOSE BEAMS

1ST ROW NOSE BEAM ASSEMBLY:

Fasten the first row nose beam to combos and horse deck supports using 3/8-16 x 1 hex flanged head cap screws (534512). See Sketch #13. When installing SSM/CSM Seats refer to [Seat Section - SSM/CSM Seats](#). When installing VOS/Steelwood or Wood Seats refer to [Seat Section - VOS/Steelwood](#) or [Seat Section - Wood](#) for seat bracket assemblies &. Check to be sure that combos and horse deck supports are square to the riser & nose beams.

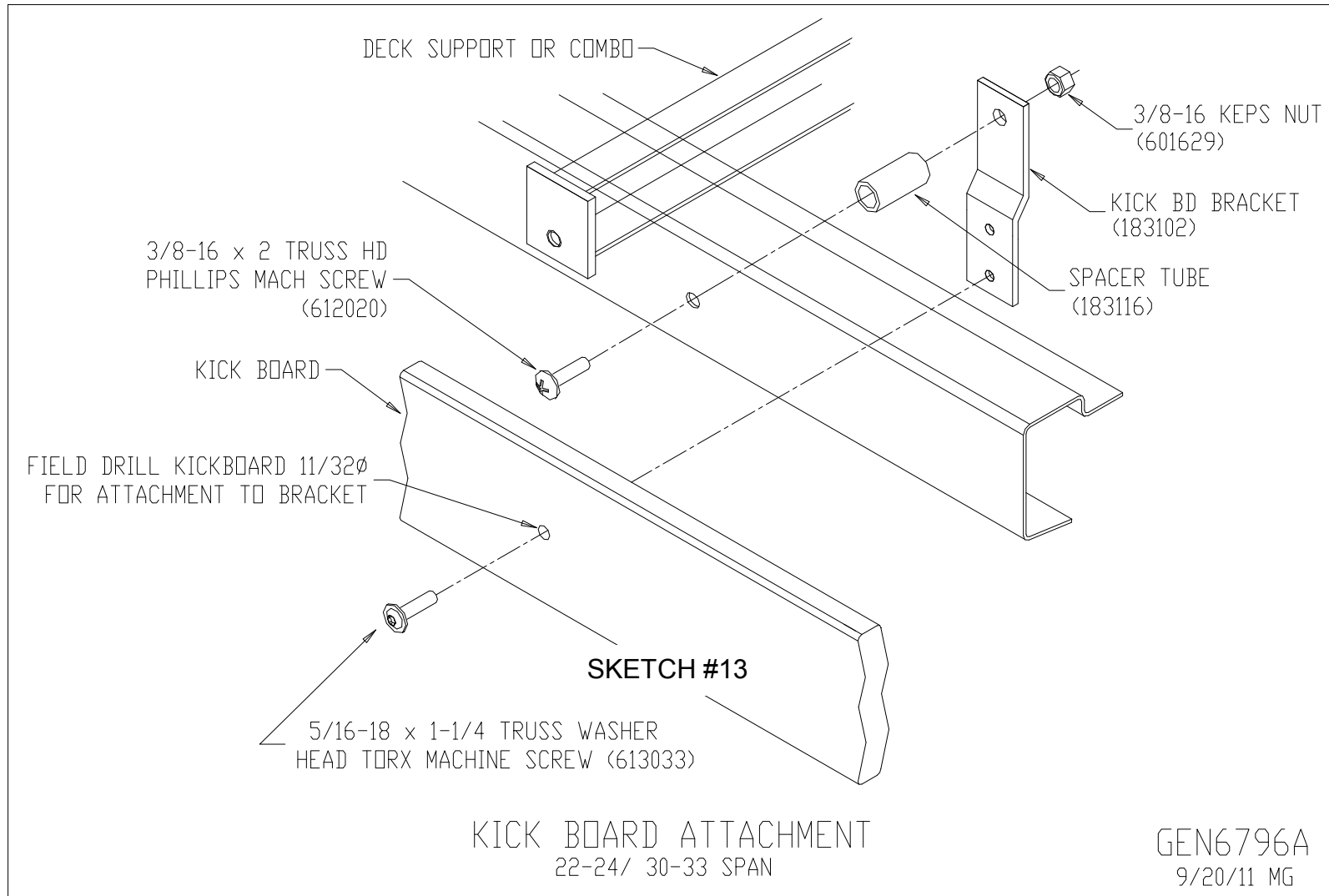


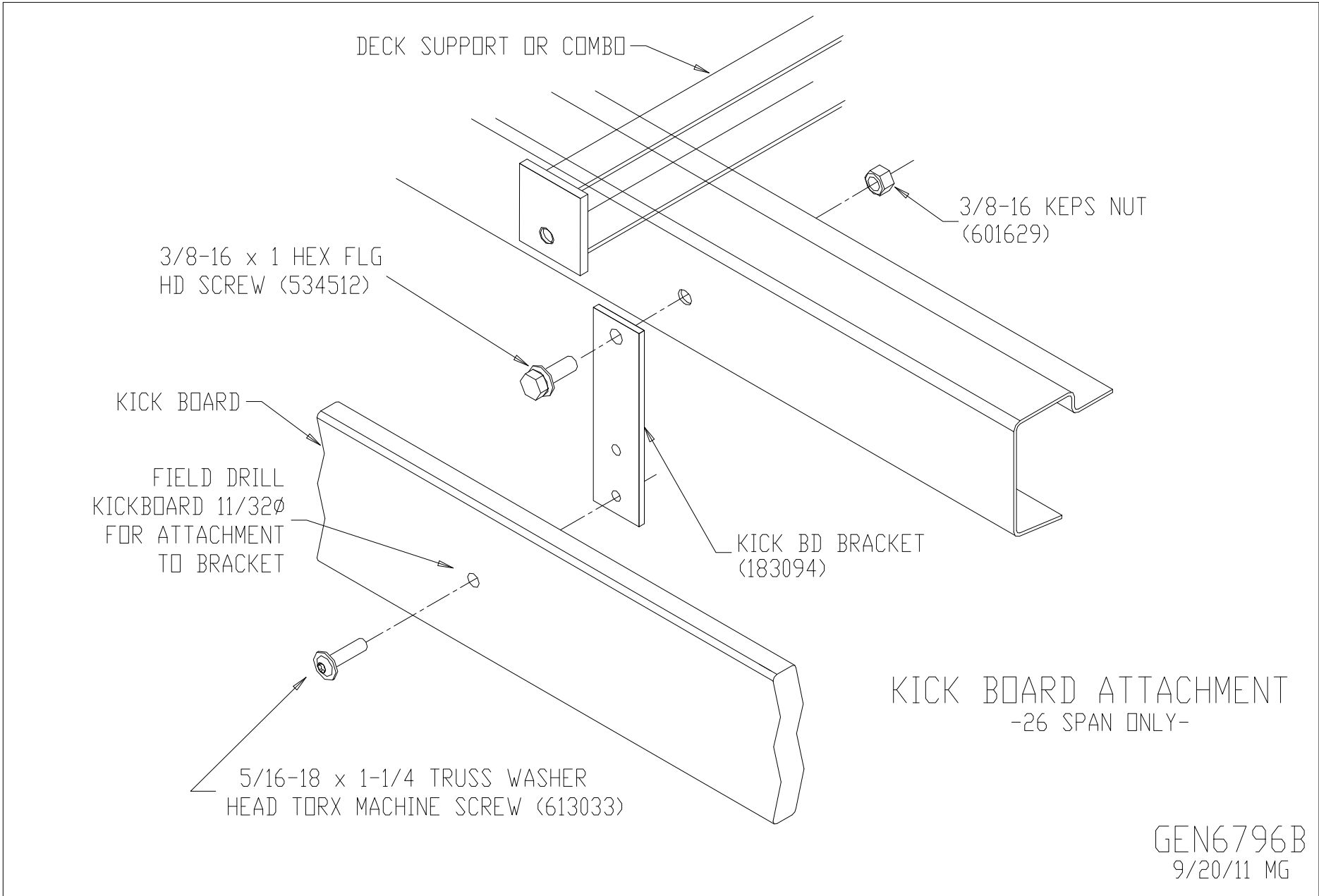
KICKBOARD BOLT ON SUPPORT

SKETCH #13A

BOLT ON SUPPORT LOCATION:

Install at locations shown on understructure layout. Refer to Sketch #13A. See [Sketch #32](#) for Kick Board Installation.



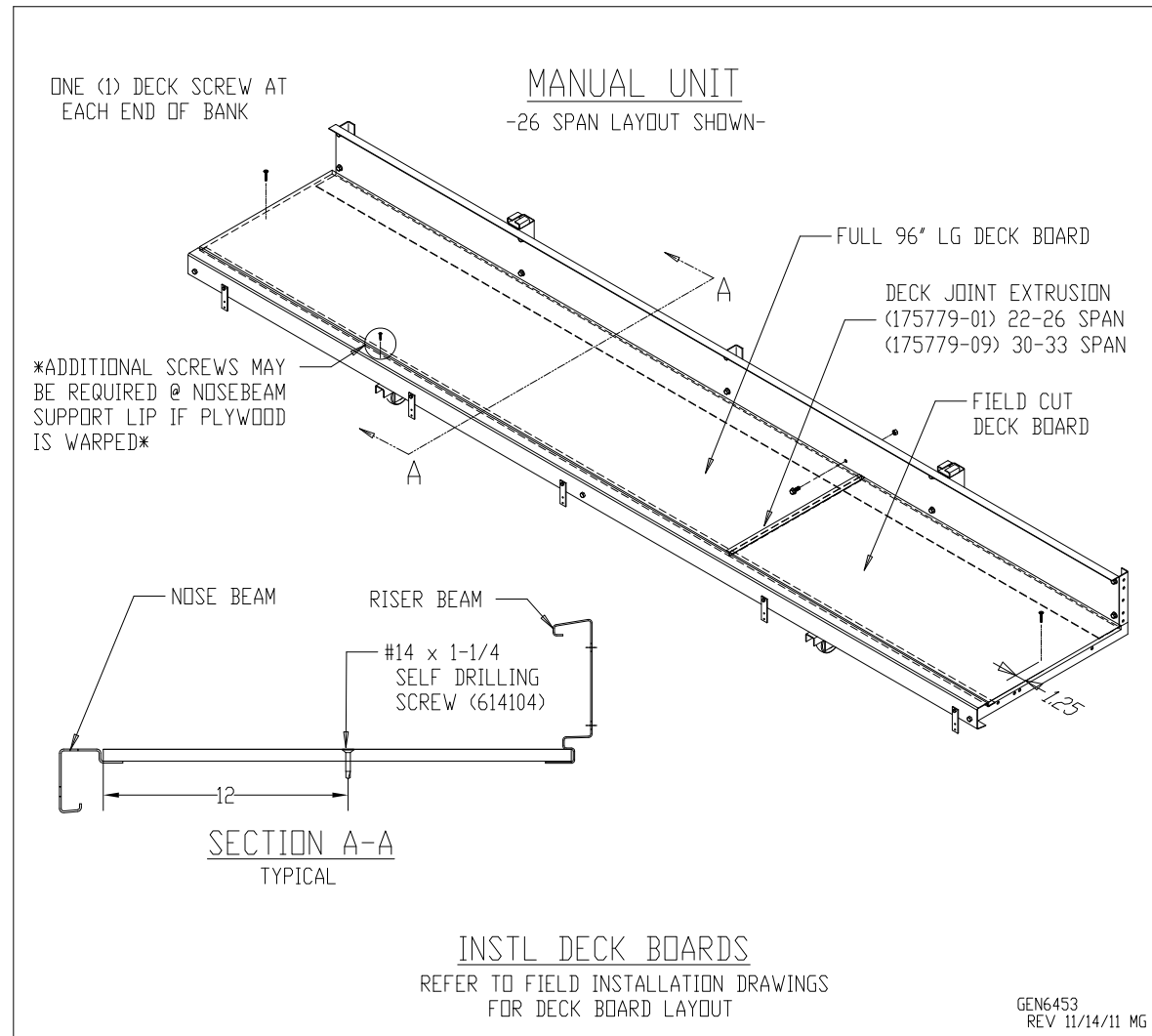


SKETCH #14

DECK BOARDS

DECK BOARD LAYOUT:

Install first row **deck boards** as shown in Sketch #14 working from left to right. Check the field installation layout for special Situations.



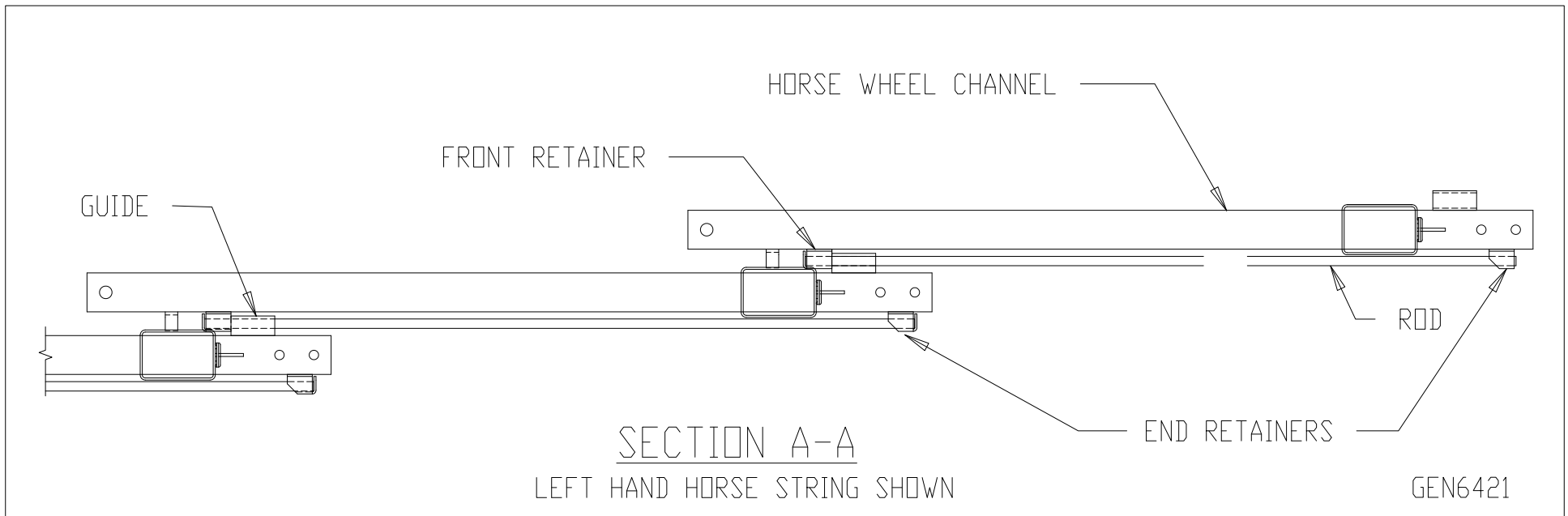
GUIDE RODS

SKETCH #14A

GUIDE ROD INSTALLATION:

All horses must be connected to the adjacent horses by guide rods. Install guide rods shipped loose by sliding the rod through the end retainer, through the guide on the adjacent wheel channel, and into the other end retainer on the first wheel channel. Bend tabs on end retainers in toward wheel channels to secure the rods. See Sketch #14A

If first row horses are banded with others, cut the bands. Extend the horse groups back far enough to provide working space as each row is assembled. If first row horses were separate, place second row **horses**, or groups including them, according to the layout plan. Attach second row horses to first row horses according to power or special installation instructions.

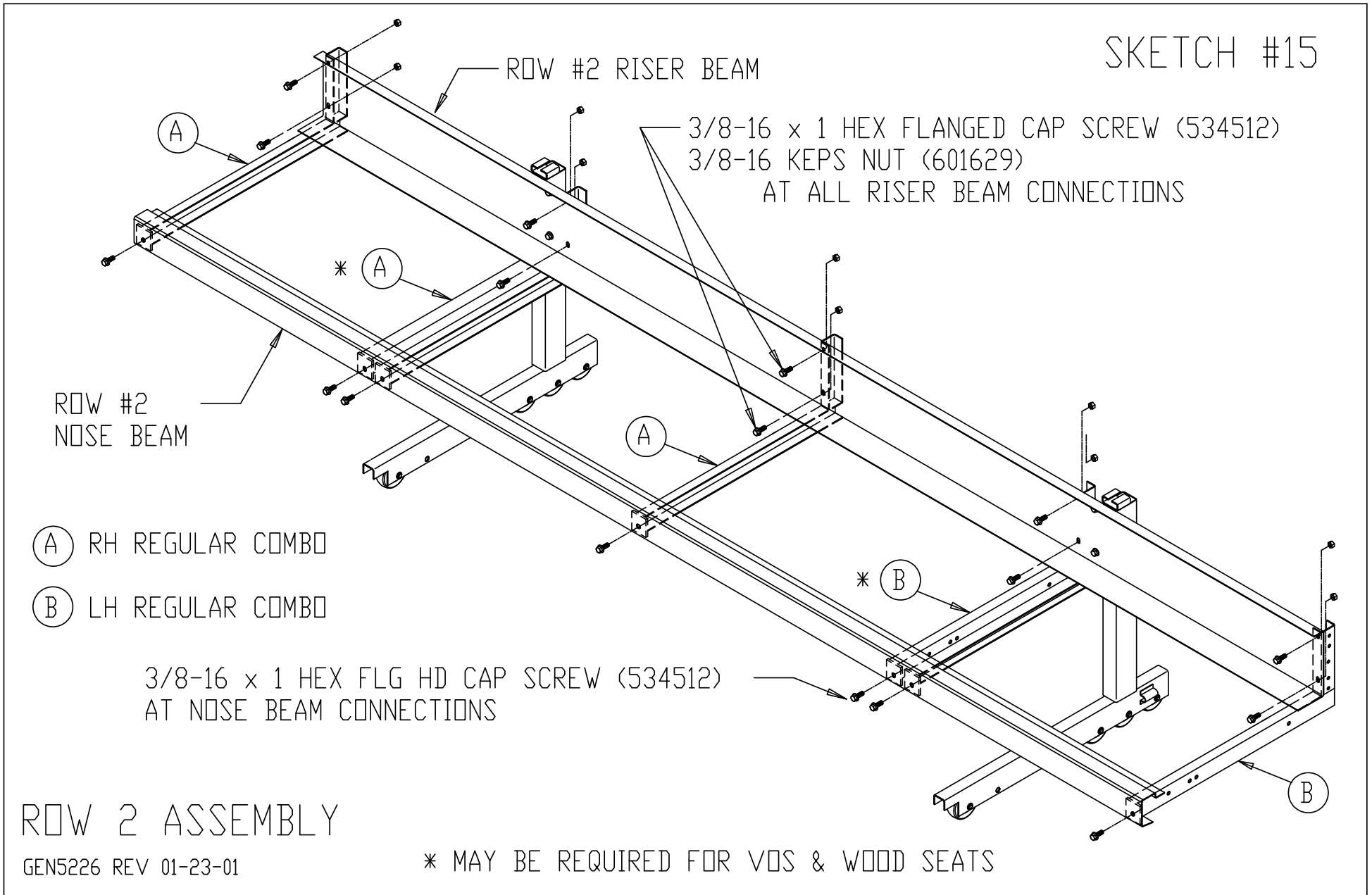


ROW 2 INSTALLATION

1. Attach the row #2 **riser beam** to the row #2 horses using 3/8-16 x 1 hex flanged cap screws and keps nuts, part numbers (534512) and (601629). Be sure that there are no gaps between the riser beam and the horse deck supports.
2. Attach **combo brackets** required by the layout plan to the riser beam. See Sketch #15. Use 3/8-16 x 1 hex flanged cap screws (534512) & keps nuts (601629). Be sure there are no gaps between the riser beam & the horizontal legs of the combos.
3. If "P" Rails are required see Section 39.
4. Attach the Row #2 **nose beam** to the Row #2 horse deck supports using 3/8-16 x 1 hex flanged cap screws (534512). Fasten this nose beam to Row #2 combos using 3/8-16 x 1 hex cap screws (534512).
5. Apply white lithium **grease** to the inside, outside, and bottom of the row #2 deck supports.
6. Install **deck boards** per previous instructions.

SKETCH #15

SKETCH #15



ROW 3 INSTALLATION

STARTING ROW 3:

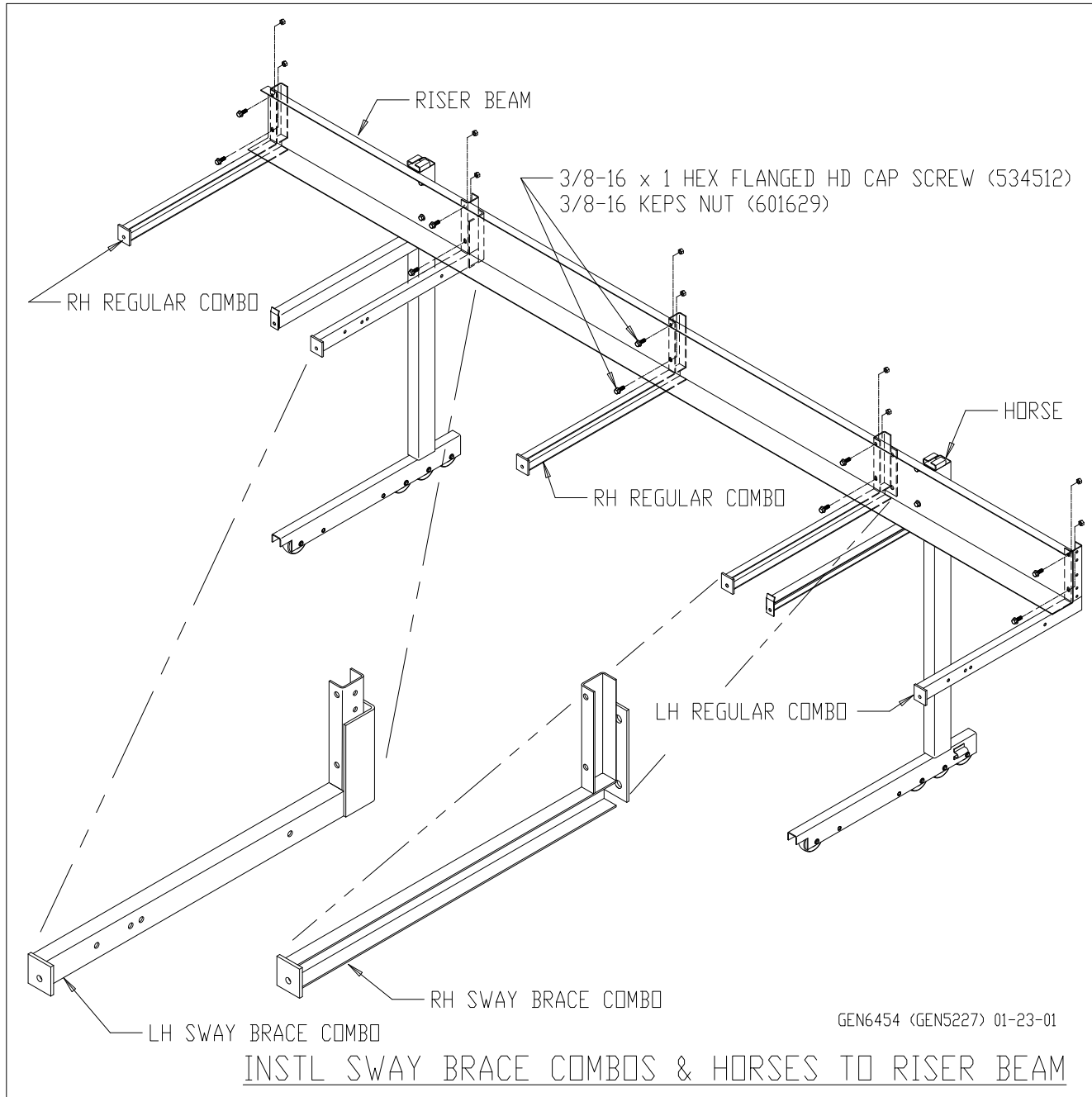
- A. If Self-Storing or Removable End Rails are being installed see Accessory Section.
- B. Normally sway braces begin on row #3. The following instructions apply to rows with sway braces:
 - 1. Install **riser beams** on horses as before.
 - 2. Install **combos** on riser beams as before. The two combos located directly inside the horses or directly over row 1 horse, will be sway brace combos. See Sketch #16.
 - 3. Install **nose beams** per previous instructions.
 - 4. Install **sway braces** per Sketch #17, & 17A. Plumb horses and tighten sway brace fasteners.

***** WARNING *****

This adjustment is very important! Failure to properly follow this procedure can cause binding during operation causing operation malfunctions, row lock failure, & could ultimately result an entire system failure causing injury.

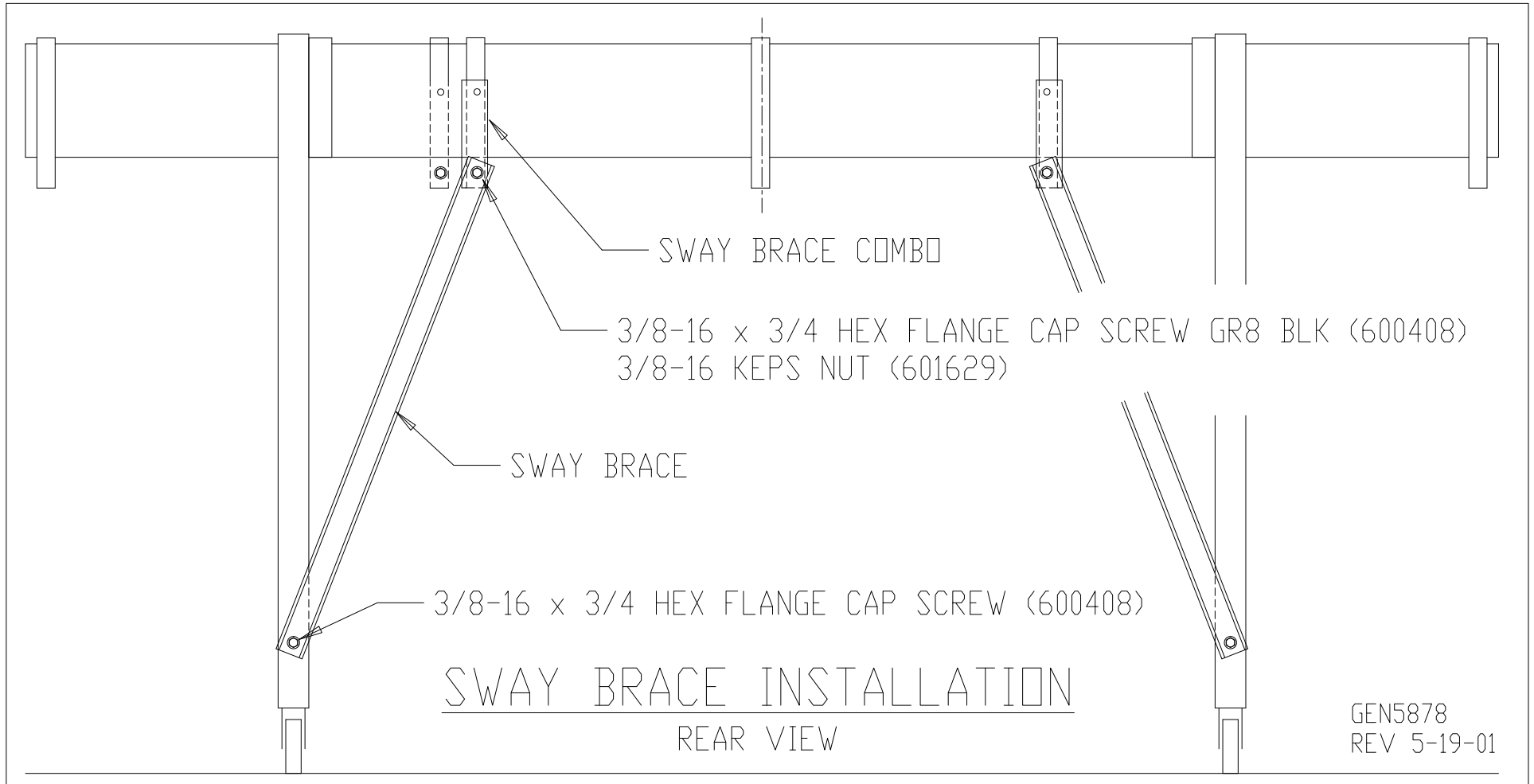
- 5. **Grease** deck supports & Install **deck boards** per previous instructions.

SKETCH #16

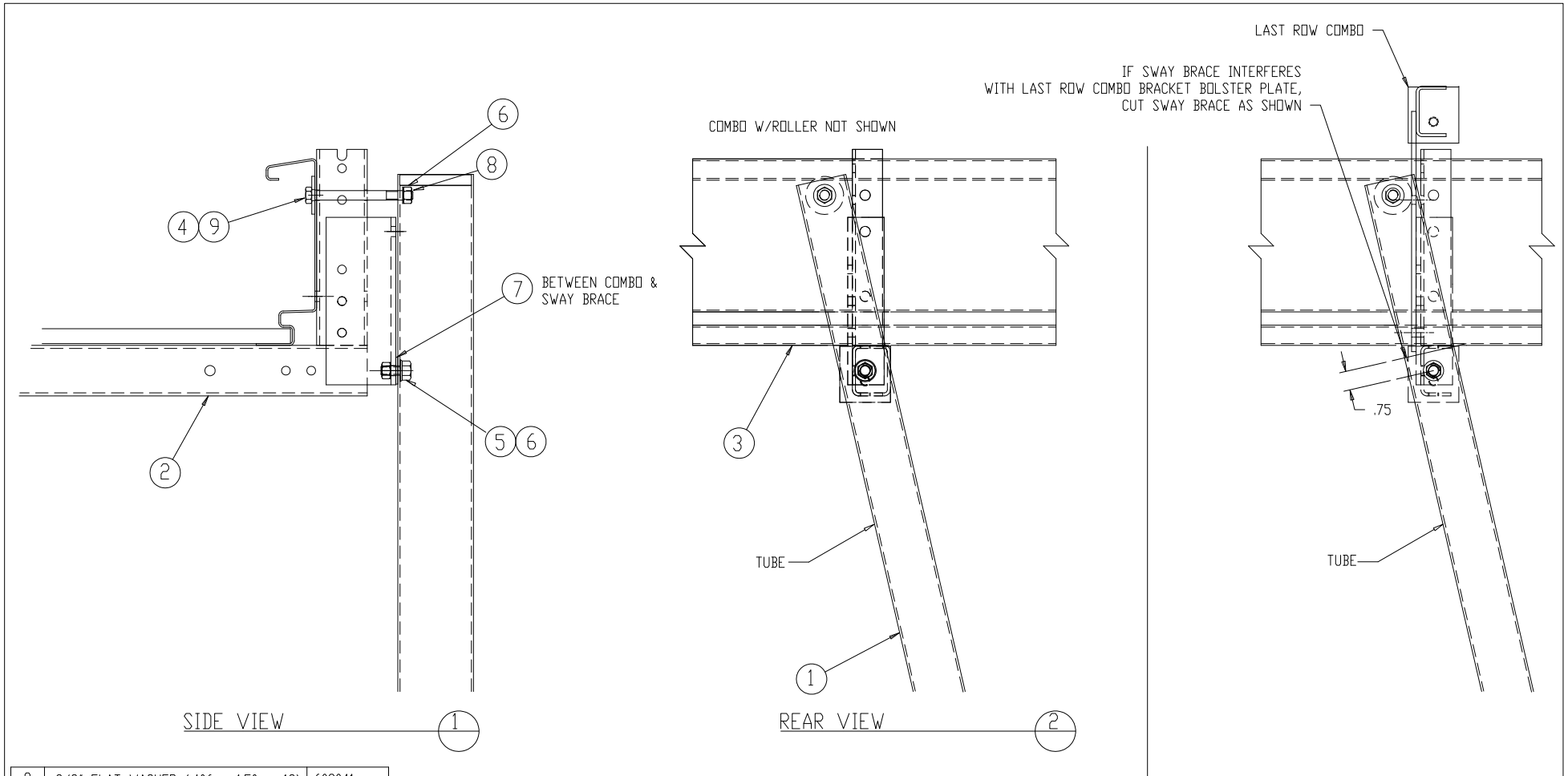


SAWAY BRACES

SKETCH #17



SKETCH #17A



9	3/8" FLAT WASHER (.406 x 1.50 x .13)	602041
8	3/8-16 x 4 HEX HD CAPSCREW	600105
7	3/8" FLAT WASHER	602153
6	3/8-16 KEPS LOCK NUT	601629
5	3/8-16 x 3/4 HEX FLG CAPSCREW GR8	600408
4	13/32" DIA. HOLE, FIELD DRILL	NA
3	RISER BEAM	VARIES
2	SWAY COMBO 22-26 SPAN	182238/239
1	SWAY BRACE	VARIES
ITEM	DESCRIPTION	PART NO.

△	REVISED SWAYS TO TUBES	KA	.	.	4/13/12
△	TITLE DID READ "BEGIN W/HORSE 16 ON 10.25R"	DMc	.	.	3-23-05
△	ADDED INSTRUCT TO CUT BRACE WITH INTERFER	DMc	.	.	4-25-03
REV.		DRWN.	CHKD.	APVD.	DATE

SWAY BRACE EXTENSION (2x3 POSTS)
BEGINNING W/ HORSE 15
ON 10.25 & 11.5 R



INTERKAL

5981 EAST CORK STREET
KALAMAZOO, MICHIGAN 49003

GEN6463

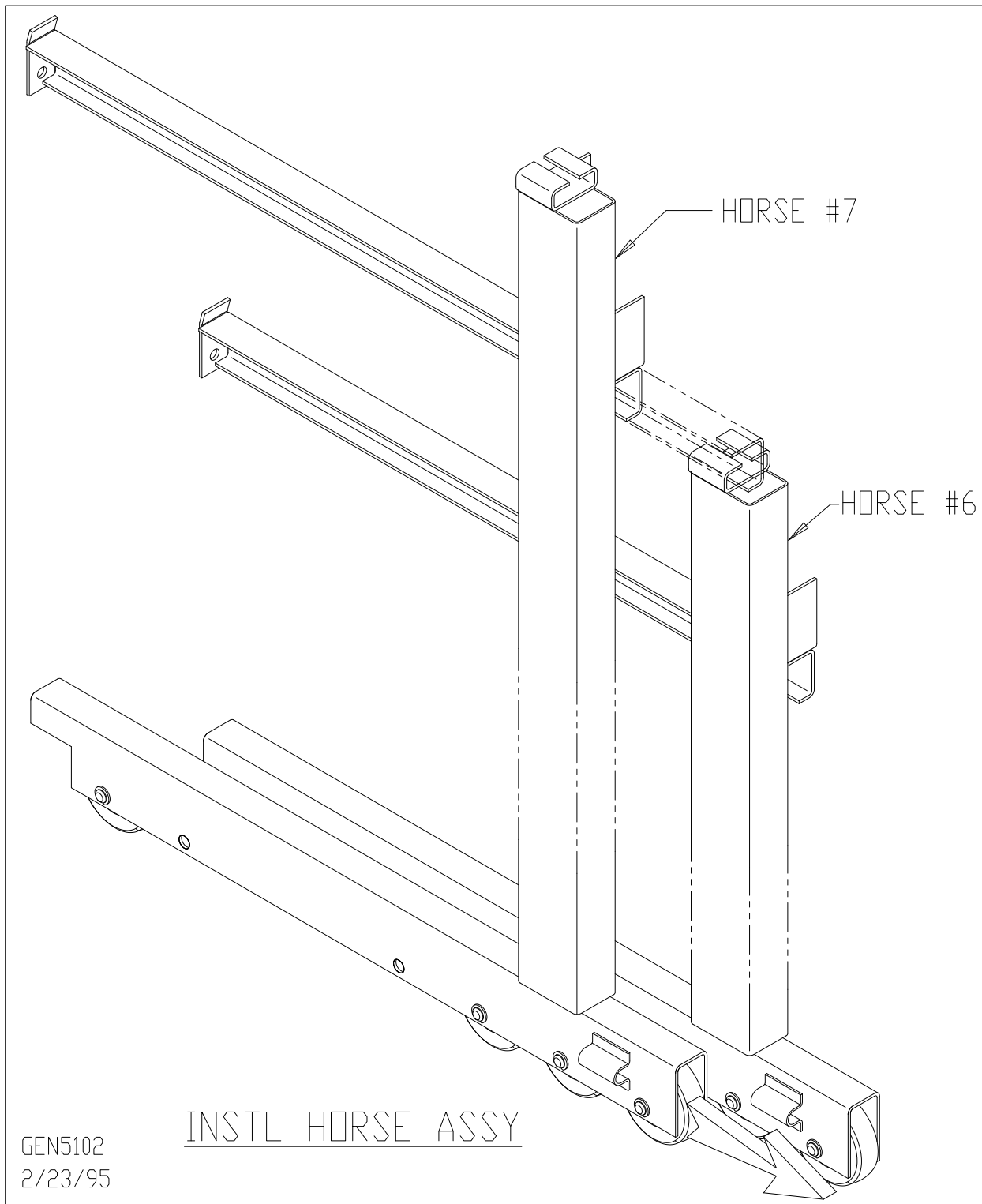
DRWN FLS	01-25-01
CHKD	
APVD	
SCALE	1/4" = 1"
SHEET	OF
DRGND.	B-

ROW 7 ASSEMBLY

SKETCH #18

ROW 7 HORSES:

Before installing the row #6 riser beam, assemble horse #7 to horse #6. Slide the deck support channel of horse #7 rearward through the guide on the top of horse #6. See Sketch #18. This procedure must be followed for all horses after horse #6.

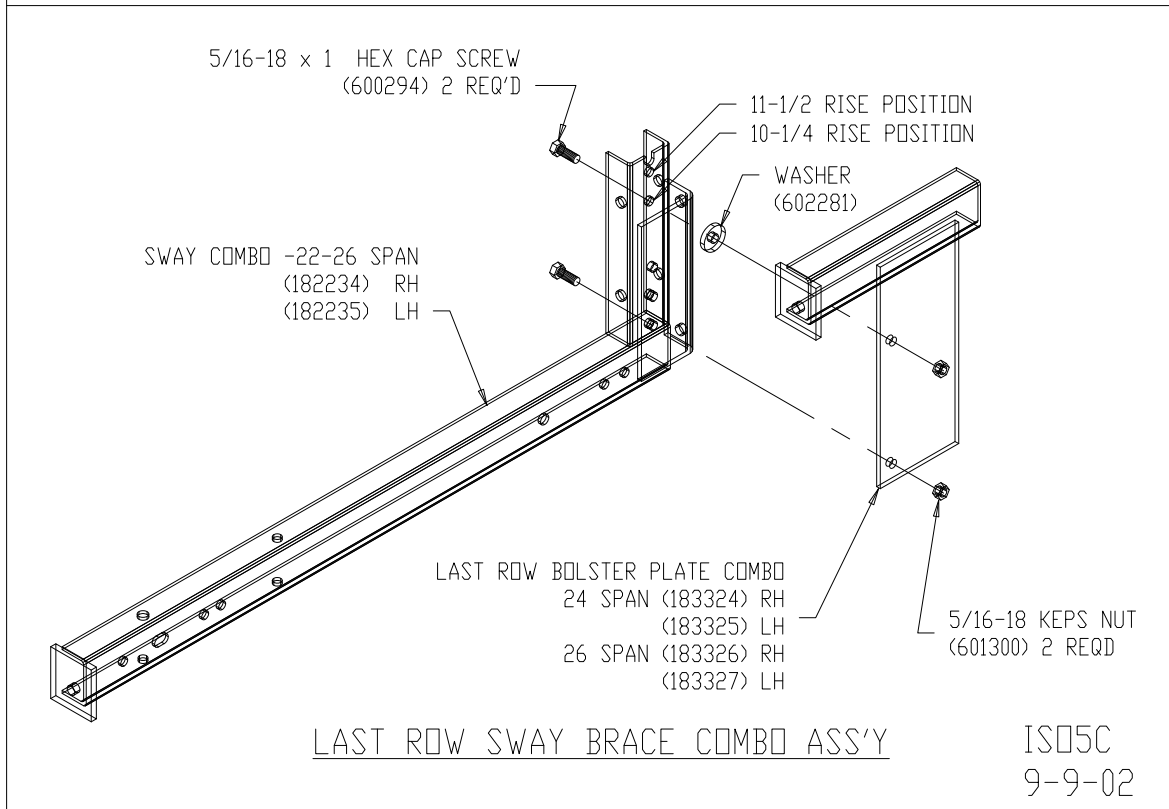
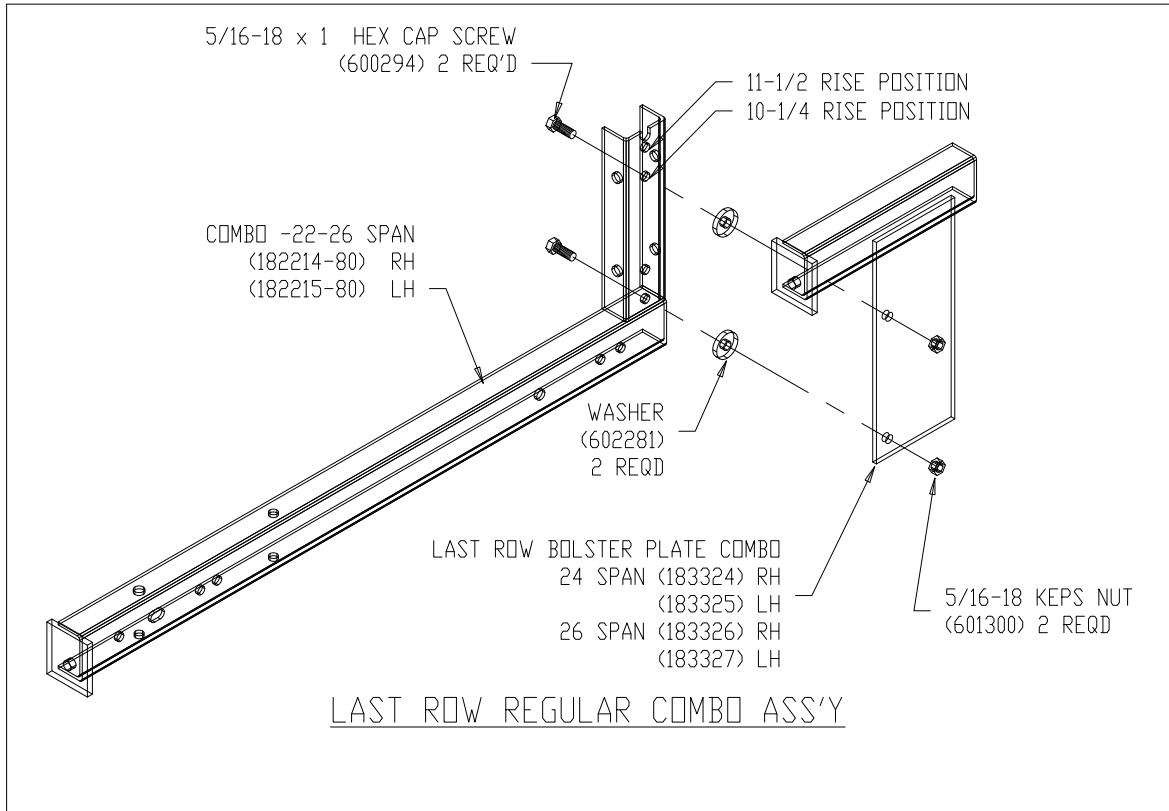


LAST ROW PROCEDURE

SKETCH #19

LAST ROW ASSEMBLY:

See Sketch #19 for Last Row Combo Bracket Assembly.



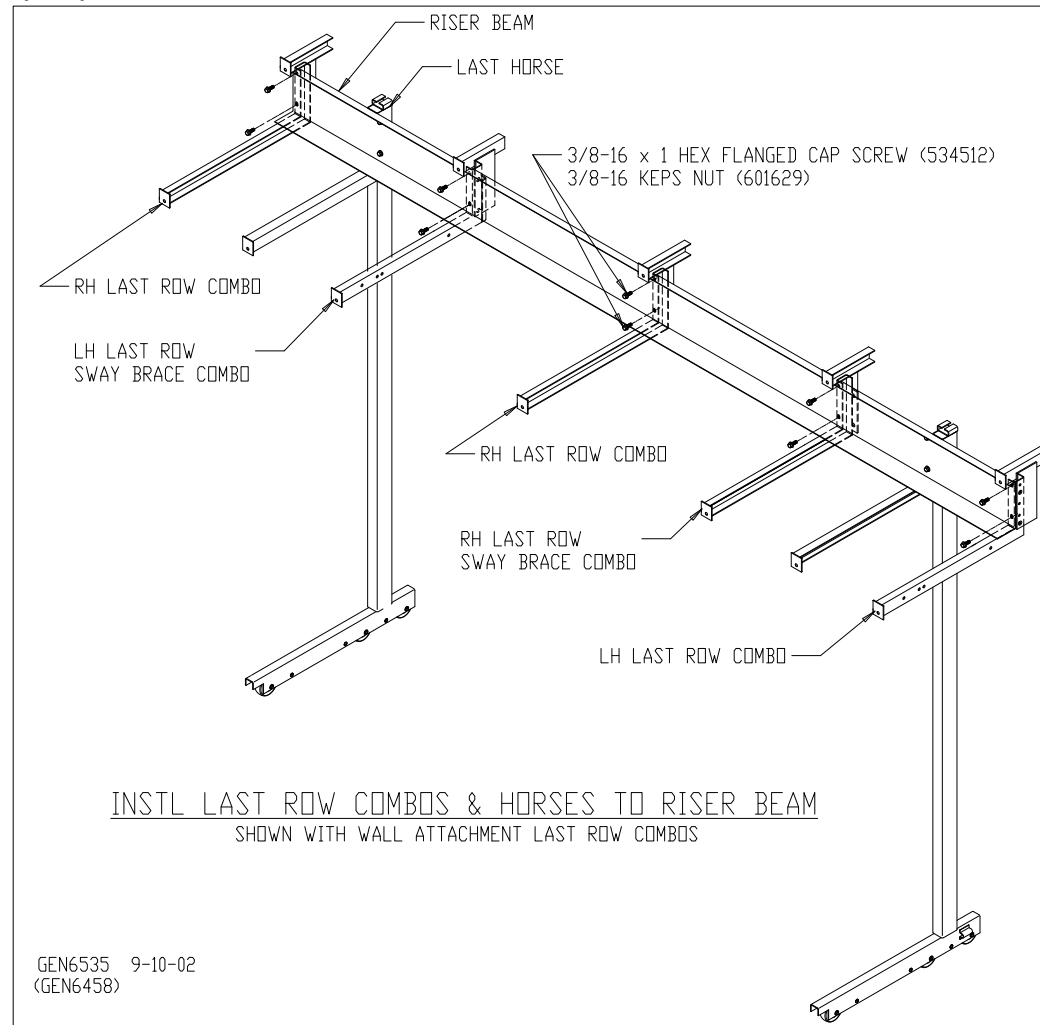
IS05C
9-9-02

SKETCH #20

PROCEDURE FOR LAST ROW WALL ATTACHED UNITS

LAST ROW WALL ATTACHED PROCEDURE:

1. Attach the last row **riser beam** to last row horses per previous instructions.
2. Attach the last row **combos** to the last row riser beam per previous instructions. See Sketch #20.
3. Install the last row **nose beam** per previous instructions.
4. **Grease** horse deck supports per previous instructions.
5. Install **deck boards** per previous instructions.



WALL ATTACHMENTS

UPPER WALL ATTACHMENT ASSEMBLY:

Attach **L-Bolt (183343)** to the last horse deck support and loosely tighten 1/2-13 hex lock nut (601692) Loosely assemble to **Upper Wall Attachment Ass'y** with 1/2-13 Whiz lock nuts (601050). See Sketch #21 & 21A.

Push seating units back to the wall. On the wall, mark the elevation that the top edge of the wall stringer for the filler board support should be set. This line will be level with the top of the last row combo.

Position wall bucks on the layout lines established previously. Note tolerances on placement of anchors shown in Sketches #24, 25, 27, & 28. Mark locations of holes for wall attachment hardware on wall bucks.

Move seating units away from wall. Attach the continuous stringer with the hardware specified on the side elevation. See Sketches #22, 22A, & 23.

Drill holes in the wall bucks and wall. Secure wall bucks with hardware specified on the layout drawing. Adjust each wall tie as necessary to insure a proper fit.

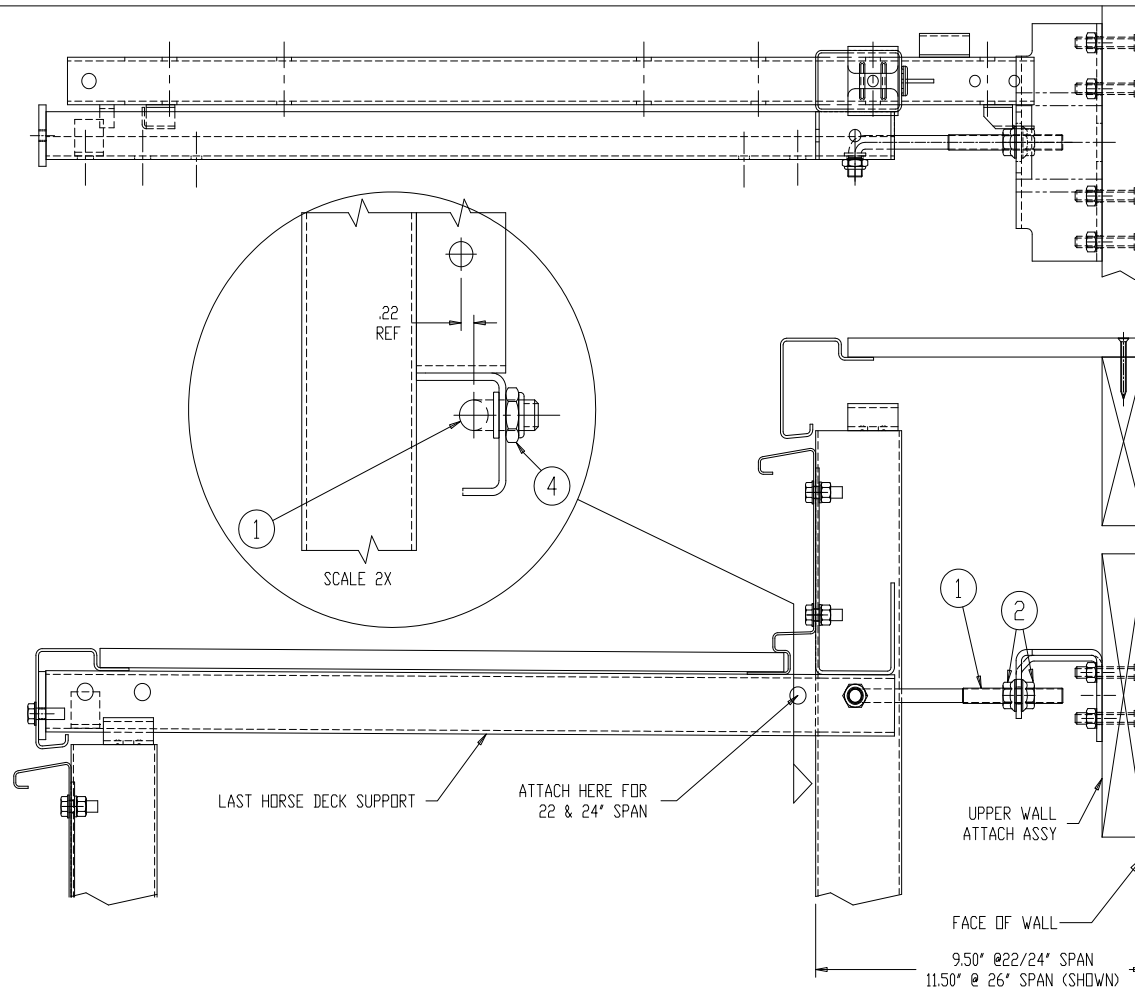
Adjust the wall ties so that the seat is the distance from the wall specified on the layout drawing. (Do not permanently install seats now.) Tighten the 1/2-13 Whiz lock nuts. Plumb the rear horse posts. Install the lower wall ties **or floor anchors**, whichever is specified on the installation drawings. See Sketches #26 through 29.

If a lower wall tie is used without a floor attachment, an angle (133876) may be specified to hold the wheel channel of the last row horse in alignment. Square the wheel channel. Place the angle touching the outside of the wheel channel to the rear of the front wheel pin. Fasten the angle to the floor with hardware specified on the layout drawing. See Sketch #26.

***** WARNING *****

To ensure proper operation & safety it is extremely important that each unit is securely attached to the wall at ALL upper & lower designated locations. Use specified & approved hardware, dimensions, materials, documents & procedures. If for ANY reason the installation is suspected not to be structurally or functionally sound, contact the Service Department and Dealer/Agent AT ONCE!

SKETCH #21



(REF. D11 CALIFORNIA DRAWING)

GEN6517(B) (D11)

DRAWING LOCATION - P:\GEN\GEN6000S\GEN6517A.DWG - PRINTED BY KAARENS DN 10-09-12 - 4:45pm

4	1/2-13 HEX ELASTIC LOCK NUT-THIN	601692
3		
2	1/2-13 WHIZ LOCK NUT	601050
1	L BOLT - 1/2-13 THD	183343
	DESCRIPTION	PART NO.

△	L BOLT 183343 WAS 183318. DEL FW 602163. EC35826	DMc			6-11-03
REV.		DRWN.	CHKD.	APVD.	DATE

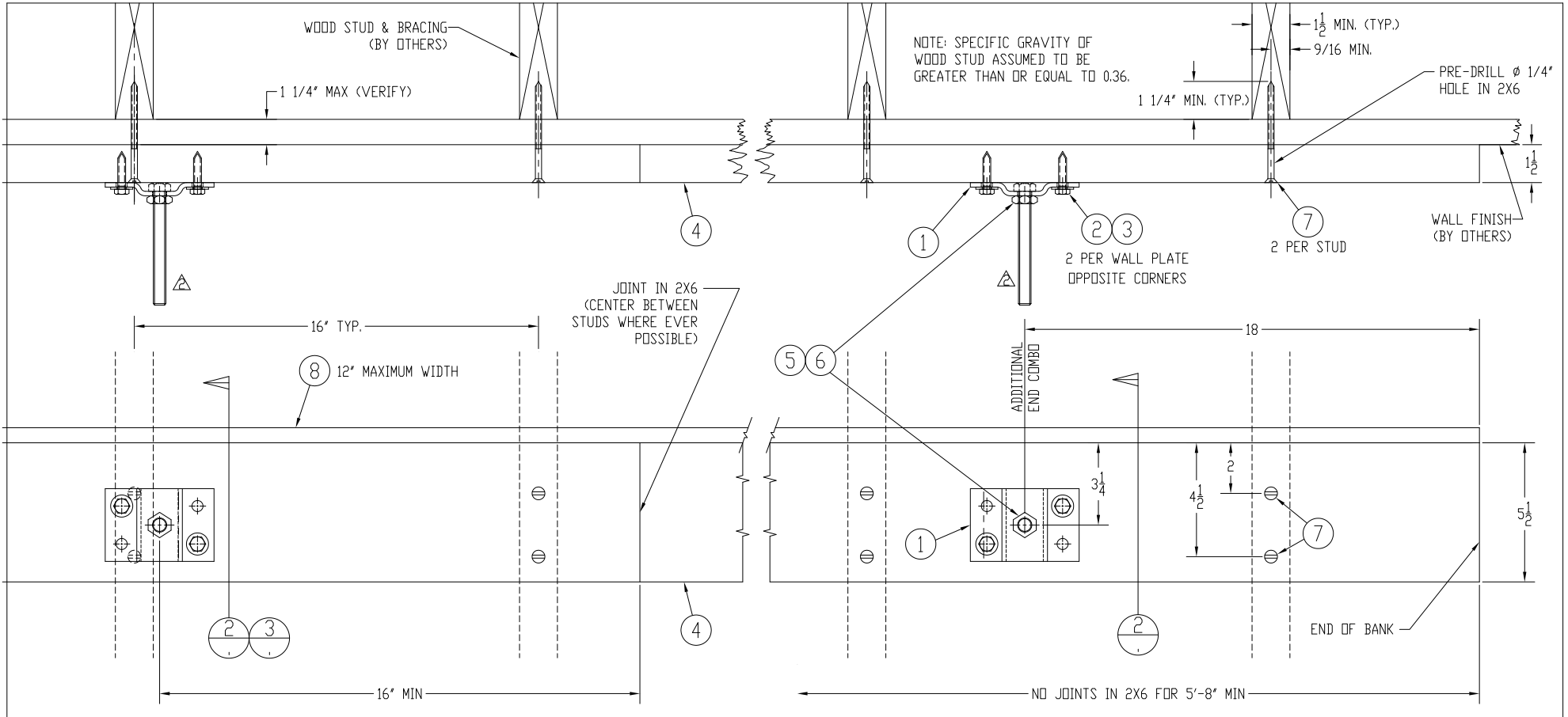
UPPER WALL ATTACHMENT DETAILS
(FOR BLEACHERS OF 3-20 ROWS)

5981 EAST CDRK STREET - KALAMAZOD, MICHIGAN 49048

DRWN	D. McCOY	7-24-02
CHKD		
APVD		
SCALE	1/4" = 1'	
SHEET	1 OF 1	
DRGNO.	B-GEN6517	

SKETCH #21A

STUD WALL ATTACHMENT



TYPICAL UPPER WALL BUCK

- 1) MINIMUM LENGTH OF A SECTION OF 2X6 IS 5'-8".
- 2) NO SCREWS ALLOWED WITHIN 1 1/2" OF END OF 2X6.
- 3) FOR USE UP TO 20 ROWS ONLY.

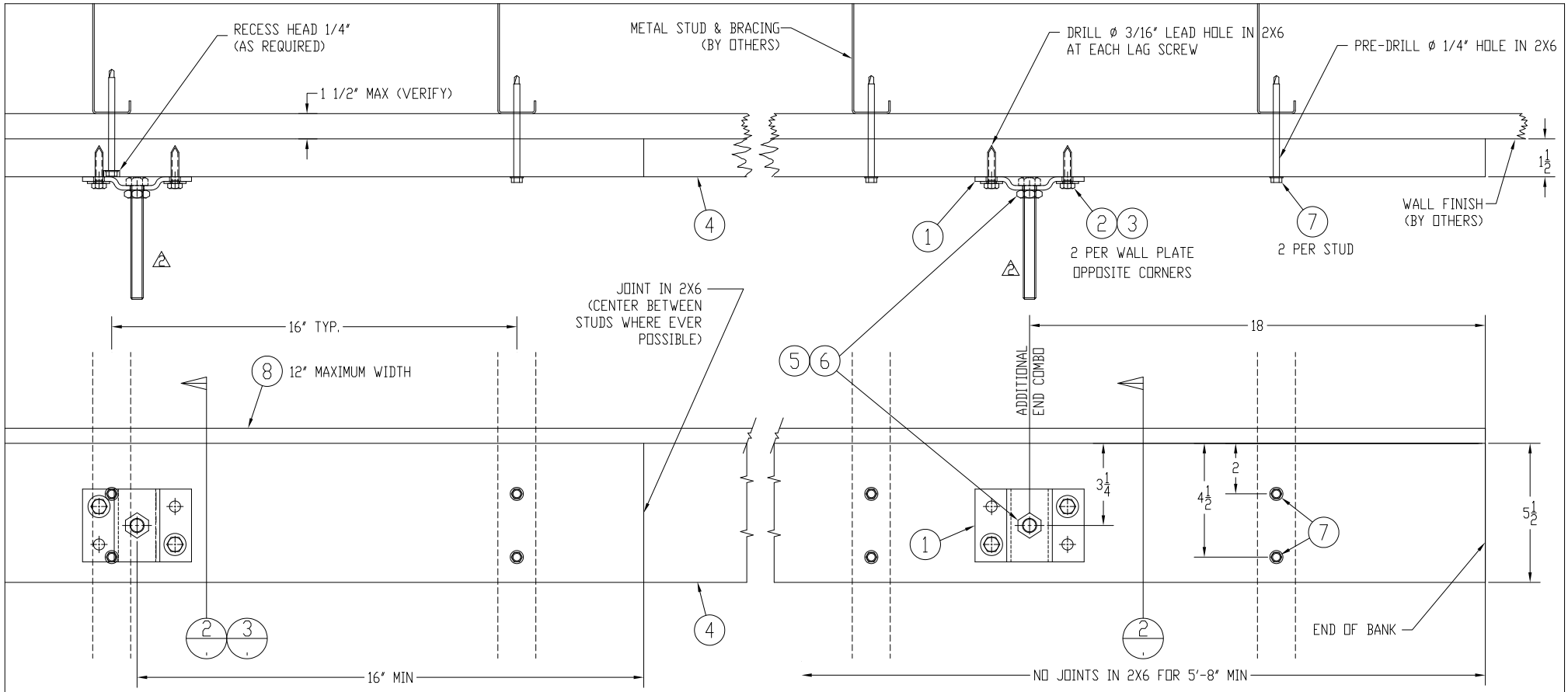
ITEM	DESCRIPTION	PART NO.
8	19/32" PLYWOOD CLOSURE BOARD	VARIES
7	#14 X 4" WOOD SCREW	610086
6	1/2-13 HEX JAM NUT	601081
5	1/2-13 X 4 1/2" HEX HD CAP SCREW	600415
4	#2 OR BETTER S-P-F 2x6 BY CONT.	519823
3	5/16 FLAT WASHER	602259
2	5/16 x 1 1/2" LAG SCREW	600834
1	WALL PLATE	183312

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
	REMOVE GEOM. FOR ITEM #10 SHT 3 OF 3 ECR36040	TSC			2/19/07
	NEW FID FOR STUD WALL ATTACHMENT ECR36028	DV			8/1/06

UPPER WALL ATTACHMENT AT CONTINUOUS 2 X 6 ON WOOD STUD WALL		DRWN DV	08-01-06
		CHKD	
		APVD	
		SCALE	1/4" = 1"
		SHEET	1 OF 3
		DRGNO	B-GEN6636

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5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

SKETCH #21B



TYPICAL UPPER WALL BUCK

- 1) MINIMUM LENGTH OF A SECTION OF 2X6 IS 5'-8".
- 2) INSTALL ITEM 7 USING 2,500 RPM SCREW GUN.
- 3) NO SCREWS ALLOWED WITHIN 1 1/2" OF END OF 2X6.
- 4) USE LIMITS: 20GA STUDS --- 11 ROWS
18GA STUDS --- 16 ROWS
16GA STUDS --- 20 ROWS

ITEM	DESCRIPTION	PART NO.
8	19/32" PLYWOOD CLOSURE BOARD	VARIES
7	1/4-14 X 4 HEX WASHER HD SELF-DRL	614219
6	1/2-13 HEX JAM NUT	601081
5	1/2-13 X 4 1/2" HEX HD CAP SCREW	600415
4	#2 OR BETTER S-P-F 2x6 BY CONT.	519823
3	5/16 FLAT WASHER	602259
2	5/16 x 1 1/2" LAG SCREW	600834
1	WALL PLATE	183312

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
△	REMOVE GEOM. FOR ITEM #10 SHT 3 OF 3 ECR36040	TSC			2/19/07
△	NEW FID FOR STUD WALL ATTACHMENT ECR36028	DV			8/1/06

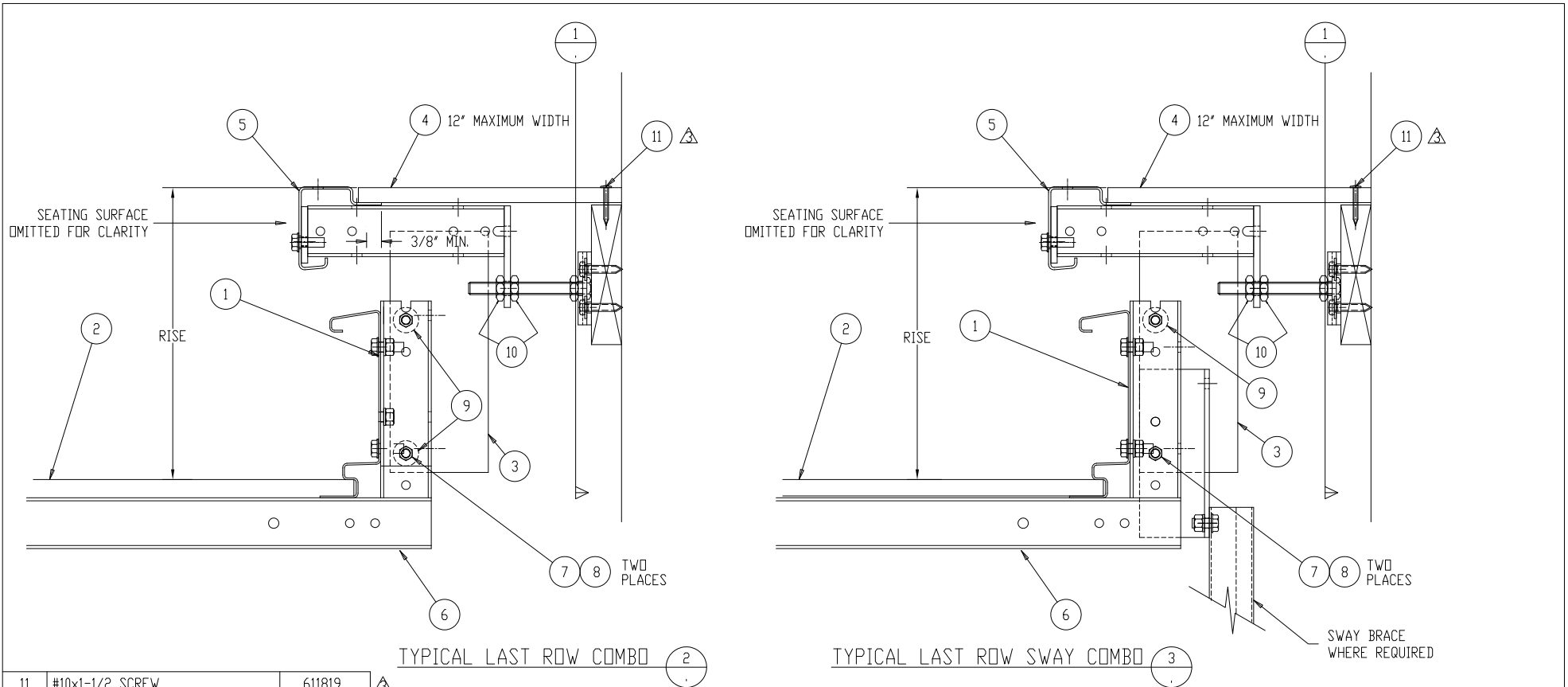
UPPER WALL ATTACHMENT
AT CONTINUOUS 2 X 6
ON METAL STUD WALL



5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

DRWN	DVICTOR	08-01-06
CHKD		
APVD		
SCALE	1/4" = 1"	
SHEET	2 OF 3	
DRGND.	B-GEN6636	

SKETCH #21C



11	#10x1-1/2 SCREW	611819	△
10	1/2-13 SERRATED FLANGE NUT ZINC	601050	△
9	3/8 FLAT WASHER .344 ID x 1.000 OD x .187	602281	
8	5/16-18 KEPS NUT	601300	
7	5/16-18 x 1 HEX HD CAPSCREW GRADE 5	600294	
6	SWAY COMBO	182234/35	
	REGULAR COMBO	182214/15	
5	STEEL NOSE BEAM	VARIES	
4	19/32" PLYWOOD CLOSURE BOARD	VARIES	
3	LAST ROW BRACKET	SEE CHART	
2	19/32 PLYWOOD DECK BOARD	VARIES	
1	STEEL RISER BEAM	VARIES	
ITEM	DESCRIPTION	PART NO.	

ITEM NO. 3		
SPAN	VIEW	PART NO.
22-24	RH (SHOWN)	183344
	LH (SYMM)	183345
26	RH	183346
	LH	183347

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
△	CHANGED ITEM #11 WAS 604052 NAIL PER ECR36179	TSC			11/2/09
△	CHG ITEM #10 WAS 601081 JAM NUT ECR36040	TSC			2/19/07
△	NEW FID FOR STUD WALL ATTACHMENT ECR36028	DV			8/1/06

TYPICAL LAST ROW DETAIL
STUD WALL ATTACHMENT
10.25 & 11.50 RISE



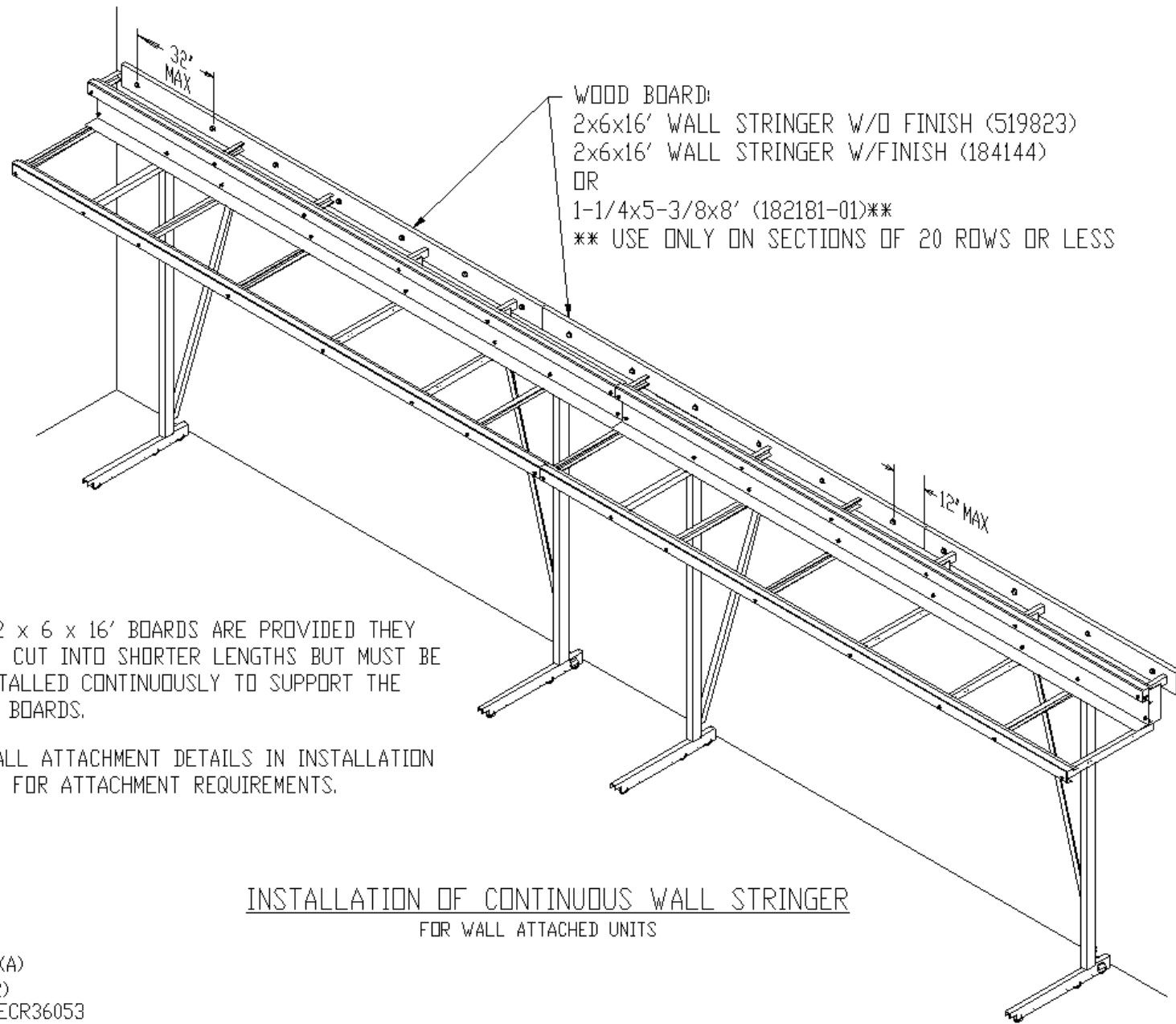
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

REF. GEN6517

DRWN	DVICTOR	08-01-06
CHKD		
APVD		
SCALE	1/4" = 1"	
SHEET	3	OF 3
DRG. NO.	B-GEN6636	

SKETCH #22

FILLER BOARD SUPPORT



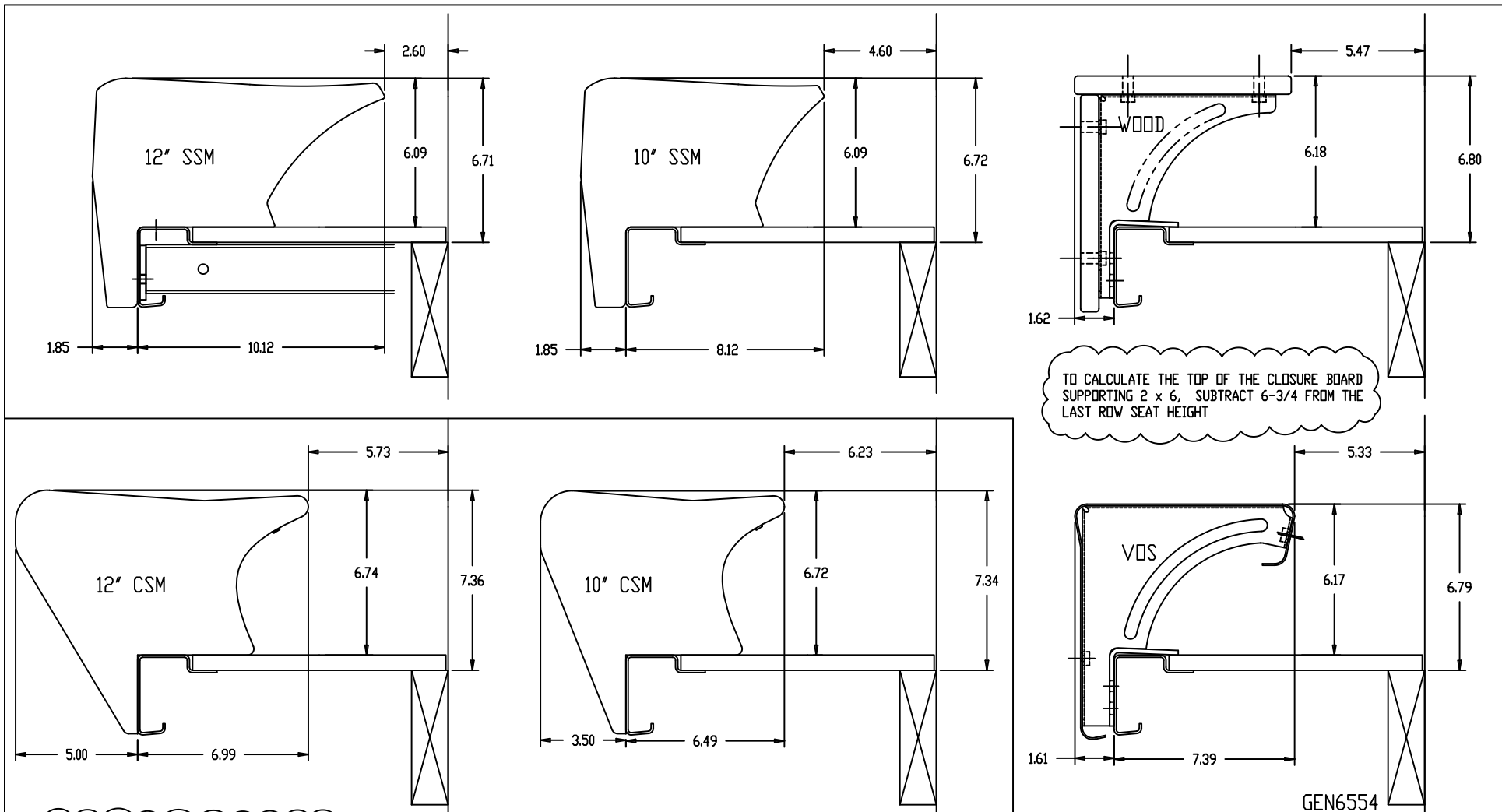
WHEN 2 x 6 x 16' BOARDS ARE PROVIDED THEY MAY BE CUT INTO SHORTER LENGTHS BUT MUST BE INSTALLED CONTINUOUSLY TO SUPPORT THE FILLER BOARDS.

SEE WALL ATTACHMENT DETAILS IN INSTALLATION MANUAL FOR ATTACHMENT REQUIREMENTS.

INSTALLATION OF CONTINUOUS WALL STRINGER
FOR WALL ATTACHED UNITS

GEN6534(A)
(GEN6132)
3/8/07 ECR36053

SKETCH #22A



TO CALCULATE THE TOP OF THE CLOSURE BOARD SUPPORTING 2 x 6, SUBTRACT 7-3/8 FROM THE LAST ROW SEAT HEIGHT

REV.	DRWN.	CHKD.	APVD.	DATE

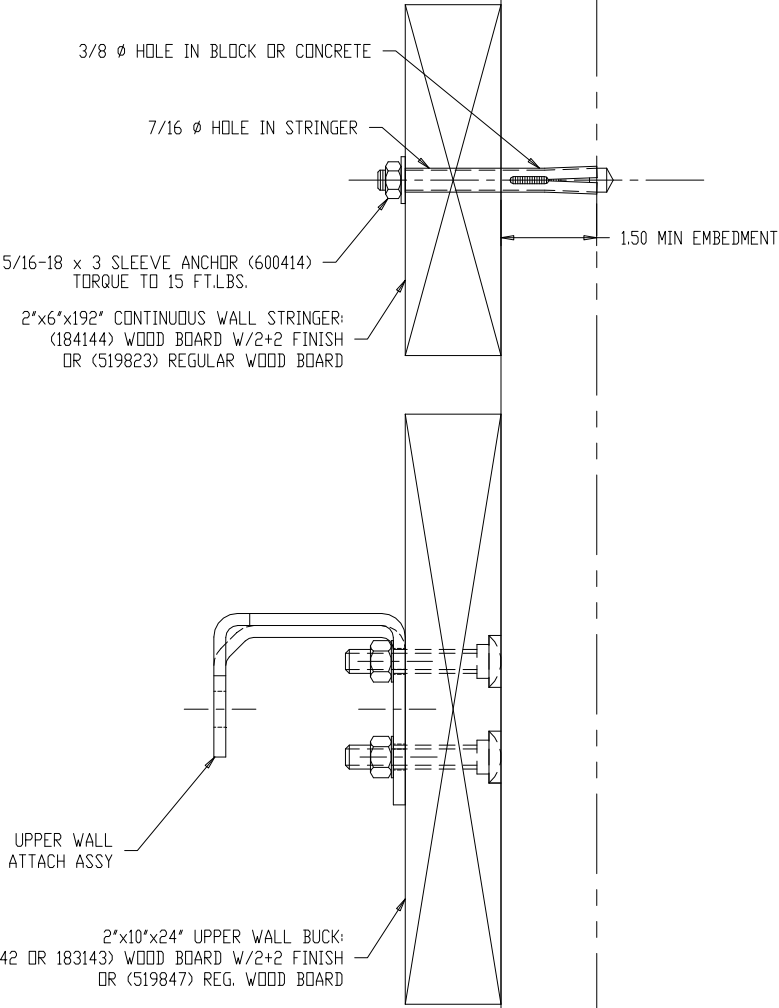
LAST ROW SEAT DIMENSIONS
CLOSURE BOARD SUPPORT LOCATION



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5981 EAST CORK STREET
KALAMAZOO, MICHIGAN 49048

DRWN D. MCCOY	4-28-03
CHKD	
APVD	
SCALE	1/4" = 1'
SHEET	OF
DRGNO. B-	

SKETCH #23



GEN6517(G)

△	UPDATED P/N'S FOR WALL STRINGERS PER ECR36053	TSC			2/28/07
REV.		DRWN.	CHKD.	APVD.	DATE

CLOSURE BOARD SUPPORT
WALL ATTACHMENT TO CONCRETE,
MASONRY OR BLOCK

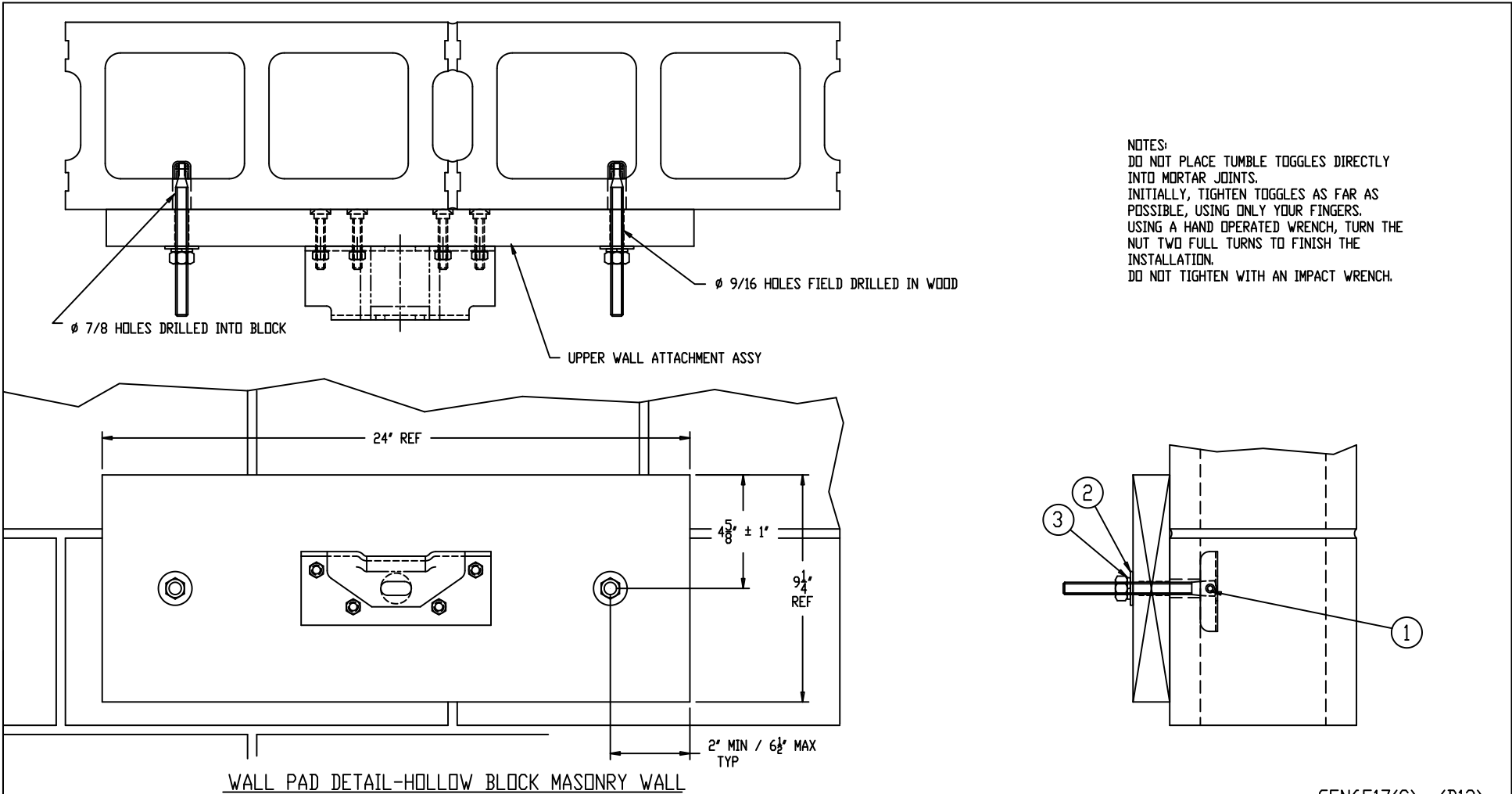


5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

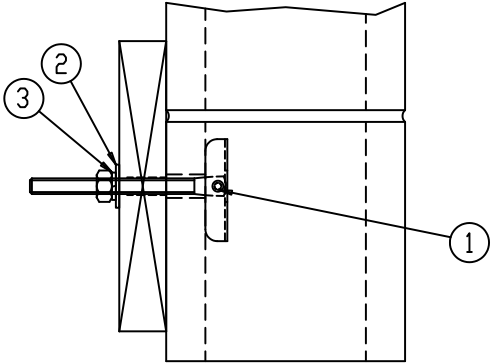
DRWN D. McCOY	9-10-02
CHKD	
APVD	
SCALE	1/2" = 1"
SHEET	1 OF 1
DRG. NO.	B-

SKETCH #24

UPPER WALL ANCHOR



NOTES:
 DO NOT PLACE TUMBLE TOGGLES DIRECTLY INTO MORTAR JOINTS.
 INITIALLY, TIGHTEN TOGGLES AS FAR AS POSSIBLE, USING ONLY YOUR FINGERS.
 USING A HAND OPERATED WRENCH, TURN THE NUT TWO FULL TURNS TO FINISH THE INSTALLATION.
 DO NOT TIGHTEN WITH AN IMPACT WRENCH.



GEN6517(C) (D13)

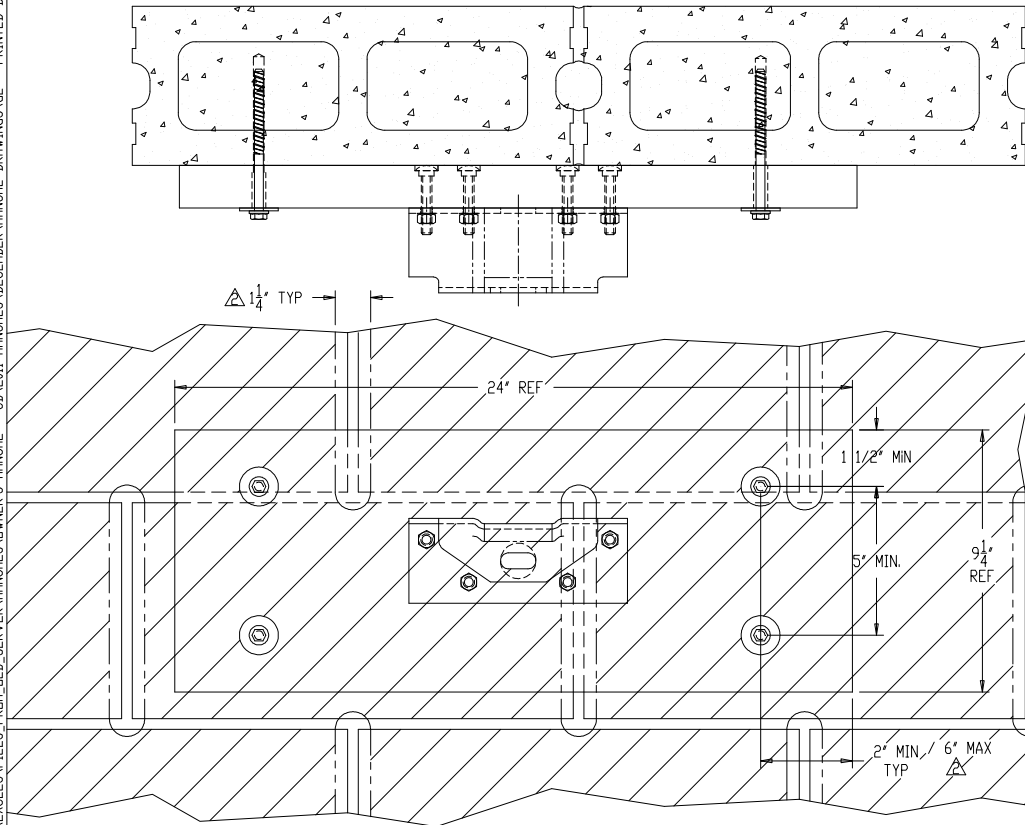
3		1/2" HELICAL SPRING LW	602004							UPPER WALL ATTACHMENT DETAILS HOLLOW BLOCK MASONRY WALL	DRWN D. McCOY	8-29-02
2		1/2" FLAT WASHER-WIDE	602155								CHKD	
1		1/2-13 x 6 TUMBLE TOGGLE w/NUT	600977								APVD	
		DESCRIPTION	PART NO.	REV.	CHANGED ANCHORING HARDWARE	ECO35962	DMc		5-25-05		SCALE	1/4" = 1"
					CHANGED ANCHORING HARDWARE		DMc		6-2-03		SHEET	OF
							DRWN	CHKD	APVD	DATE	DRGNO.	



INTERKAL
 5981 EAST CORK STREET
 KALAMAZOO, MICHIGAN 49048

DRAWING LOCATION - \\SERVER-2\ENGINEERS\FILES_FROM_OLD_SERVER\MANUALS\OWNER'S MANUAL - CIV\2011 MANUALS\DECEMBER\MANUAL DRAWINGS\GE - PRINTED BY KARENS ON 11-09-11 - 7:26am

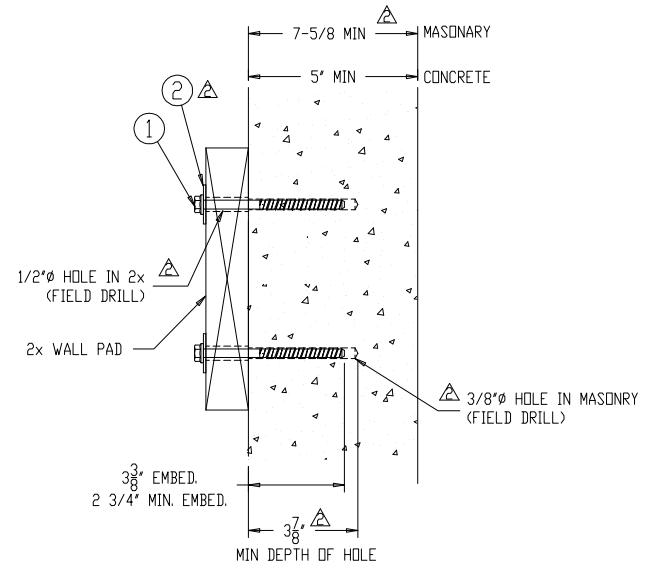
SKETCH #25



ALLOWABLE ANCHOR PLACEMENT
IN GROUT FILLED CMU SHOWN
BY SHADED AREAS

WALL ANCHORAGE-GROUT FILLED MASONRY OR CONCRETE

- 1) $\phi 3/8"$ HOLE IN MASONRY OR CONCRETE MUST BE DRILLED USING A BIT COMPLYING WITH ANSI B212.15 TOLERANCES.
- 2) ANCHORS SHALL BE INSTALLED PER MANUFACTURES INSTRUCTIONS
- 3) ESR-1056 (MASONRY) OR ESR-2713 (CONCRETE) APPLIES SPECIAL INSPECTION MAY BE REQUIRED.



GEN6517(K) (D11)

ITEM	DESCRIPTION	PART NO.
2	1/2" FLAT WASHER	602155
1	3/8 x 5 TITEN SCREW ANCHOR	614224

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
	ADDED CONCRETE DETAILS	KA			10/08/11
	ITEM 1 WAS 600416, ADD 602155, ECR (40029)	FLS			08-15-11
	CHANGED ANCHOR DESCRIPTION WAS 5/8 NO ECR	JW/TSC			01/15/08

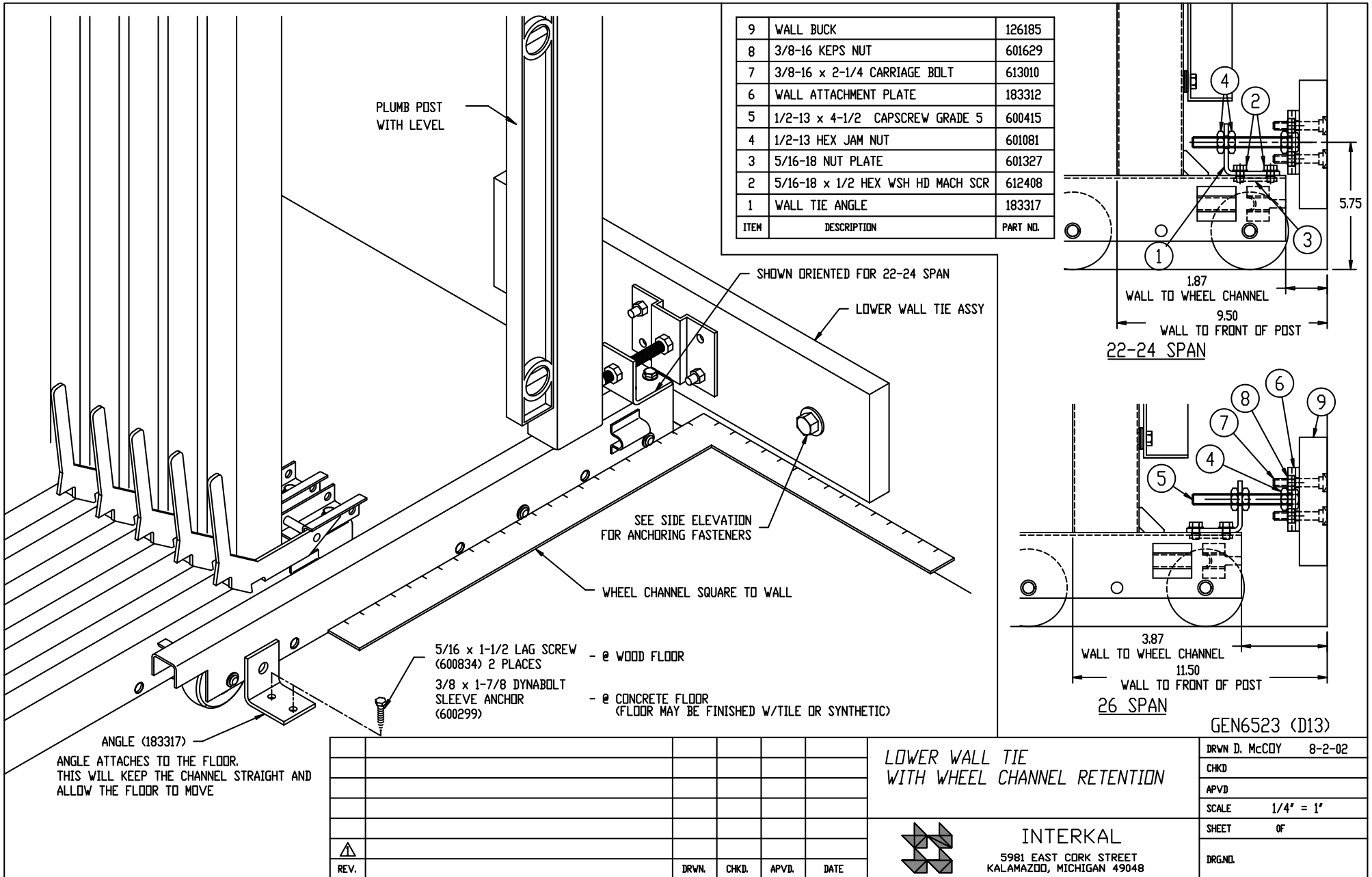
UPPER WALL ATTACHMENT DETAILS
CONCRETE OR GROUT FILLED
MASONRY WALL



5981 EAST CDRK STREET - KALAMAZOO, MICHIGAN 49048

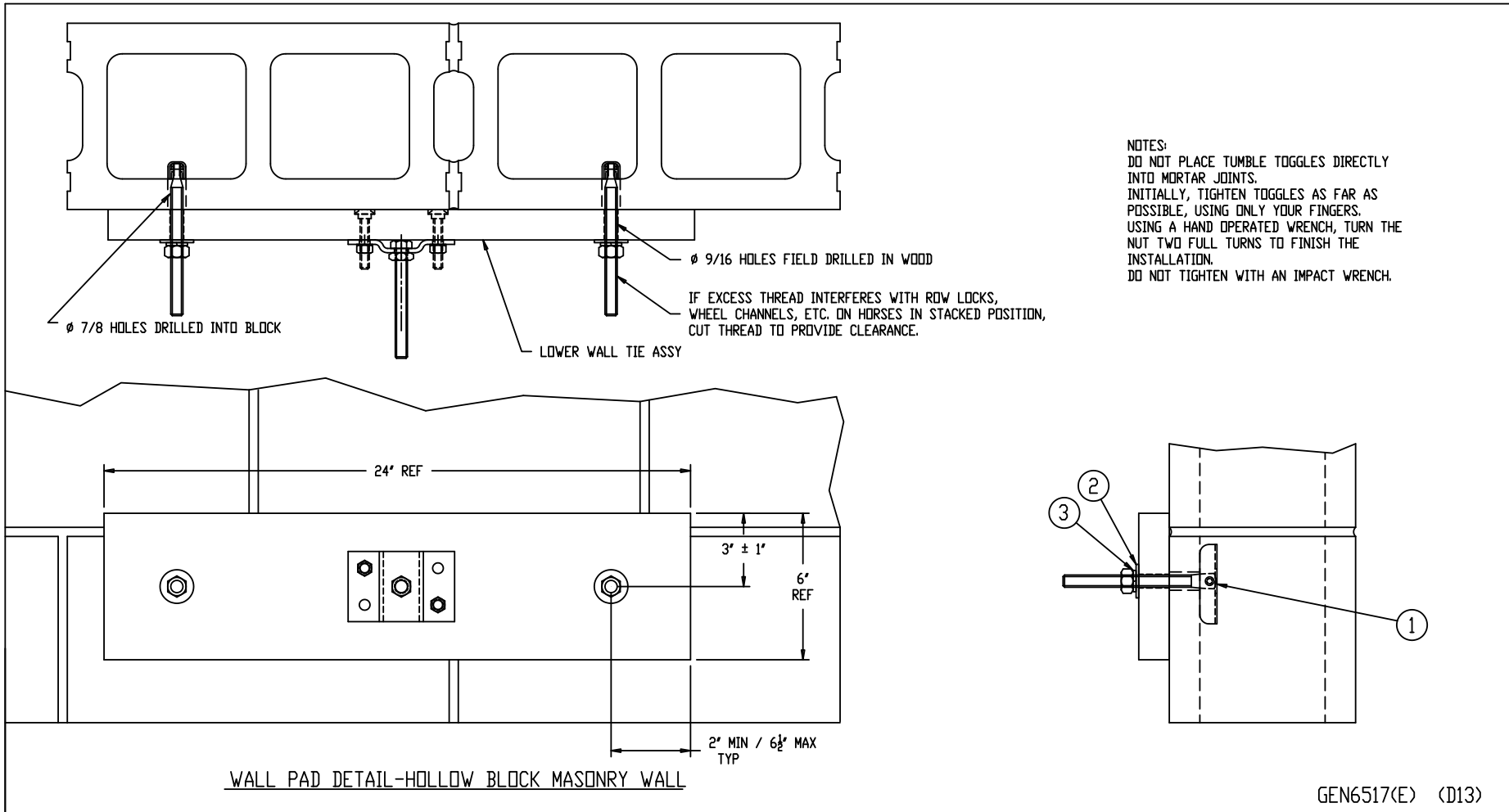
DRWN D. MCCOY	09-10-02
CHKD	
APVD	
SCALE	1/4" = 1"
SHEET	1 OF 1
DRGNO.	B-GEN6517

SKETCH #26



SKETCH #27


LOWER WALL ANCHOR & FLOOR ATTACHMENT DETAILS



REV.	DESCRIPTION	PART NO.
3	1/2" HELICAL SPRING LW	602004
2	1/2" FLAT WASHER-WIDE	602155
1	1/2-13 x 6 TUMBLE TOGGLE w/NUT	600977

REV.	DESCRIPTION	ECO	DMC	DATE
Δ	CHANGED ANCHORING HARDWARE	ECO35962	DMC	5-25-05
Δ	CHANGED ANCHORING HARDWARE		DMC	6-2-03

LOWER WALL ATTACHMENT DETAILS
HOLLOW BLOCK MASONRY WALL

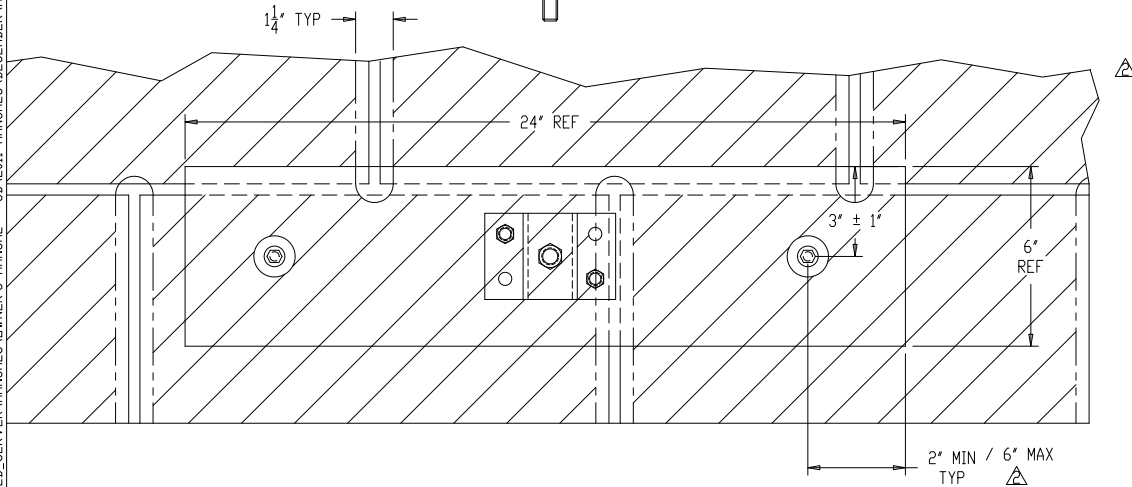
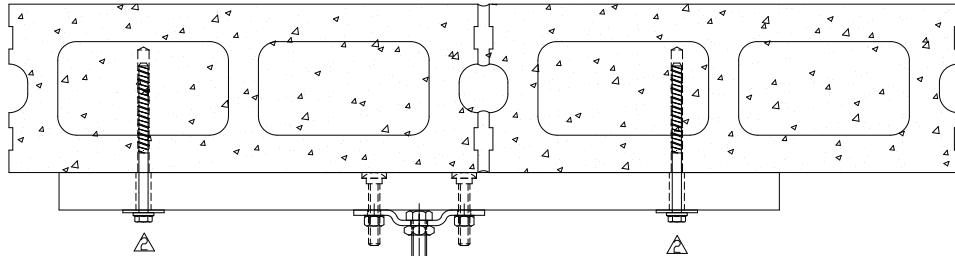


INTERKAL
5981 EAST CORK STREET
KALAMAZOO, MICHIGAN 49048

DRWN	D. MCCOY	6-2-03
CHKD		
APVD		
SCALE	1/4" = 1'	
SHEET	OF	
DRGNO.		

DRAWING LOCATION - P:\EXCEL5\FILES FROM OLD SERVER\MANUALS\OWNER'S MANUAL - CD\2011 MANUAL\11 DECEMBER\MANUAL DRAWINGS\GEN6517A.DWG - PRINTED BY KAHRENS ON 11-08-11 - 300ppm

SKETCH #28L

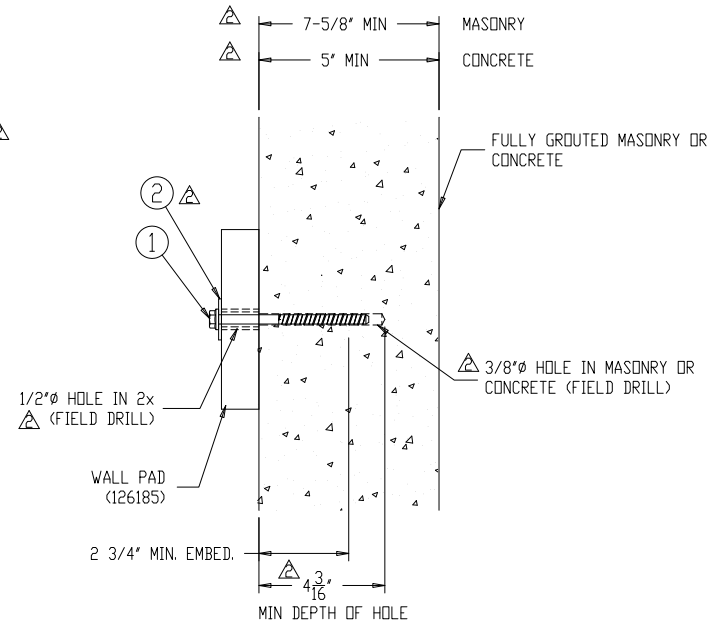


ALLOWABLE ANCHOR PLACEMENT
IN GROUT FILLED CMU SHOWN
BY SHADED AREAS

WALL PAD DETAIL-GROUT FILLED BLOCK MASONRY WALL

WALL ANCHORAGE-GROUT FILLED MASONRY OR CONCRETE

- 1) $\varnothing 3/8$ " HOLE IN MASONRY OR CONCRETE MUST BE DRILLED USING A BIT COMPLYING WITH ANSI B212.15 TOLERANCES.
- 2) ANCHORS SHALL BE INSTALLED PER MANUFACTURES INSTRUCTIONS
- 3) ESR-1056 (MASONRY) OR ESR-2713 (CONCRETE) APPLIES SPECIAL INSPECTION MAY BE REQUIRED.



LEN6517(L) (D13)

2	1/2" FLAT WAHSER	602155
1	3/8 x 5" TITEN SCREW ANCHOR	614224
ITEM	DESCRIPTION	PART NO.

△	ITEM 1 WAS 600416, ADD 602155, ECR (40029)	FLS		08-15-11	
△	CHANGED ANCHOR DESCRIPTION WAS 5/8 NO ECR	JW/TSC		1/15/08	
REV.		DRWN.	CHKD.	APVD.	DATE

LOWER WALL ATTACHMENT DETAILS
CONCRETE OR GROUT FILLED
MASONRY WALL

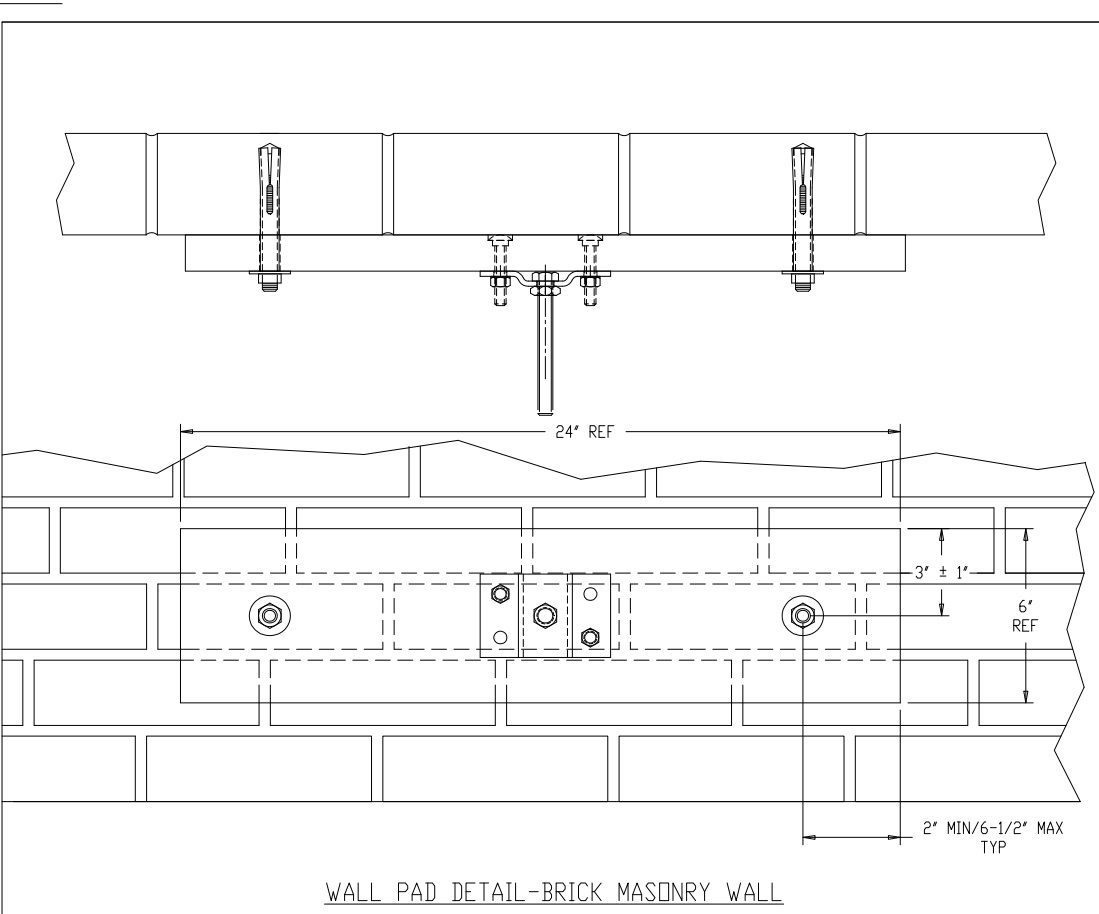


5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

DRWN D. MCCOY	9-10-02
CHKD	
APVD	
SCALE	1/4" = 1"
SHEET	1 OF 1
DRG NO.	B-GEN6517

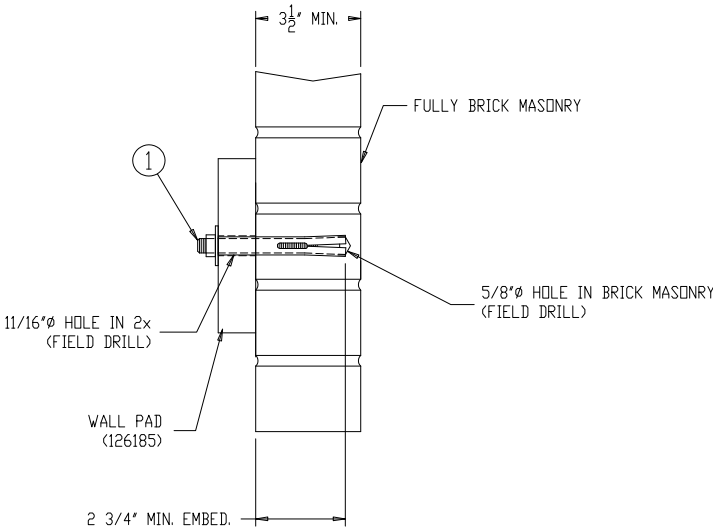
SKETCH #28 N

DRAWING LOCATION - P:\EXCELS FILES FROM OLD SERVER MANUALS\OWNER'S MANUAL - CD\2011 MANUALS\DECEMBER MANUAL DRAWINGS\GEN6517A.DWG - PRINTED BY KAHRENS ON 11-08-11 - 9:27am



WALL ANCHORAGE-BRICK MASONRY

- 1) $\phi 5/8"$ HOLE IN BRICK MASONRY MUST BE DRILLED USING A BIT COMPLYING WITH ANSI B212.15 TOLERANCES.
- 2) ANCHORS SHALL BE TIGHTENED TO A TORQUE OF 50 FT.LBS. USING A TORQUE WRENCH.



GEN6517(N) <D13>

1	5/8 x 4-1/4" SLEEVE ANCHOR	600416
ITEM	DESCRIPTION	PART NO.

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
	RELEASED UNDER ECR (40029)				

LOWER WALL ATTACHMENT DETAILS BRICK MASONRY WALL



5981 EAST CDK STREET - KALAMAZOO, MICHIGAN 49048

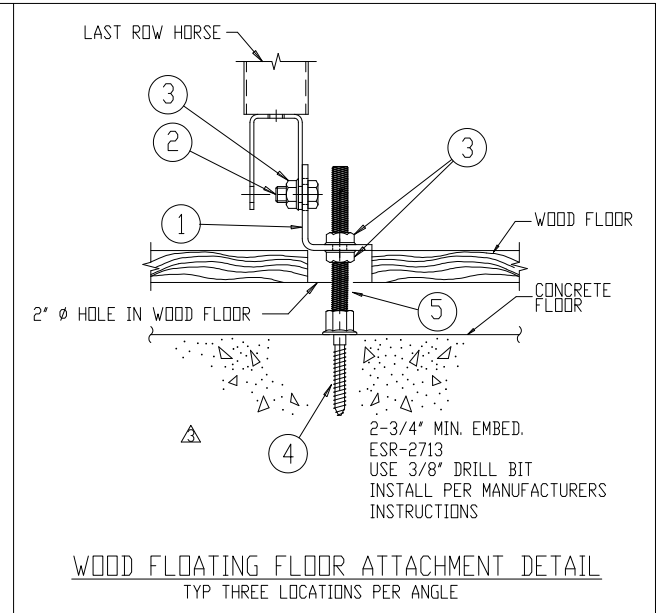
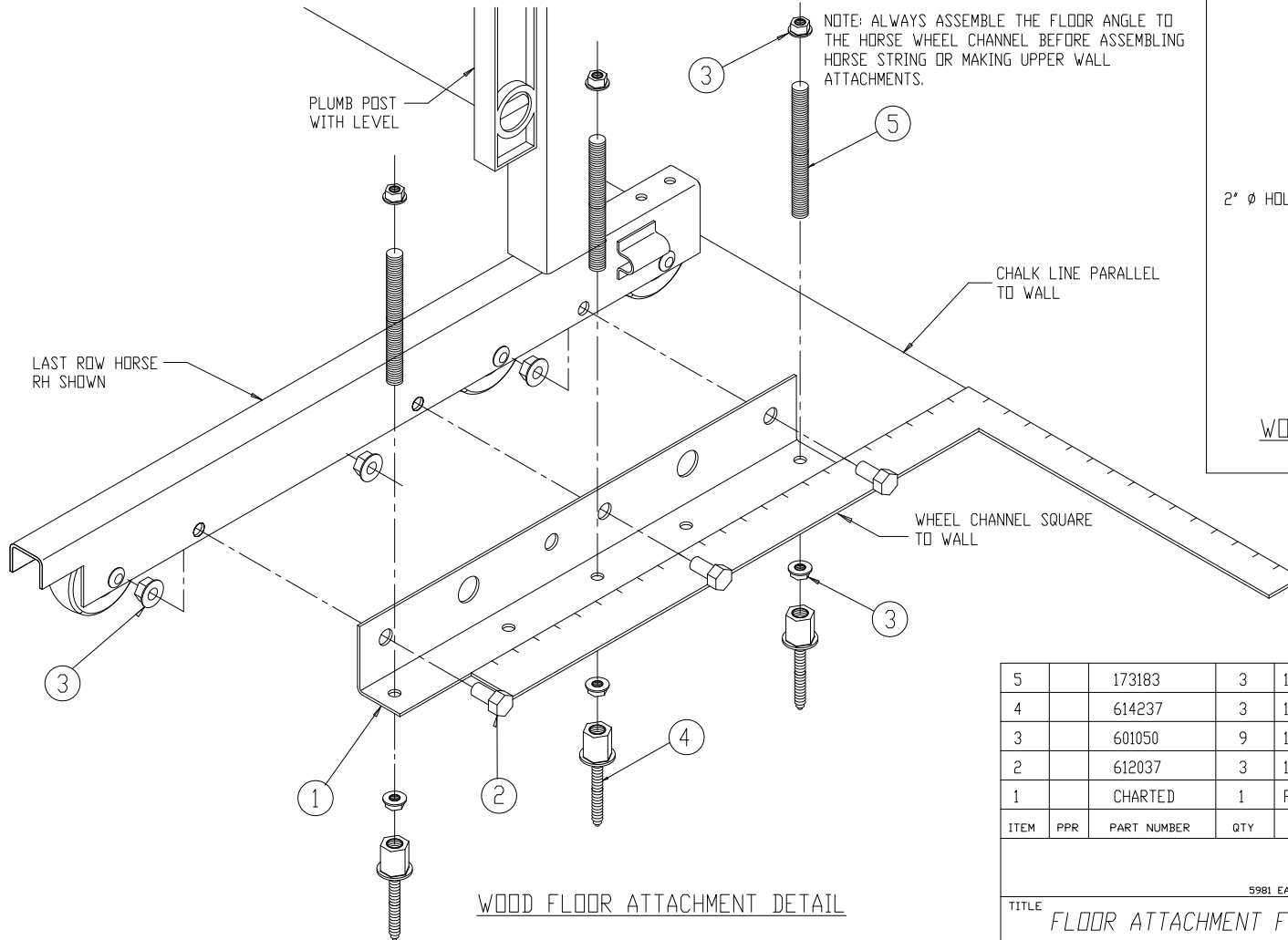
DRWN F.SCHONEBOM 08-16-11
CHKD
APVD
SCALE 1/4" = 1"
SHEET 1 OF 1
DRG NO. B-GEN6517

SKETCH #29A

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .010 ANGULAR ± 1°

NOTE: ALWAYS ASSEMBLE THE FLOOR ANGLE TO THE HORSE WHEEL CHANNEL BEFORE ASSEMBLING HORSE STRING OR MAKING UPPER WALL ATTACHMENTS.



ITEM	SPAN	PART NUMBER
1	22/26	183540
	30/33	183542

5		173183	3	1/2-13 x 5 THREADED ROD
4		614237	3	1/2 x 2-3/4' TITEN HEAVY DUTY ROD HANGER
3		601050	9	1/2-13 WHIZ LOCK NUT
2		612037	3	1/2-13 x 1 HEX CAP SCREW
1		CHARTED	1	FLOOR ANGLE
ITEM	PPR	PART NUMBER	QTY	DESCRIPTION



5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

TITLE FLOOR ATTACHMENT FID - WOOD

SCALE 1/4" = 1'

MATERIAL	NONE	FINISH	NONE	REF. NO. (GEN5961)
DRAWN BY PD/TC		CHECKED BY 06/23/09		PPR PART OR DRWG. NO. B GEN6457A
APPROVED BY				

△	TITEN ANCHOR WAS DROP-IN/NEW BORDER	36188	.DV	8/4/09
△	ADDED 01/2" DRILL NOTE PER PETE D./ND ECR	N/R	TSC	7/3/07
△	183540 WAS 182310-80. 183542 WAS 175738-80	N/R	DMc	5-10-03
NO.	DESCRIPTION	CHANGE NO.	CH. BY	RELEASED DATE

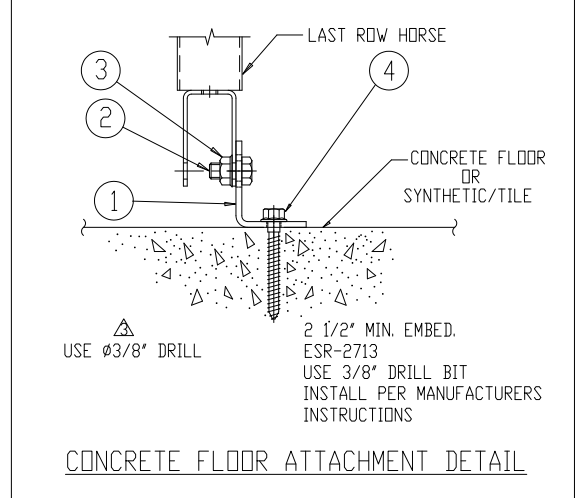
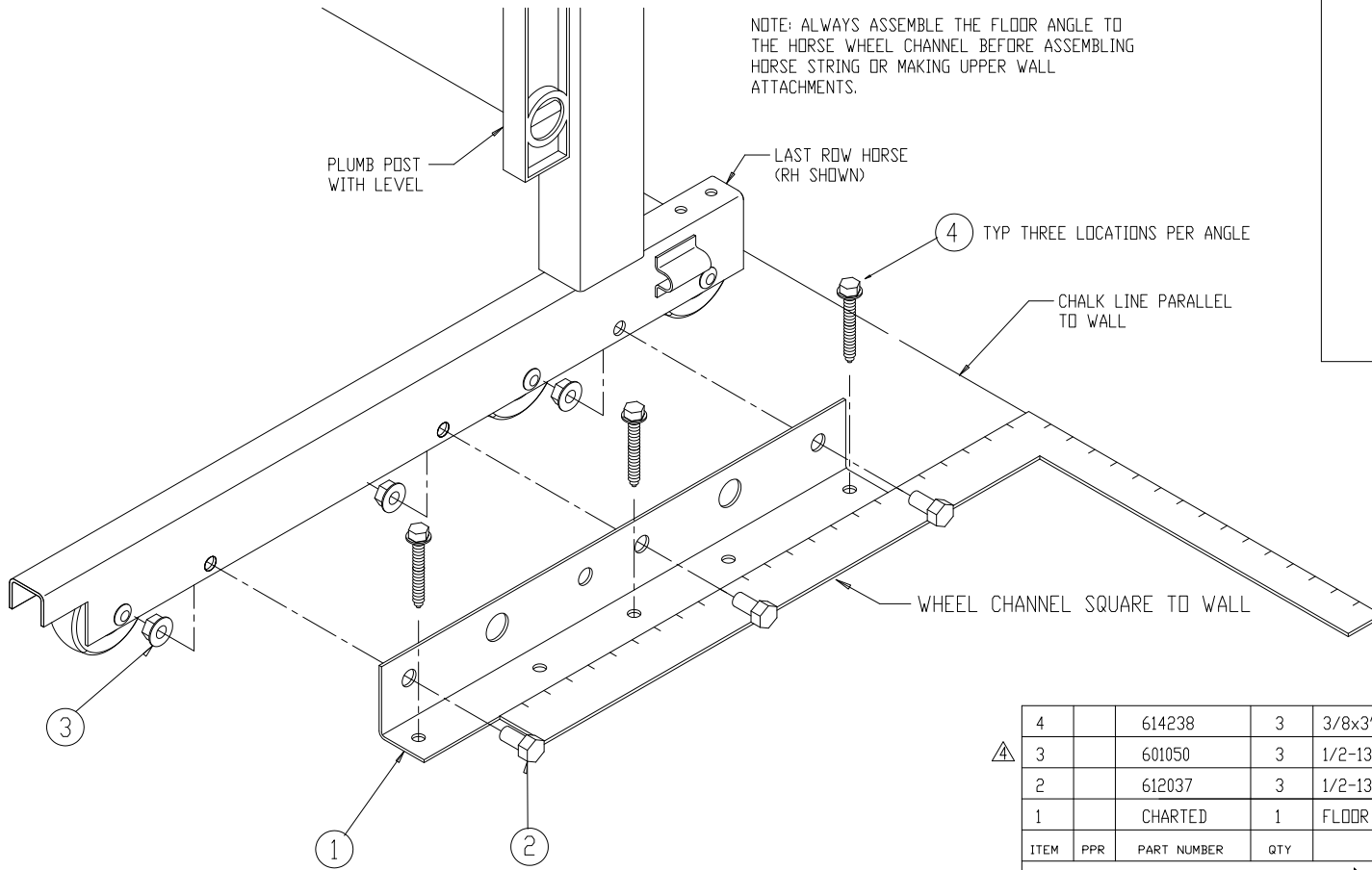
COMPANY CONFIDENTIAL
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 IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN
 APPROVAL OF INTERKAL LLC.

SKETCH #29B

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .010 ANGULAR ± 1°

NOTE: ALWAYS ASSEMBLE THE FLOOR ANGLE TO THE HORSE WHEEL CHANNEL BEFORE ASSEMBLING HORSE STRING OR MAKING UPPER WALL ATTACHMENTS.



ITEM	SPAN	PART NUMBER
1	22/26	183540
	30/33	183542

4		614238	3	3/8x3" TITEN HEAVY DUTY SCREW ANCHOR
3		601050	3	1/2-13 WHIZ LOCK NUT
2		612037	3	1/2-13 x 1 HEX CAP SCREW
1		CHARTED	1	FLOOR ANGLE
ITEM	PPR	PART NUMBER	QTY	DESCRIPTION



5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

TITLE			
FLOOR ATTACHMENT FID - CONCRETE			
MATERIAL NONE		FINISH NONE	
DRAWN BY PD/TC		CHECKED BY	
06/23/09			
APPROVED BY		B	
		GEN6457B	

CONCRETE FLOOR ATTACHMENT DETAIL

⚠	ITEM #3 QTY 3 WAS 9	N/R	MJT	9/30/09
⚠	TITEN ANCHOR WAS DROP-IN/NEW BORDER	36188	DV	8/4/09
⚠	ADDED Ø1/2" DRILL NOTE PER PETE. D./NO ECR	N/R	TSC	7/3/07
⚠	183540 WAS 182310-80. 183542 WAS 175738-80	N/R	DMC	5-10-03
NO.	DESCRIPTION	CHANGE NO.	CH. BY	RELEASED DATE

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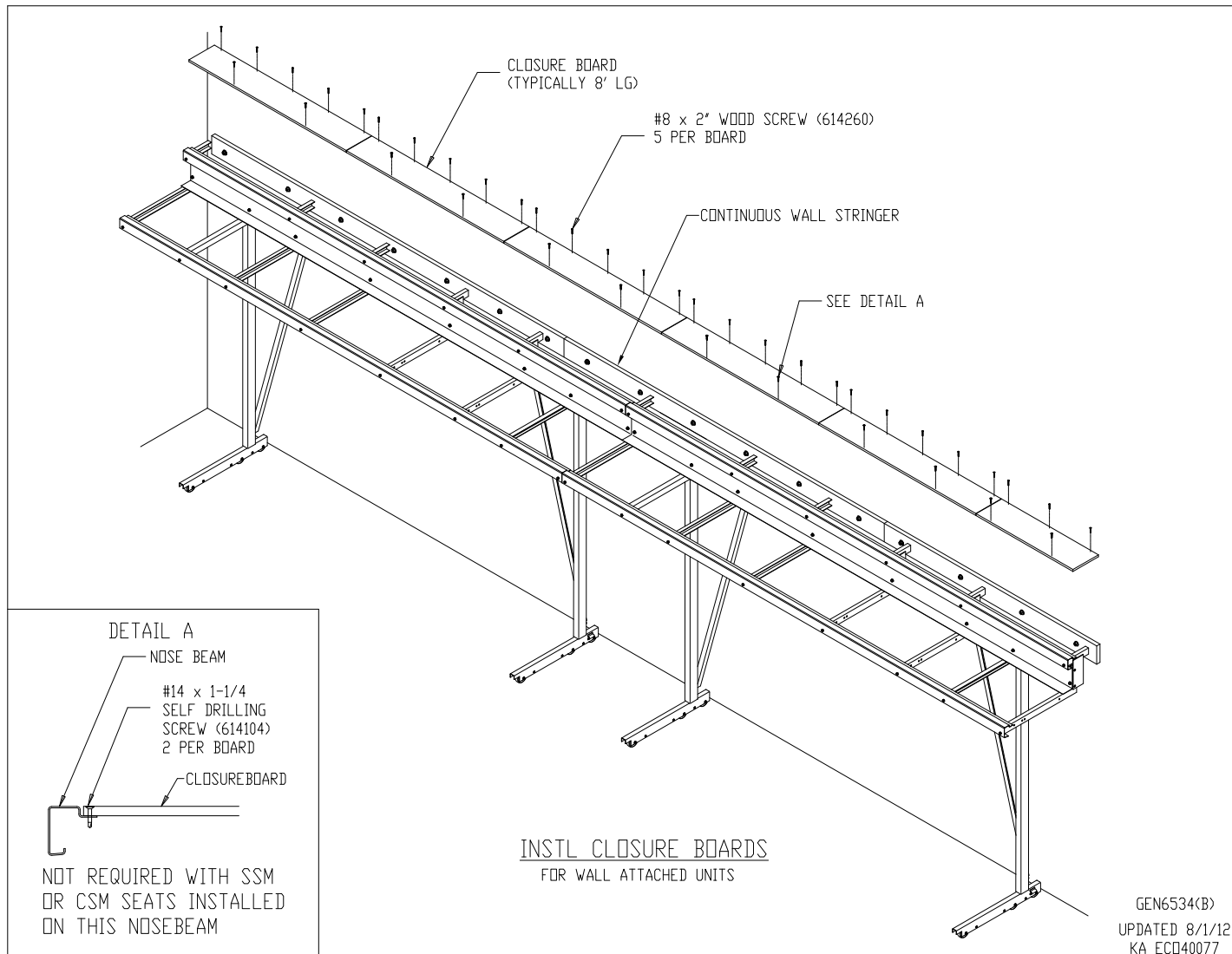
CLOSURE BOARDS (FILLER BOARDS)

SKETCH #30

CLOSURE BOARD ASSEMBLY:

Place **CLOSURE BOARDS** on last row combos and secure them to wall stringer with supplied hardware. Use five per 8' board.

*** MUST UPDATE INSTALLATION MANUAL AND FID ***

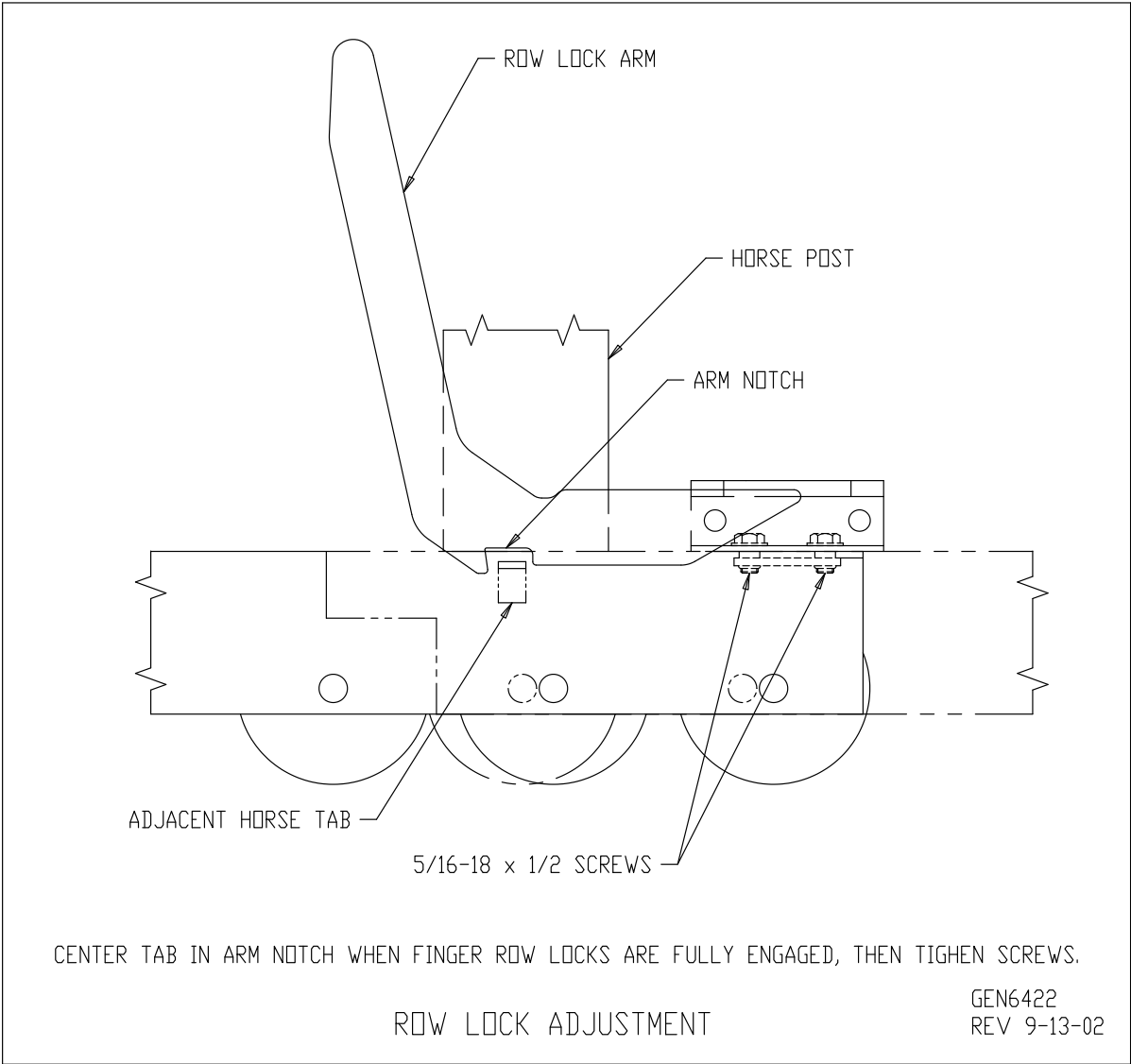


SKETCH #31

ROW LOCKS

ROW LOCK ASSEMBLY:

Extend the units so that ALL provided row locks are fully engaged on the adjacent horses. Adjust each row lock so that it does not rub the horse post and so that the horse tab is in the center of the arm notch. See Sketch #31. After tightening screws, check to be sure that each row lock operates freely and falls forward under its own weight.



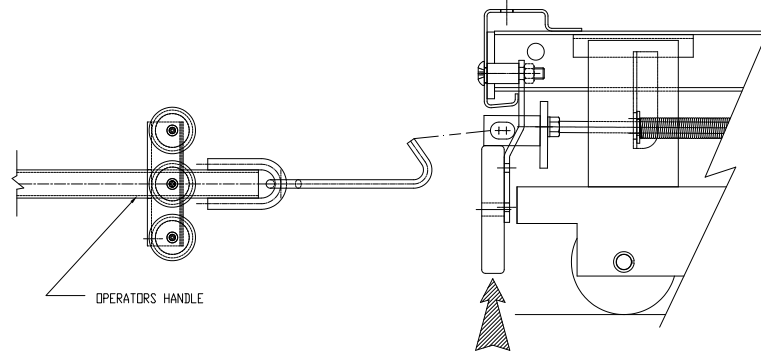
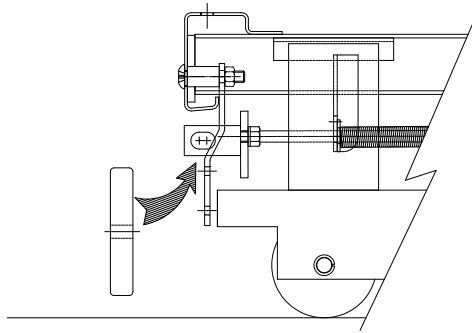
SKETCH #32A.1

KICKBOARD ATTACHMENT AND OPERATORS HANDLE

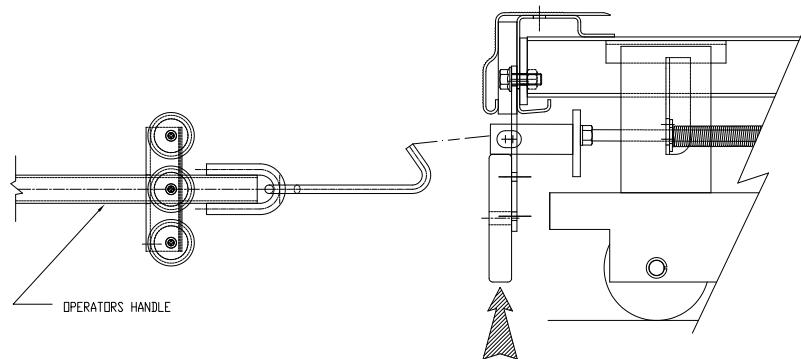
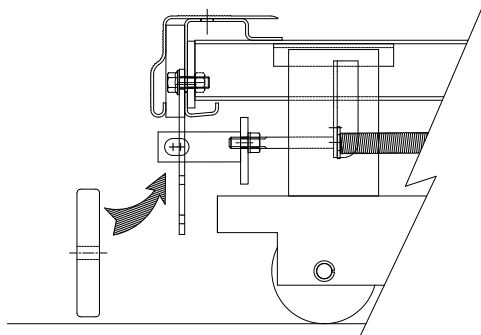
KICKBOARD INSTALLATION ON MANUAL SECTIONS

- 4x SCALE -

TO ATTACH THE KICKBOARD ON A MANUAL BLEACHER, SLIDE THE KICKBOARD UNDER THE FRONT HANDLE LOCK ASSEMBLY AS SEEN ON DETAIL B. THE FRONT HANDLE SHOULD REST ON KICKBOARD AFTER ASSEMBLY.



- 22-24/ 30-33 SPAN -
- 10.25' RISE SHOWN -



- 26 SPAN ONLY -
- 10.25' RISE SHOWN -

GEN6808C

DRWN MGARZA 08/30/11

CHKD

APVD

SCALE 3/4"=1'-0"

SHEET 3 OF 3

DRGNO. B-GEN6808C

KICKBOARD INSTALLATION (MANUAL)
10.25 & 11.50 RISE
ALL SPANS

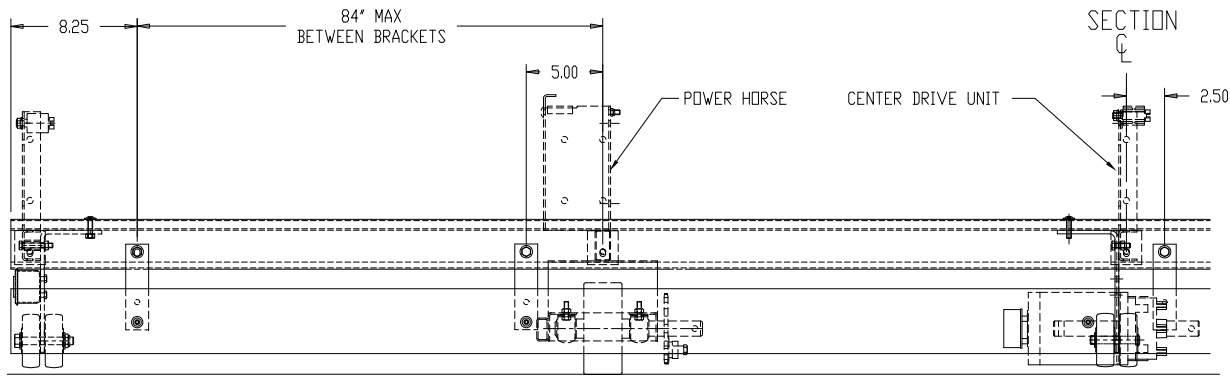


5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

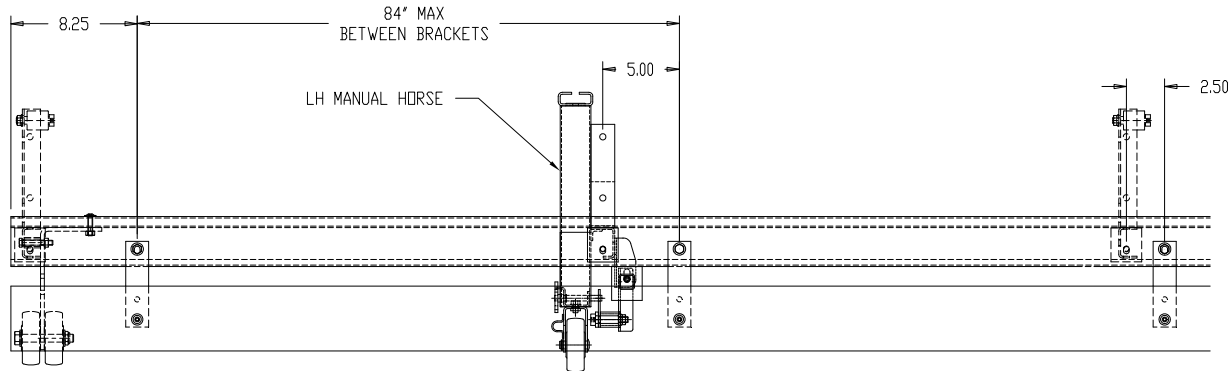
REV.	RELEASED TO PRODUCTION PER ECD 40008A	MG			1/24/12
		DRWN.	CHKD.	APVD.	DATE

DRAWING LOCATION - \\SERVER-2\ECD\40000\40000\40008A\REVISED GEN6808A-C_LIST_RDV_STEP.DWG - PRINTED BY KAHRNS DN 04-19-12 - 910am

SKETCH #32.1

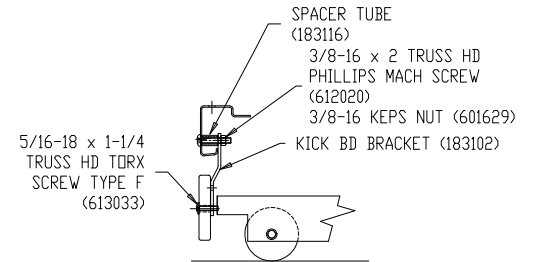


POWER SECTIONS
10.25/ 11.50 RISE
ALL SPANS

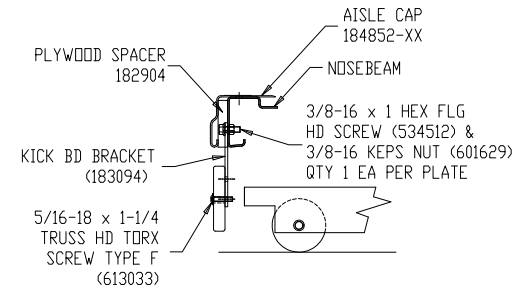


MANUAL SECTIONS
10.25/ 11.50 RISE
ALL SPANS

- RECOMMENDED ASSEMBLY PROCEDURE:**
- 1) PRIOR TO INSTALLING DECK BOARDS, ASSEMBLE BRACKETS SQUARE TO NOSEBEAM
 - 2) TIGHTEN SCREWS
 - 3) ASSEMBLE OUTRIGGERS TO COMBOS & DRIVE UNITS
 - 4) INSTALL DECK BOARDS
 - 5) MAKE FINAL OUTRIGGER CONNECTION THRU DECK
 - 6) MOUNT KICKBOARD TO BRACKETS



22-24/ 30-33 SPAN



-26 SPAN ONLY-

GEN6798A

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
△	REVISED KB LAYOUT PER ECD 40008A	MG			2-9-12
△	RELEASED TO PRODUCTION PER ECD 40008	MG			8-9-11

NON HINGED KICKBOARD LAYOUT
ON AP-WT SECTIONS

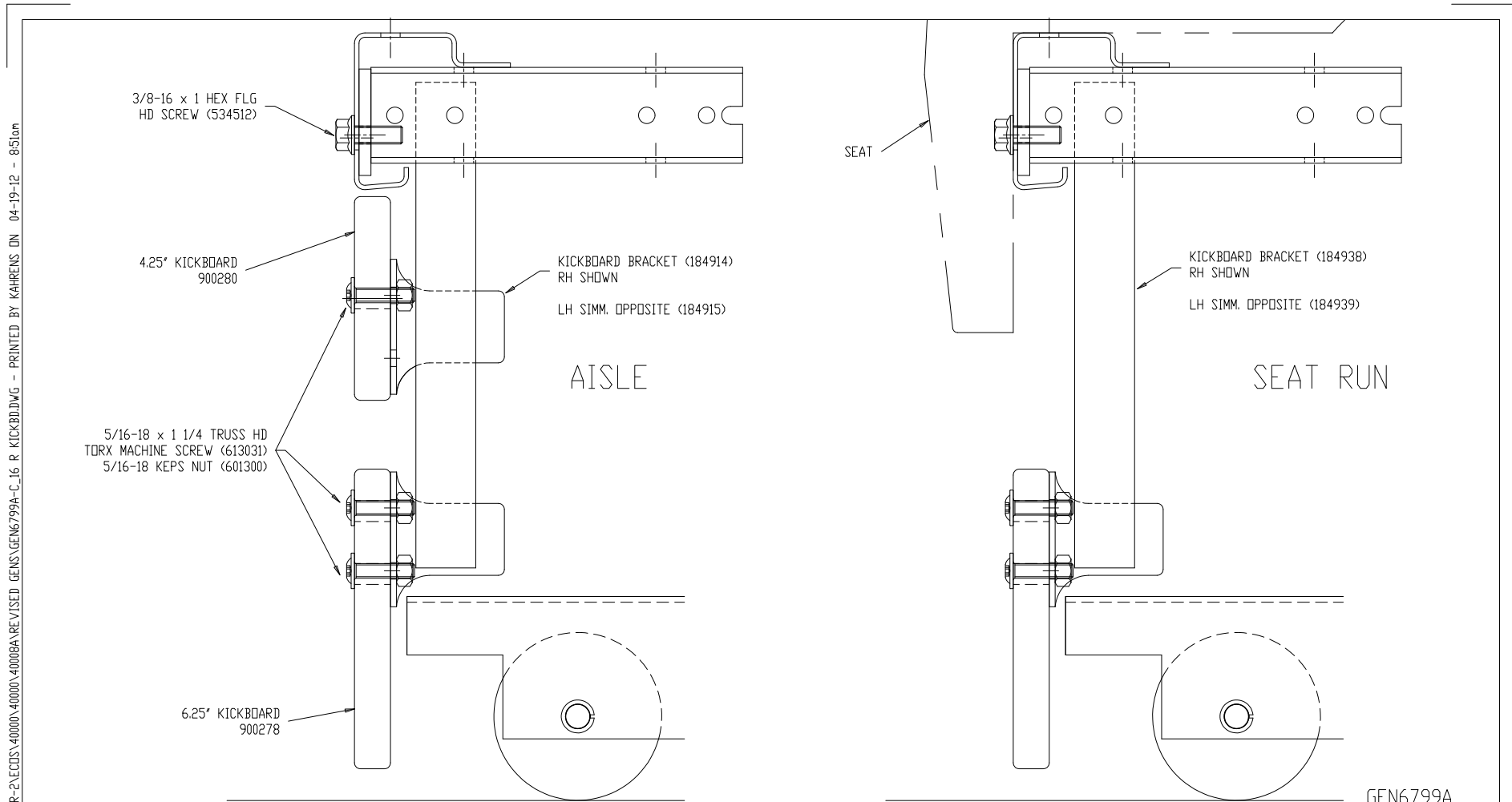


INTERKAL
5981 EAST CORK STREET
KALAMAZOO, MICHIGAN 49048

DRWN	MGARZA	09-16-11
CHKD		
APVD		
SCALE	1/8" = 1"	
SHEET	1	OF 2
DRGNO	B-	

SKETCH #32.2

KICKBOARD ASSEMBLY: 16" RISE



DRAWING LOCATION - \\SERVER-2\ECOS\40000\40008A\REVISED_GENS\GENS\6799A-C_16 R KICKBOARD.DWG - PRINTED BY KAHRENS DN 04-19-12 - 8:50am

GEN6799A

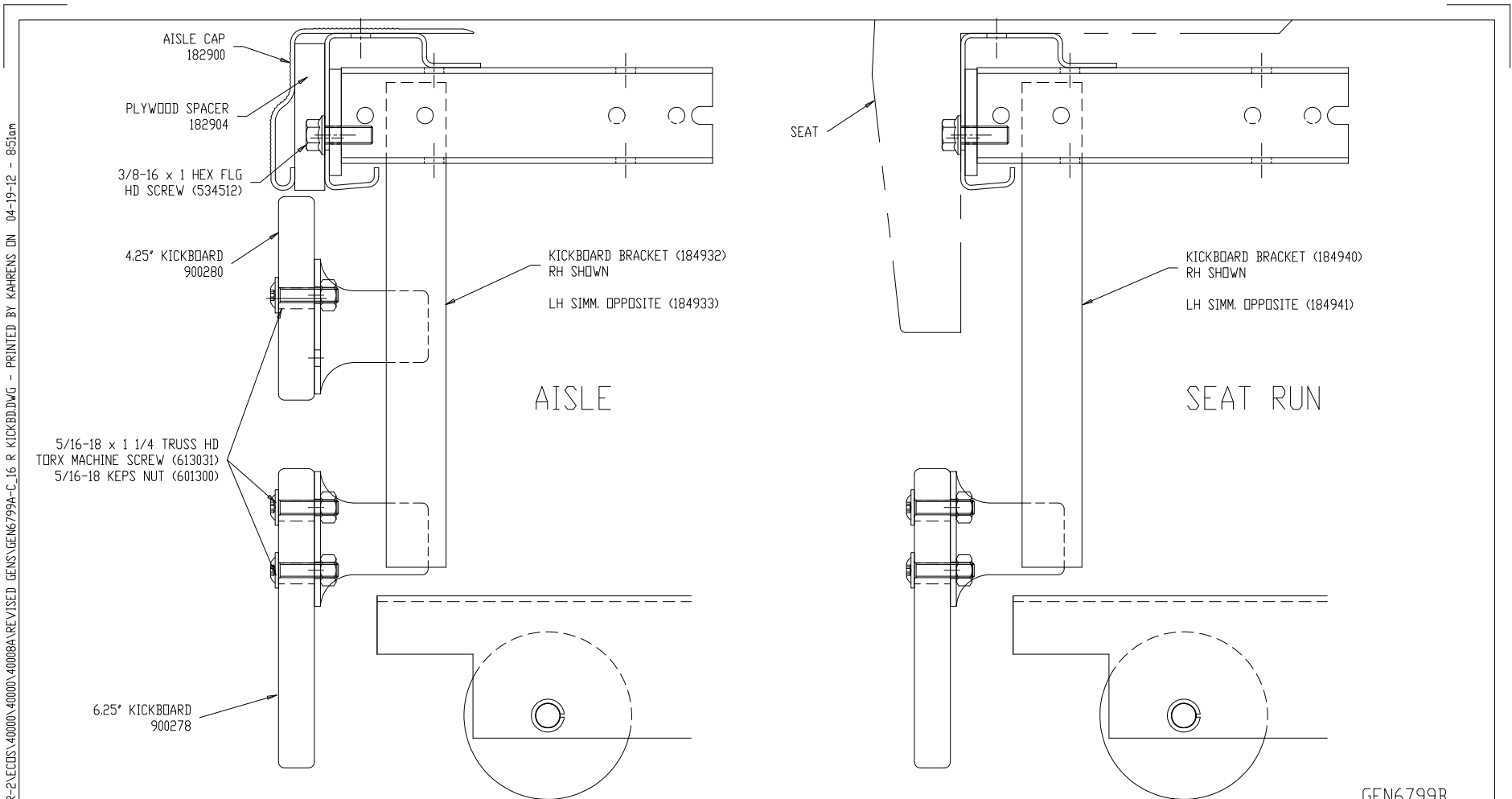
						NON-HINGED KICKBOARD LAYOUT ON 22-24/ 30-33 SPAN SECTIONS FOR 16" RISE	DRWN MGARZA 07-25-11
							CHKD
							APVD
							SCALE 1/2"=1"
							SHEET 1 OF 3
REV.	REVIS	DESCRIPTION	DRWN	CHKD	APVD	DATE	DRG NO. B-
	△	REVISED LAYOUT OF KB BRKT PER ECR 40008A	MG			01-19-12	
	△	RELEASED TO PRODUCTION ECD 40008	MG			09-16-11	



5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

SKETCH #32.3

KICKBOARD ASSEMBLY: 16" RISE 26" SPAN



DRAWING LOCATION - \\SERVER-2\ECDS\40000\40008A\REVISED_GEN6799A-C-16_R_KICKBD.DWG - PRINTED BY KAARENS DN 04-19-12 - 851mm

GEN6799B

REV.	DESCRIPTION	DRWN.	CHKD.	APVD.	DATE
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△	RELEASE TO PRODUCTION 40008	MG			08-02-11

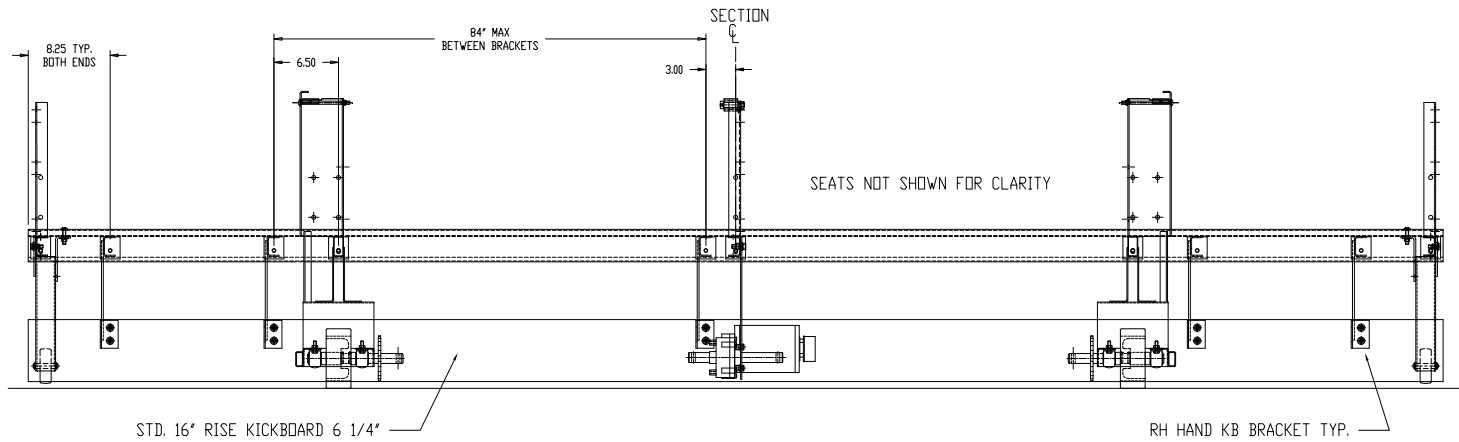
NON-HINGED KICKBOARD LAYOUT
ON 26 SPAN SECTIONS
FOR 16" RISE



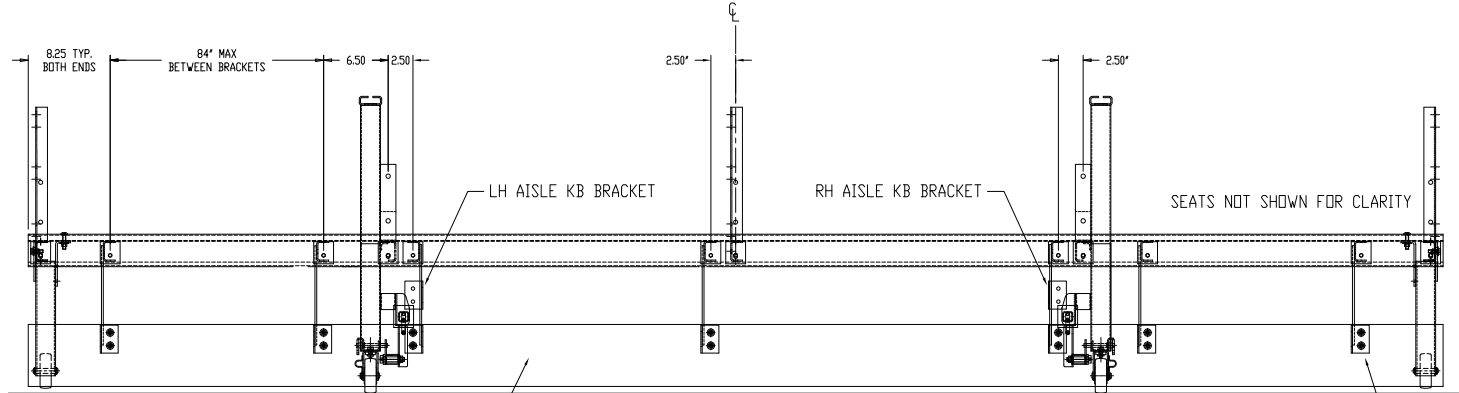
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

DRWN	MGARZA	08-02-11
CHKD		
APVD		
SCALE	1/2"=1'	
SHEET	2	OF 3
DRGNO.	B-	

SKETCH #34



SEAT RUN KB BRACKET LOCATIONS
 POWER 16" RISE



SEAT RUN KB BRACKET LOCATIONS
 MANUAL 16" RISE

DRAWING LOCATION - \\SERVER-2\ECDS\4000\4000A\4000BA\REVISED GEN6\GEN6798_B_KICK_BIDDING - PRINTED BY KAHRENS DN 04-19-12 - 851am

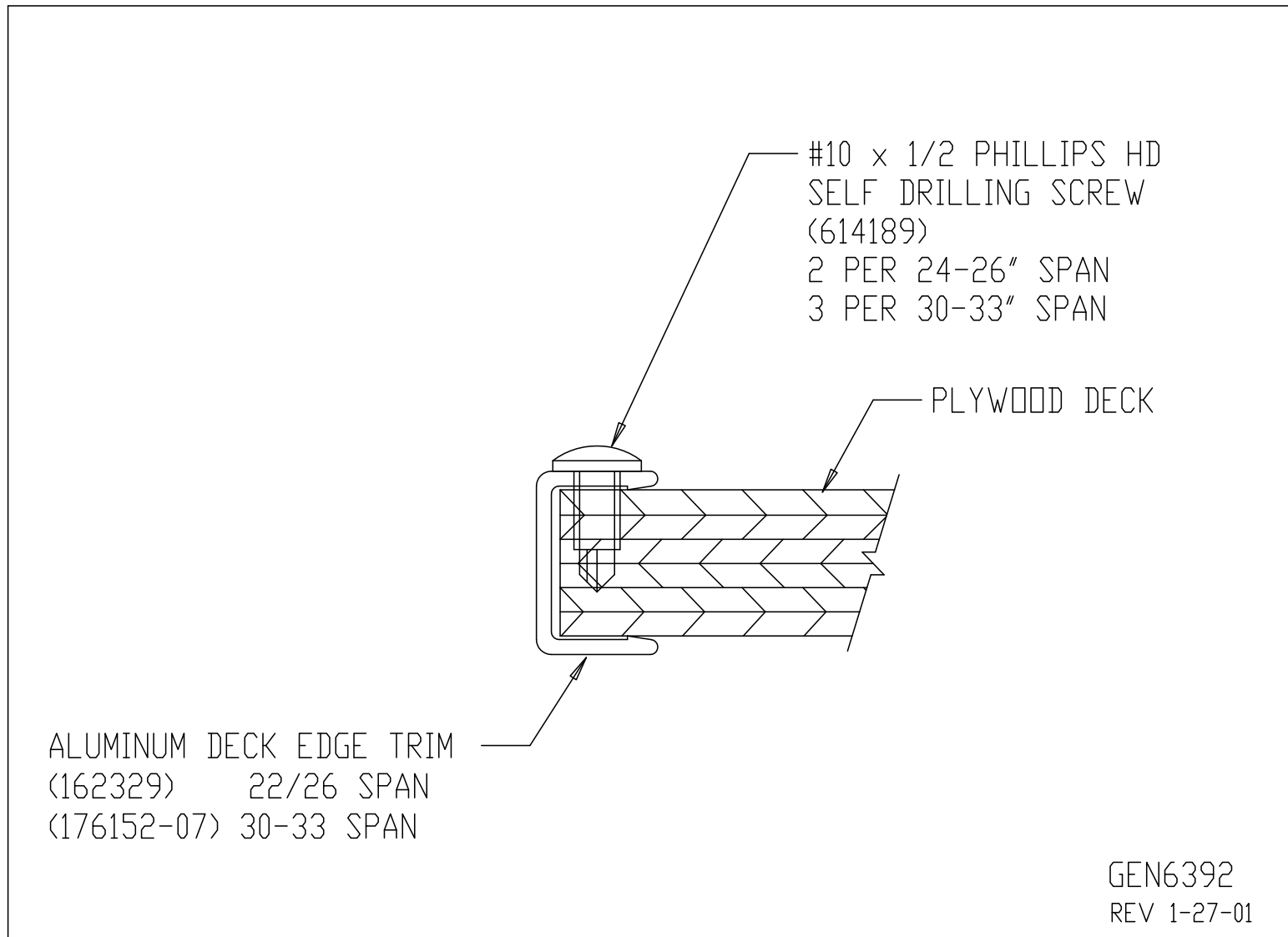
FOR 16" RISE KICKBOARD STRAP AT
 AISLE LOCATIONS SEE GEN6813 & GEN6799A-B

				GEN6798B	
				16" RISE KICKBOARD BRACKET SEAT RUN LOCATIONS	
				DRWN	MGARZA 10/26/11
				CHKD	
				APVD	
				SCALE	1/8" = 1"
				SHEET	2 OF 2
REV.	DESCRIPTION	DRWN	CHKD	APVD	DATE
△	REVISED LAYOUT OF KB BRKT PER ECR 4000BA	MG			2-9-12
△	RELEASED TO PRODUCTION PER ECR 4000B	MG			08-02-11
				5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048	
				DRGND C-	

TRIM

DECK EDGE TRIM:

Install trim on deck board ends that are exposed at the ends of banks and at notches and truncations. See Sketch # 34.

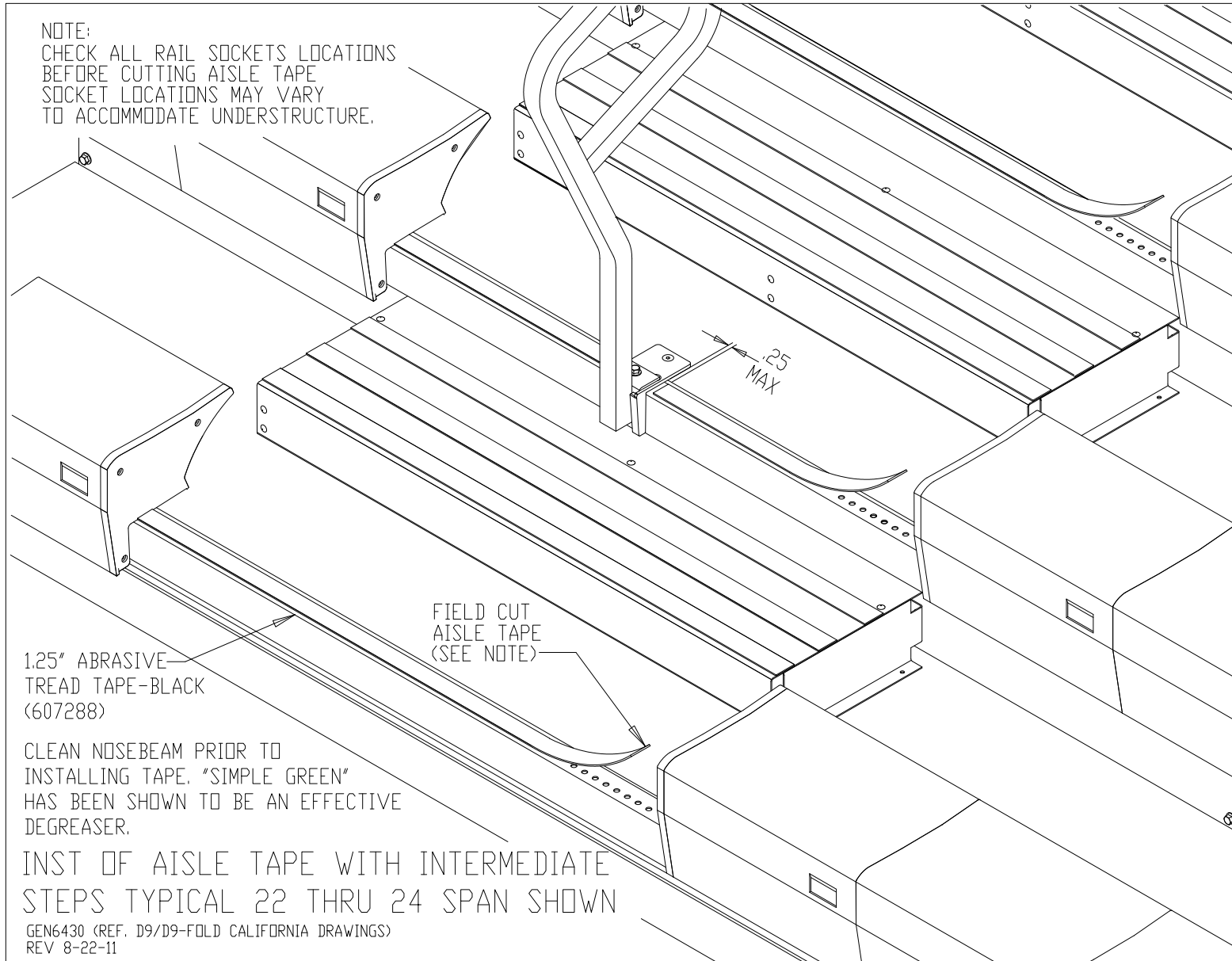


SKETCH # 35

TAPE

AISLE TREAD TAPE (22 THRU 26 SPANS):

Install tread tape as shown in Sketch



AISLE CAPS

SKETCH #36

AISLE CAP ASSEMBLY (26 SPAN):

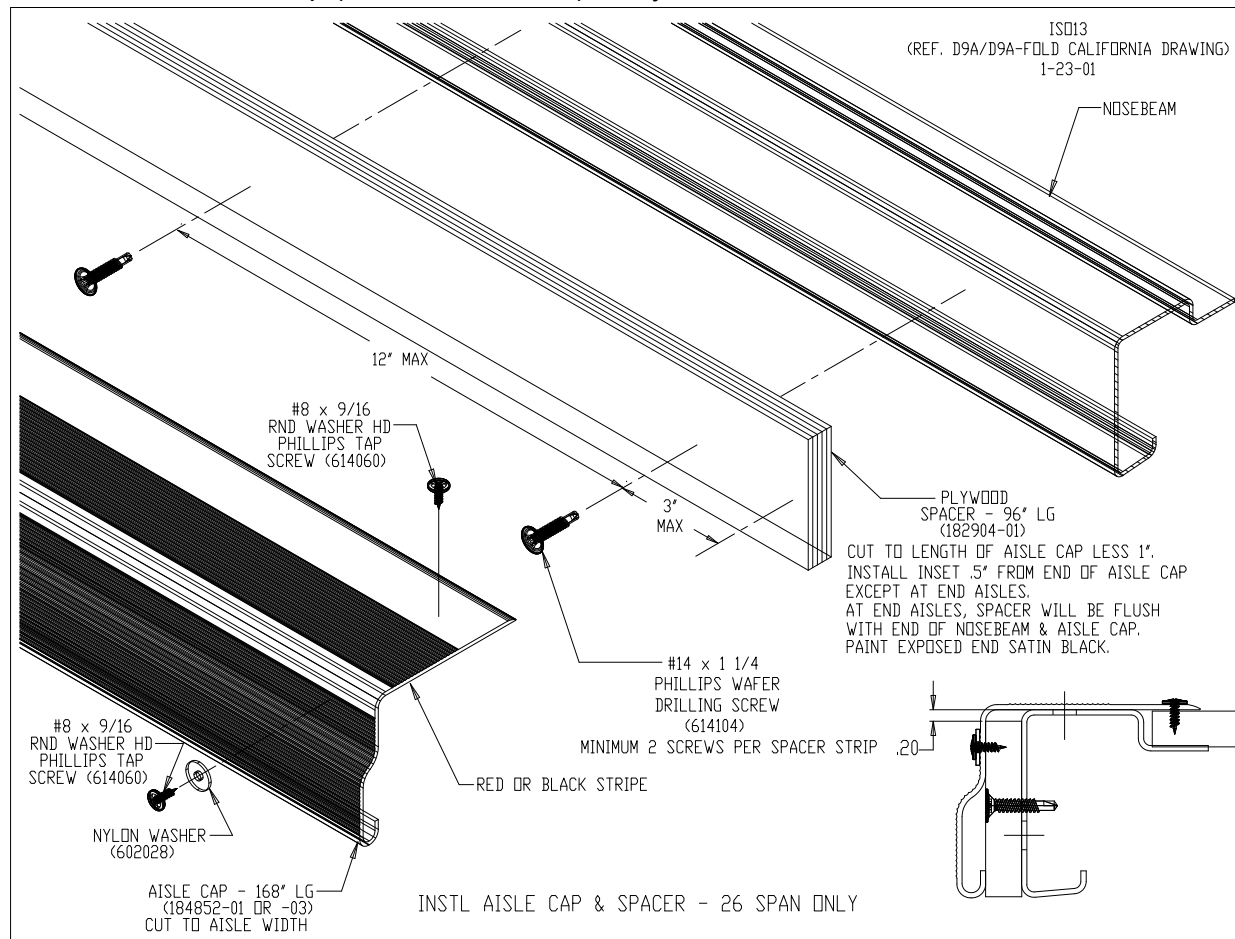
Install PVC aisle caps as shown in Sketch # 36. **Aisle hand rail sockets** must be installed **before** aisle caps. Refer to the accessories section for installation information. Install all required fasteners, **notch for the aluminum splice beam** & maintain tight tolerances against the seat surface. **Allow 1/4 inch maximum clearance at both ends.** Install screws in both the front face and top of aisle cap.

Top of *Cut* Aisle Cap (614060) = Qty. 2 for each piece after cut (total Qty. 4) or Qty. 3 for each piece that is greater than 30" after cut

Front of *Cut* Aisle Cap (614060 & 602028) = Qty. 2 for each piece after cut (total Qty. 4)

Top of *Uncut* Aisle Cap (614060) = Qty. 3

Front of *Uncut* Aisle Cap (614060 & 602028) = Qty 4.



SEATS

SCULPTURED (SSM) & CONTOURED (CSM) SEAT MODULES:

***** End Cap is 5/8" (Inch) Thick *****

- Check the module layout by placing a row of modules across the entire bank. Do not fasten anything. Leave spaces for aisles. Fit end caps at the beginning and end of each continuous run of modules. End caps at the ends of the bank should be flush with the ends of the nose beams. Small adjustments in aisle widths may be necessary to balance the layout.
- After the exact positions of modules and aisles have been established, mark the nose beams of each row in the bank so that you can check positioning as the modules are being mounted. This will insure that seats and aisles line up vertically when the bank is stacked giving the installation a professional appearance.
- The modules are designed to be assembled from right to left as you face the installation. Refer to Sketches #38A or B & #39A or B. You will notice that the first module in each continuous run of modules requires two hold down brackets. All following modules require just one preassembled hold down bracket. This pattern repeats after each break for an aisle or notch.

Position a right hand starter bracket on the nose beam with the vertical flange one inch from the end of the beam. Fasten the bracket hand tight using a 3/8" cap screw, washer, and nut only. Then place a module on the nose beam resting against the mounting bracket. While holding the right end cap in place, move the module to the left until the end cap comes within 1/8" of the end of the beam. Now carefully remove the end cap and module without changing the position of the hold down bracket. Tighten the mounting fasteners. Check to be sure that the hold down bracket is square to the beam and positioned correctly. Drive a 1/4-14 x 3/4" tapping screw through the starter bracket into the deck. Mount the module to the hold down bracket using two 1/4-20 x 3/4" screws as shown in Sketch #38A or B.

Install additional modules as shown in Sketch #39A or B. With the row partially closed you can reach up under the nose beam to assemble the nut. Forcing each module against the previous module and against the front vertical face of the nose beam while tightening the 3/8" bolt will assure a tight fit. Drive a 1/4-14 x 3/4" tapping screw through the hold down bracket into the deck.

SSM:

The end caps are held on with three (3) #8 x 1-1/4 RD/WSH HD Phillips screws (614107). See Sketch # 38A and 39A.

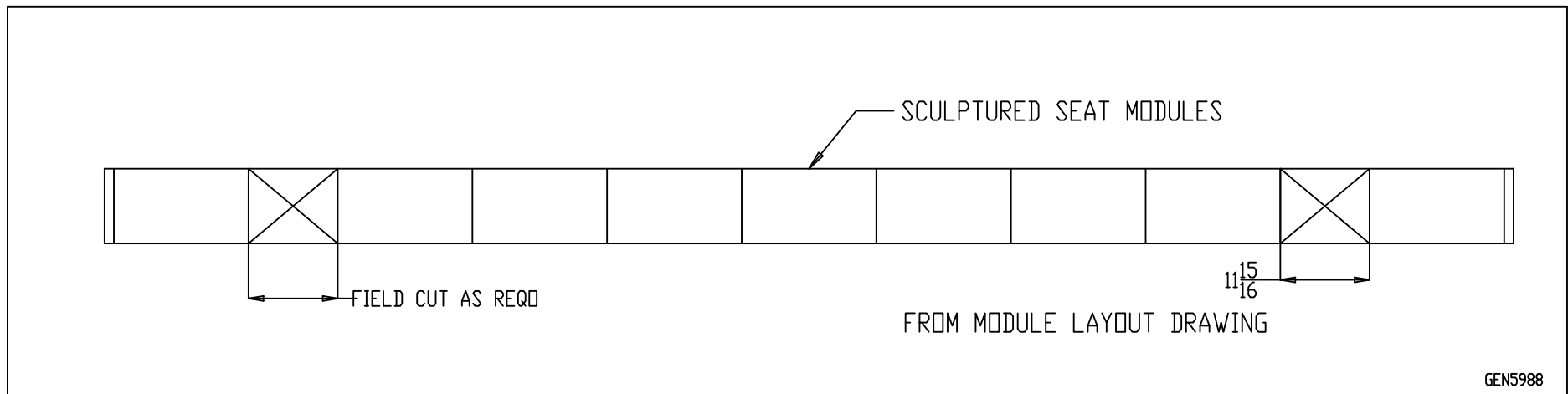
CSM:

The end caps are held on with three (4) #8 x 1-1/4 RD/WSH HD Phillips Screws (614107). Sketch # 38B and 39B.

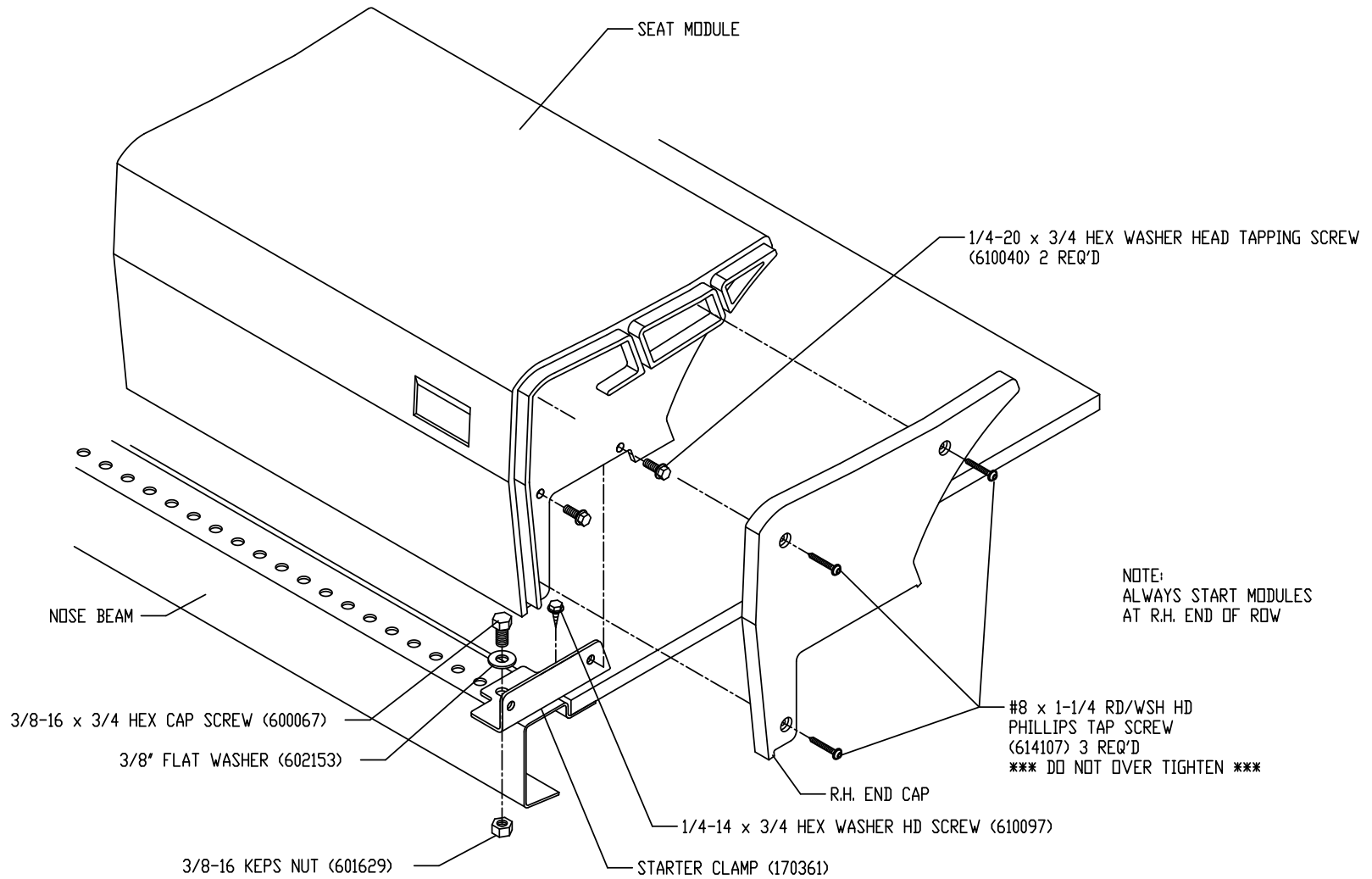
SKETCH #37

SEAT ASSEMBLY NOTES:

- When module to wall clearance is less than 4", end cap screw installation will be easier if the module is tapped for the screws **prior** to mounting the seats.
- The modules can be fastened to the nose beam from the front by slightly closing the row you are working on. This allows you to reach the nut from the front.
- On occasion, you will have interference between module ribs and bolt heads on front face of beam. When this occurs, cut clearance in the rib with saw, router, hot iron, knife or whatever you choose.
- In some field cut situations, cylindrical projections (bosses) molded into the underside of the seating surface may interfere with adjoining module interlock features. When this occurs, remove only enough material to clear the boss or remove the boss itself.
- Field cut modules require relocating the hold down bracket, tee nuts and $\frac{1}{4}$ -20 hex cap screws from the discard portion to the end rib on the remaining module.
- When a run has two field cut modules, cut the right module as specified on the module layout drawing. Delay cutting the second module until it is time to install it. Check the space remaining and cut the second module dimension as required for a proper fit. See Sketch #37.



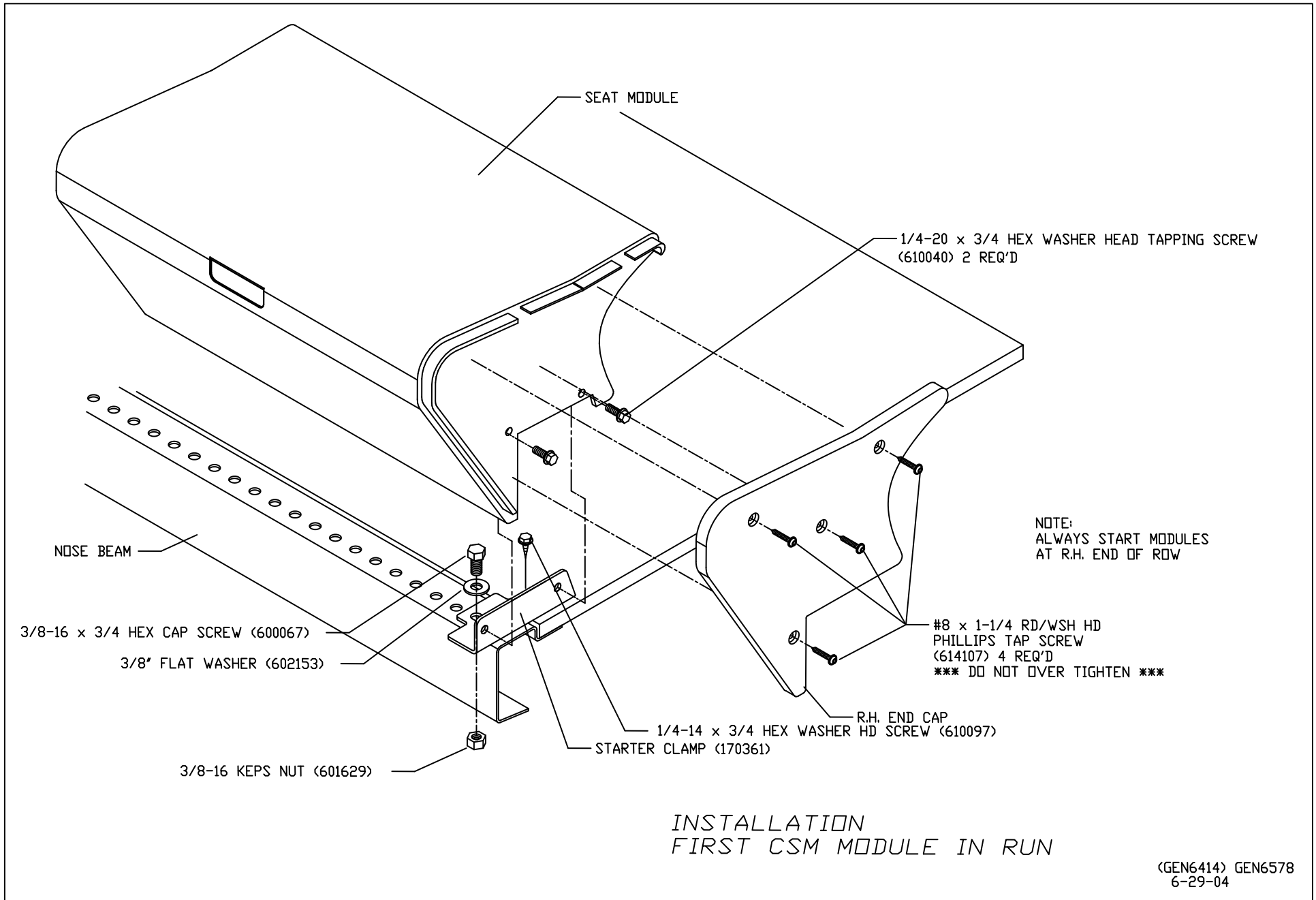
SKETCH #38A



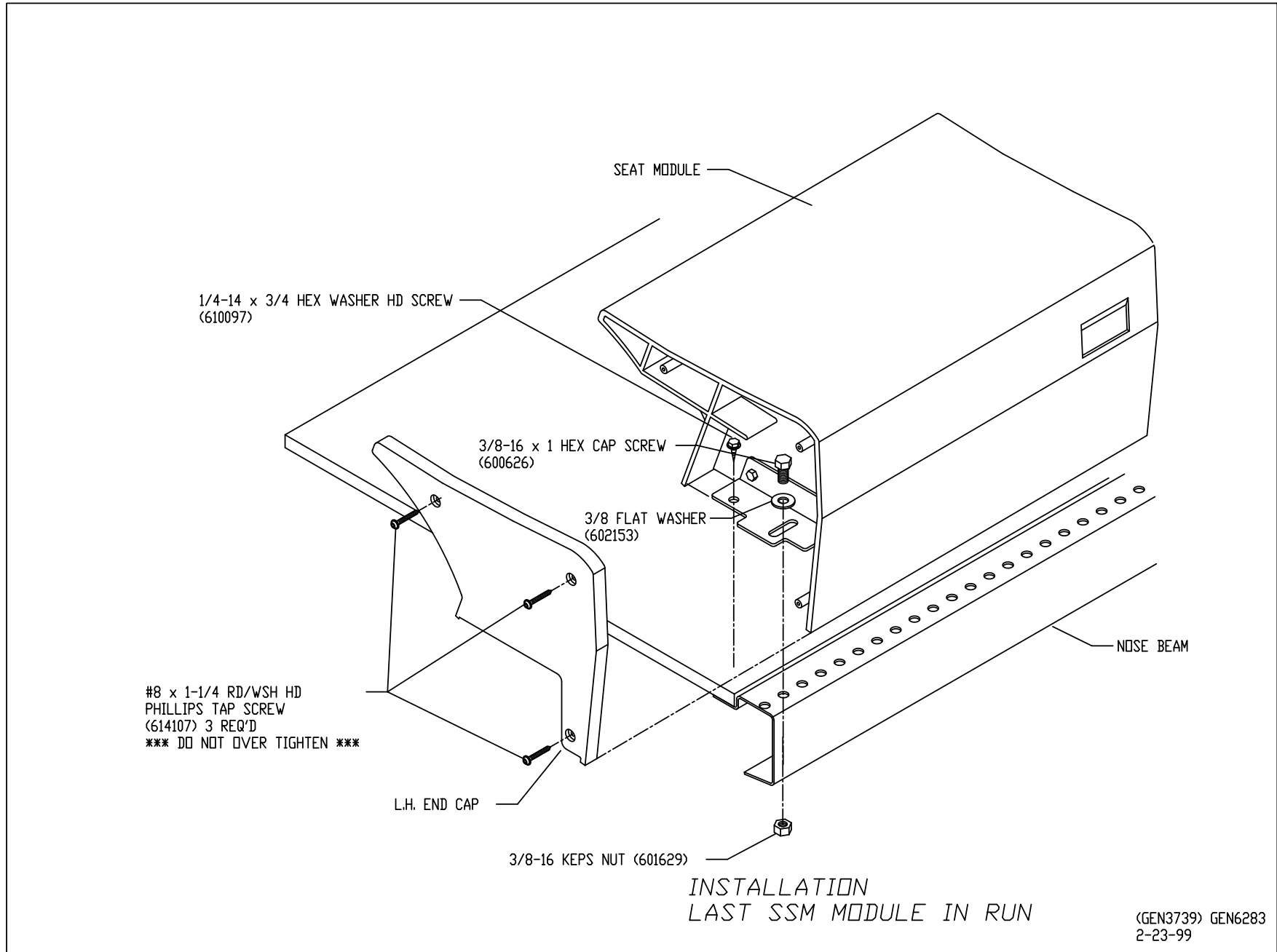
INSTALLATION
FIRST SSM MODULE IN RUN

(GEN3737) GEN6282
2-23-99

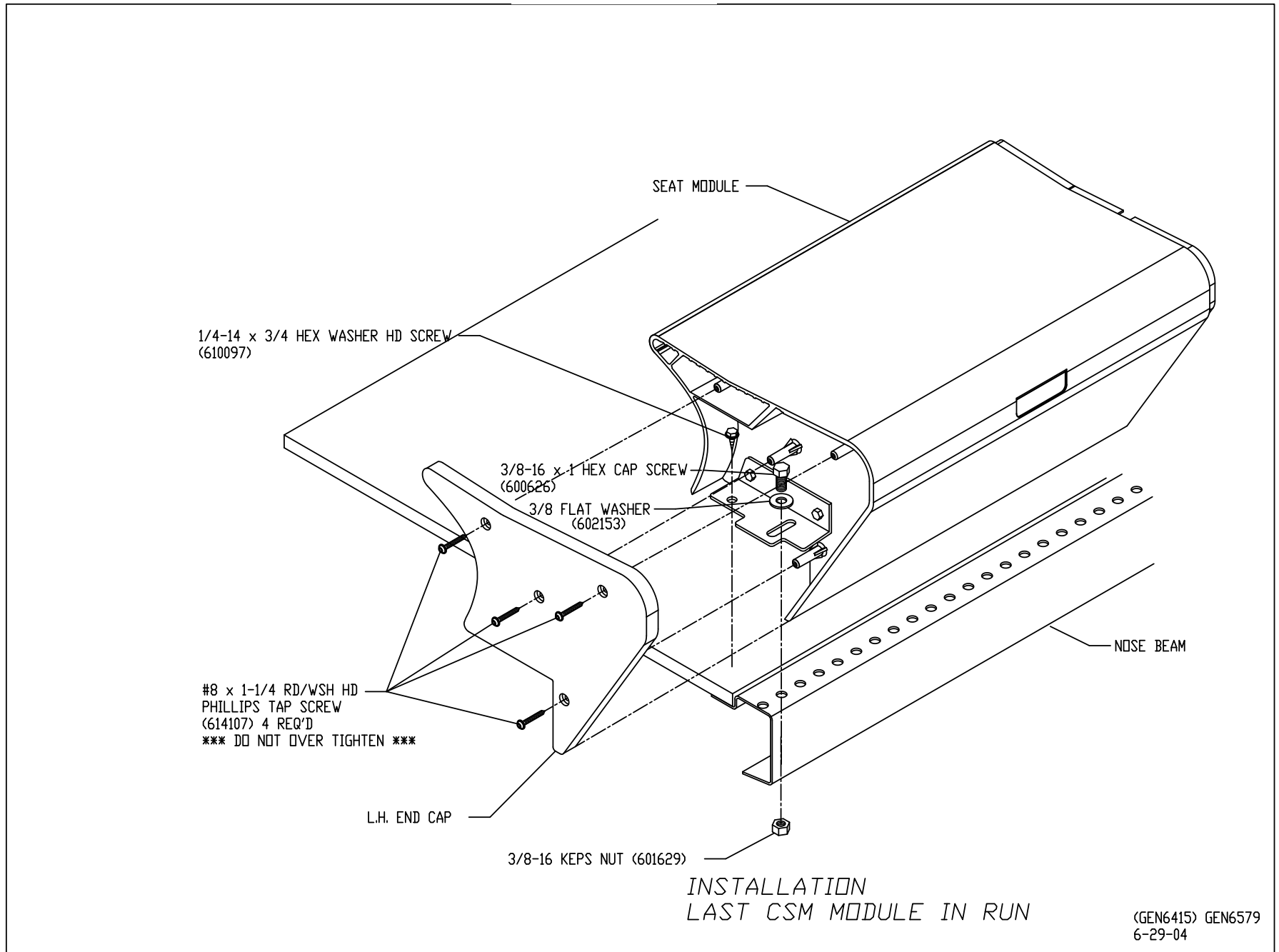
SKETCH #38B



SKETCH #39A



SKETCH #39B

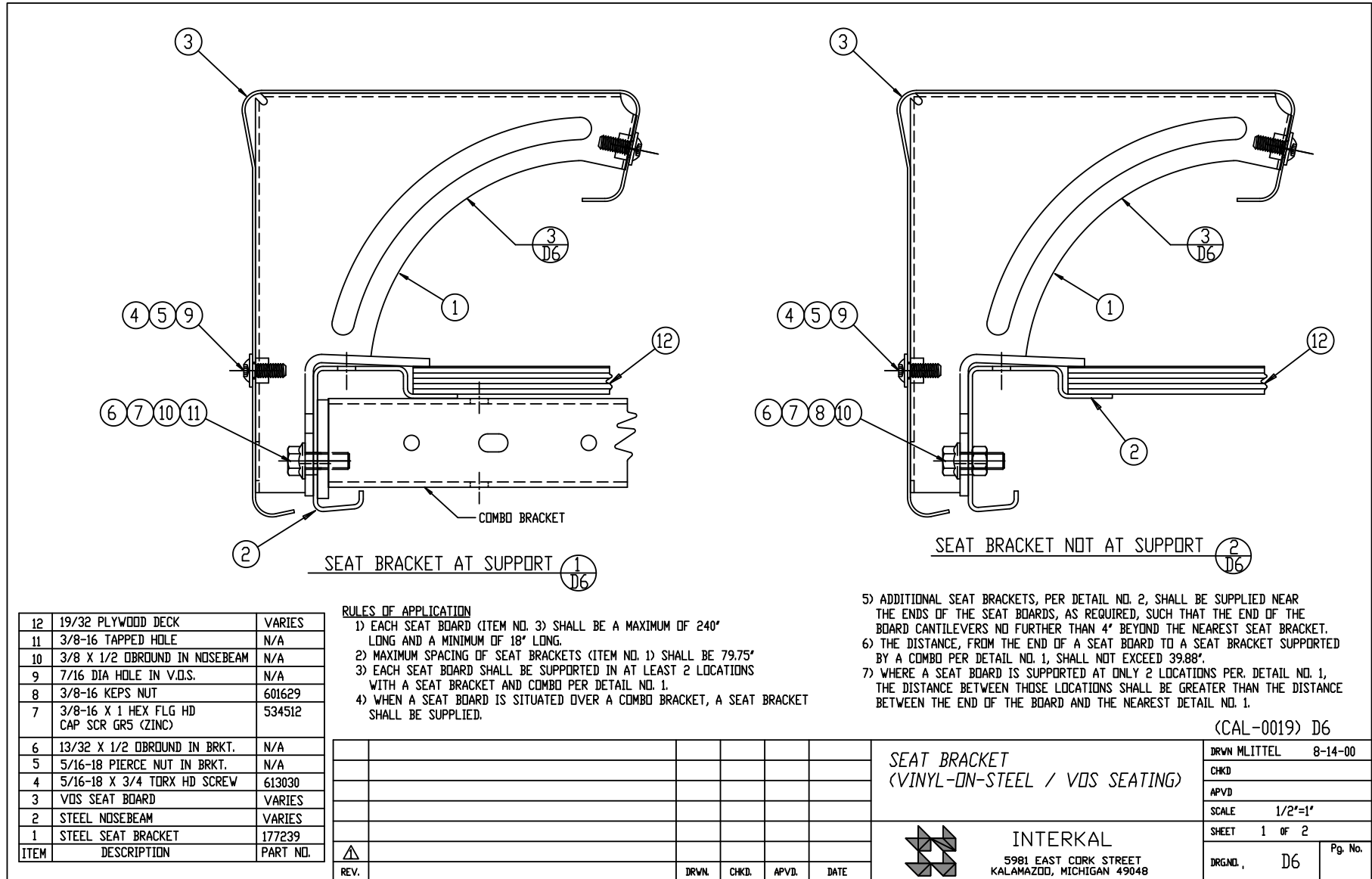


SKETCH #40

SEATS (CONTINUED)

VOS & STEELWOOD SEAT INSTALLATION:

Vinyl on Steel (VOS) & Steel Wood Seats Install per Sketch #40.



RULES OF APPLICATION

- 1) EACH SEAT BOARD (ITEM NO. 3) SHALL BE A MAXIMUM OF 240" LONG AND A MINIMUM OF 18" LONG.
- 2) MAXIMUM SPACING OF SEAT BRACKETS (ITEM NO. 1) SHALL BE 79.75'
- 3) EACH SEAT BOARD SHALL BE SUPPORTED IN AT LEAST 2 LOCATIONS WITH A SEAT BRACKET AND COMBO PER DETAIL NO. 1.
- 4) WHEN A SEAT BOARD IS SITUATED OVER A COMBO BRACKET, A SEAT BRACKET SHALL BE SUPPLIED.

- 5) ADDITIONAL SEAT BRACKETS, PER DETAIL NO. 2, SHALL BE SUPPLIED NEAR THE ENDS OF THE SEAT BOARDS, AS REQUIRED, SUCH THAT THE END OF THE BOARD CANTILEVERS NO FURTHER THAN 4" BEYOND THE NEAREST SEAT BRACKET.
- 6) THE DISTANCE, FROM THE END OF A SEAT BOARD TO A SEAT BRACKET SUPPORTED BY A COMBO PER DETAIL NO. 1, SHALL NOT EXCEED 39.88'.
- 7) WHERE A SEAT BOARD IS SUPPORTED AT ONLY 2 LOCATIONS PER DETAIL NO. 1, THE DISTANCE BETWEEN THOSE LOCATIONS SHALL BE GREATER THAN THE DISTANCE BETWEEN THE END OF THE BOARD AND THE NEAREST DETAIL NO. 1.

(CAL-0019) D6

ITEM	DESCRIPTION	PART NO.
12	19/32 PLYWOOD DECK	VARIES
11	3/8-16 TAPPED HOLE	N/A
10	3/8 X 1/2 OBROUND IN NOSEBEAM	N/A
9	7/16 DIA HOLE IN V.I.S.	N/A
8	3/8-16 KEPS NUT	601629
7	3/8-16 X 1 HEX FLG HD CAP SCR GR5 (ZINC)	534512
6	13/32 X 1/2 OBROUND IN BRKT.	N/A
5	5/16-18 PIERCE NUT IN BRKT.	N/A
4	5/16-18 X 3/4 TORX HD SCREW	613030
3	VOS SEAT BOARD	VARIES
2	STEEL NOSEBEAM	VARIES
1	STEEL SEAT BRACKET	177239

REV.	DRWN.	CHKD.	APVD.	DATE

SEAT BRACKET
(VINYL-ON-STEEL / VOS SEATING)

INTERKAL
5981 EAST CORK STREET
KALAMAZOO, MICHIGAN 49048

DRWN	MLITTEL	8-14-00
CHKD		
APVD		
SCALE	1/2"=1"	
SHEET	1	of 2
DRGNO.	D6	Pg. No.

SEATS (CONTINUED)

SKETCH #41

WOOD SEAT INSTALLATION:

DO NOT SCALE
UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE:
2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
3 PLACE DECIMAL ± .002 ANGULAR ± 1°

SEAT BRACKET ATTACHMENT AT SUPPORT
10" WOOD SEAT

SEAT BRACKET ATTACHMENT NOT AT SUPPORT
10" WOOD SEAT

SEAT BRACKET ATTACHMENT AT SUPPORT
8.875" WOOD SEAT

SEAT BRACKET ATTACHMENT NOT AT SUPPORT
8.875" WOOD SEAT

WOOD SEATBOARD THK.	ITEM #8	DESCRIPTION
3/4"	613031	5/16-18 X 1 1/4 TORX HD BOLT
5/4"	600418	5/16-18 X 1 1/2 TRUSS HD PH SCW

ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
8	CHARTED	VARIES	5/16-18 BOLT DR SCREW	
7	613031	VARIES	5/16-18 X 1-1/4 TORX HD BOLT	
6	601629	VARIES	3/8-16 KEPS NUT	
5	534512	VARIES	3/8-16 X 1 HX FLG HD CAP SCREW	
4	VARIES	VARIES	BOARD - 8.875" WOOD RISER	
3	VARIES	VARIES	BOARD - 10" WOOD SEAT	
2	VARIES	VARIES	BOARD - 8.875" WOOD SEAT	
1	177220	VARIES	BRACKET - 10" DR 8.875" SEAT	

(REF. D7 CALIFORNIA DRAWING)

5961 EAST CORK STREET - KALAMAZOO, MICHIGAN 49008

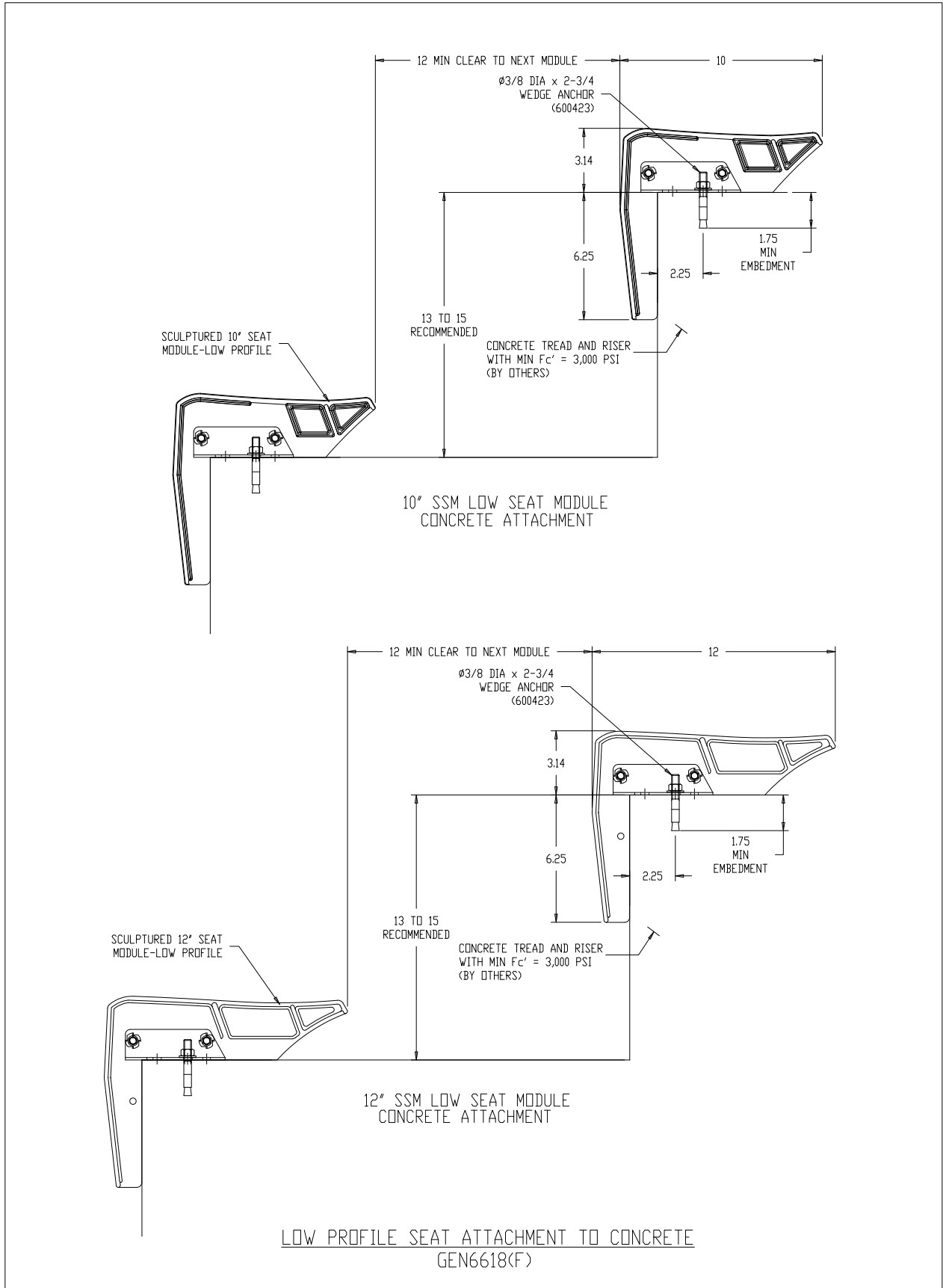
TITLE		SCALE	
WOOD SEAT BRACKET ATTACHMENT		NTS	
MATERIAL	CHARTED	FINISH	NONE
		REF. NO. 900126	
		PPR PART OR DRWG. NO.	
DRAWN BY	CHECKED BY	APPROVED BY	C GEN6630

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SKETCH #41A

SEATS (CONTINUED)

LOW PROFILE SEAT INSTALLATION:



CENTER “P” RAIL

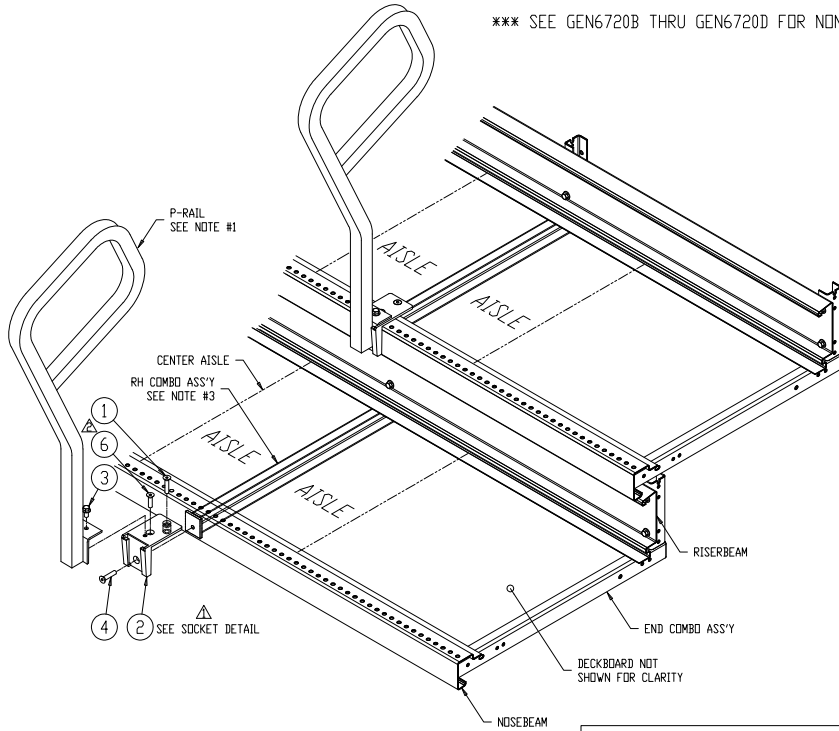
P-RAIL INSTALLATION:

- Install Center P-Rail Socket per Sketch #42A & B.
- Locate aisles according to the field installation drawings.
- Locate the hole in the nose beam at the aisle center. Some rail sockets may be located up to 1.25” off the aisle centerline to accommodate the supporting structure. If a section joint falls at the aisle center, choose the hole closest to the aisle centerline, and use this location for all rows.
- If no hole is present at the aisle center, field drill through the nose beam (and riser beam if a full combo has been provided) at the aisle center for mounting a combo bracket.
- Install combos at socket locations unless an existing combo is present.
- Use the socket to locate where the top back hole will be drilled through the deck and combo. Bore the hole in the deck, then drill the combo bracket if necessary.
- Position the socket in the final location. Drill through the top of the nose beam at the second top mounting bolt hole location.
- Attach the socket with all of the hardware shown.
- Install the rail into the socket and secure rail to socket with the FLANGED HEAD cap screw.

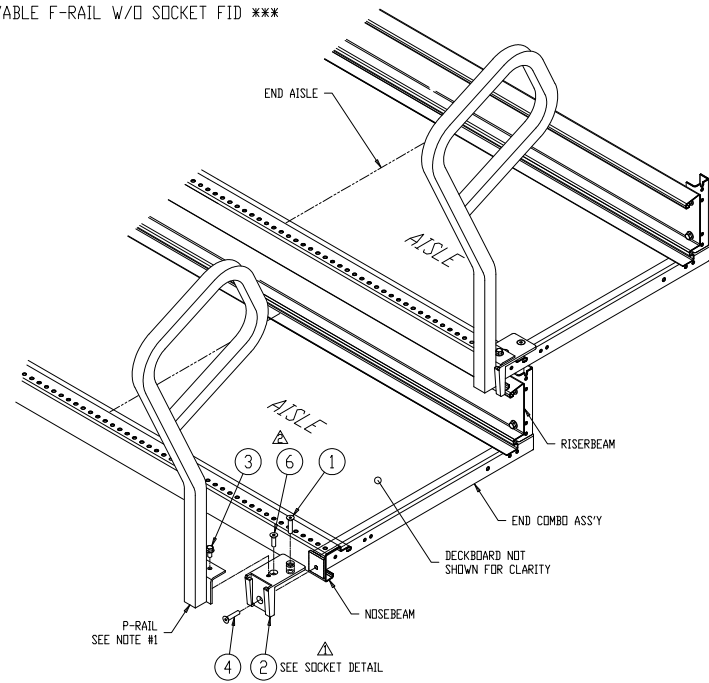
SKETCH #42A

DO NOT SCALE
 UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .001 ANGULAR ± 1°

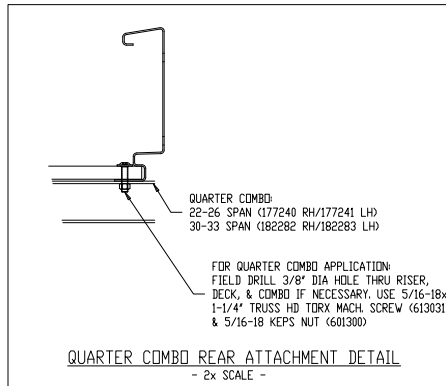
*** SEE GEN6720B THRU GEN6720D FOR NON-REMOVABLE F-RAIL W/O SOCKET FID ***



CENTER AISLE P-RAIL & SOCKET
 ITEM #5 NOT SHOWN IN THIS VIEW



END AISLE P-RAIL & SOCKET
 ITEM #5 NOT SHOWN IN THIS VIEW
 * USE (612402) 1" LONG SCREW IF SSER ARE AT END AISLE



NOTES:

- 1) RAIL LOCATIONS:
 22 THRU 26 SPAN - RAILS ON EVERY OTHER ROW BEGINNING ON ROW 2
 30 THRU 33 SPAN - RAILS ON EVERY ROW BEGINNING ON ROW 1
- 2) DO NOT OVER-TIGHTEN HOLD DOWN SCREW FOR P-RAIL.
- 3) FULL RH COMBO (182214-80) FOR 22-26 SPAN OR (182264-80) FOR 30-33 SPAN UNLESS WITHIN HORSE STRING THEN QUARTER RH COMBO. SEE QUARTER COMBO REAR ATTACHMENT DETAIL IF APPLICABLE.
- 4) FIELD DRILL .25/64" DIA. HOLE THRU COMBO ONLY & 7/8" DIA. HOLE THRU DECK ONLY FOR SOCKET.
- 5) ALL BOLTS & EXTRAS MUST BE TURNED OVER TO THE END USER OF SYSTEM, AFTER DEMONSTRATION.

REF. GEN6720J FOR EXPORT JOBS
 (REF. D9/D9A CALIFORNIA DRAWING)

ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
6		612402	.	3/8-16 x 1" SDC FL HD SCREW
5		601684	.	3/8-16 ELASTIC LOCK NUT
* 4		612402	.	3/8-16 x 1.00" SDC FL HD SCREW
		612190	.	3/8-16 x 3/4" SDC FL HD SCREW
3		600409	.	3/8-16 x 1/2" HEX FLANGE CAP SCREW
2		184282	.	CENTER RAIL SOCKET
1		612187	.	3/8-16 x 1-3/4" SDC FL HD CAP SCREW



SHEET 1 OF 2

2981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49001

TITLE P-RAIL & SOCKET INSTALLATION FID		SCALE 1/8" = 1"
MATERIAL NONE	FINISH NONE	REF. NO. WAS GEN6195/GEN5942
DRAWN BY CHRISTIE		PPR PART OR DRWG. NO. C GEN6720E
CHECKED BY 10/29/07	APPROVED BY	

SHEET 1 OF 2

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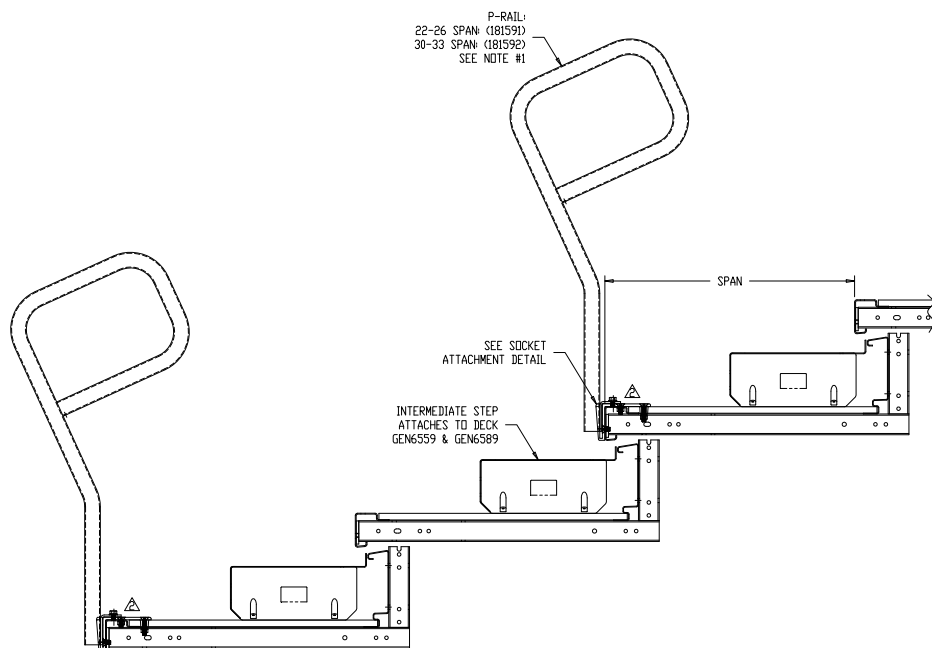
DRAWING LOCATION - P:\GEN\GEN6720\GEN6720D.DWG - PRINTED BY WARRENS DN 07-25-12 - 2:02PM

ADDED ITEM #6 WAS 612190	36118	TSC	9/10/08
SOME INFO WAS DN GEN6459/WAS 181402	36086	DV	12/18/07
NO.	DESCRIPTION	CHANGE NO.	RELEASED DATE

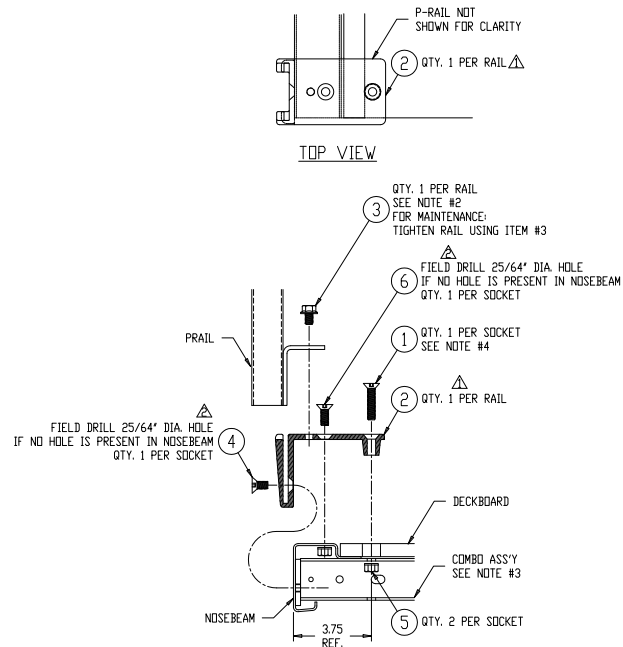
SKETCH #42B

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .00 ANGULAR ± 1'



SIDE VIEW
 24 SPAN SHOWN/CENTER AISLE



SOCKET ATTACHMENT DETAIL - SIDE VIEW
 - 2x SCALE -

(REF. D9/D9A CALIFORNIA DRAWING)

△	ADDED ITEM #6 WAS 612190	36118	TSC	9/10/08
△	SOME INFO WAS ON GEN6459/WAS 181402	36086	DV	12/18/07
ND.	DESCRIPTION	CHANGE NO.	CH. BY	RELEASED DATE

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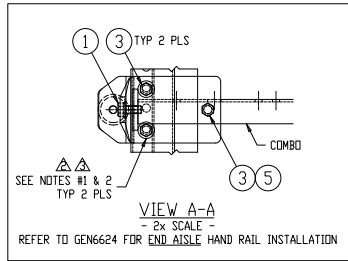
ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
				SHEET 2 OF 2
TITLE P-RAIL & SOCKET INSTALLATION FID				
SCALE 1/8" = 1"				
MATERIAL NONE		FINISH NONE		REF. NO. WAS GEN6195/GEN5942
DRAWN BY CHRISTIE		10/29/07	CHECKED BY	APPROVED BY
				C GEN6720E

SKETCH #43

END AISLE HAND RAIL SUPPORT PLATE:

DO NOT SCALE

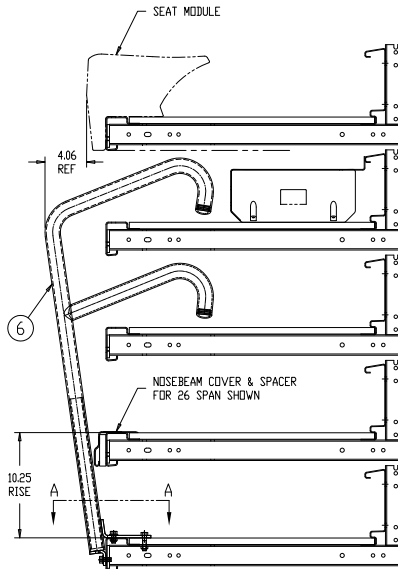
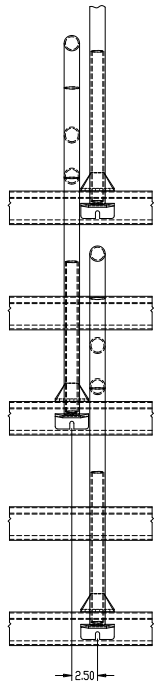
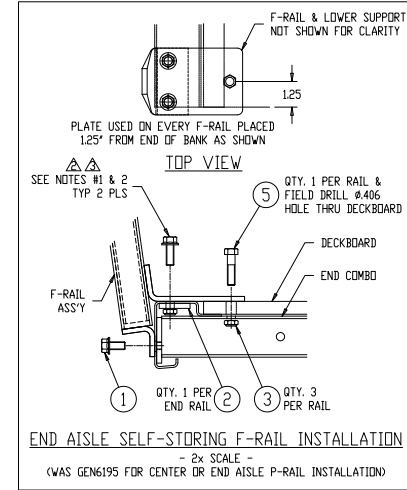
UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .001 ANGULAR ± 1°



RISE	PART NO.	DESCRIPTION
SHOWN 10.25'	183856-84	SELF-STORING AISLE RAIL (F-RAIL/SSAR)
	183754-84	SELF-STORING AISLE RAIL (SERVICE ONLY)
11.50'	183857-84	SELF-STORING AISLE RAIL (F-RAIL/SSAR)
	183756-84	SELF-STORING AISLE RAIL (SERVICE ONLY)
16'	183858-84	SELF-STORING AISLE RAIL (F-RAIL/SSAR)
	183757-84	SELF-STORING AISLE RAIL (SERVICE ONLY)

NOTES:

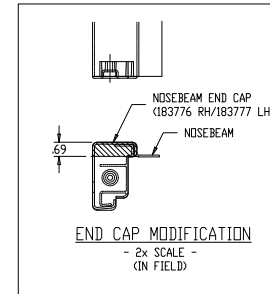
- 1) ELONGATE EXISTING HOLES IN TOP OF NOSEBEAM OR FIELD DRILL NEW #13/32 HOLES AS REQ'D.
- 2) FOR END AISLE APPLICATION WITH PLATE: USE ITEM #4 QTY. 2 PER PLATE. FOR ALL OTHER F-RAIL APPLICATIONS W/O PLATE: USE ITEM #1 QTY. 2 PER RAIL.



CENTER AISLE SELF-STORING F-RAIL INSTALLATION

10.25" RISE/26 SPAN SHOWN (11.50" & 16" RISE SIMILAR)

*** SEE GEN6720E FOR NON-REMOVABLE P-RAIL & SOCKET INSTALLATION FID ***
 *** SEE GEN6720F FOR SSAR/F-RAIL & STEP INTERFERENCE CORRECTION ***



ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
6		CHARTED	.	SELF-STORING AISLE RAIL (F-RAIL/SSAR)
5		600419	.	3/8-16 x 1-1/2" HEX HD HEX SOCKET CAP SCREW
4		534511	.	3/8-16 x 1 FLANGED HEX HD CAP BLK SCREW
3		601684	.	3/8-16 HEX ELASTIC LOCK NUT
2		183900	.	END AISLE SUPPORT PLATE
1		600408	.	3/8-16 x 3/4" FLANGED HD CAP SCREW



5981 EAST CORN. STREET - KALAMAZOO, MICHIGAN 49008

TITLE			
SELF-STORING AISLE RAIL (F-RAIL) INSTALLATIONS FID			
10.25" RISE/22 THRU 26 SPAN/CENTER AISLE			
MATERIAL NONE		FINISH NONE	
DRAWN BY TCHRISTIE		CHECKED BY	
10/29/07		APPROVED BY	
		C. GEN6720B	
REF. NO. WAS GEN6624		PPR PART OR DRWG. NO.	

NO.	DESCRIPTION	CHANGE NO.	CH BY	RELEASED DATE
	UPDATED HARDWARE ON DETAILS	N/R	TSC/MB	1/29/09
	UPDATED HARDWARE ON END AISLE DETAIL	36091	DV	2/28/08
	COMBINED TO GEN6720	36086	DV	12/18/07

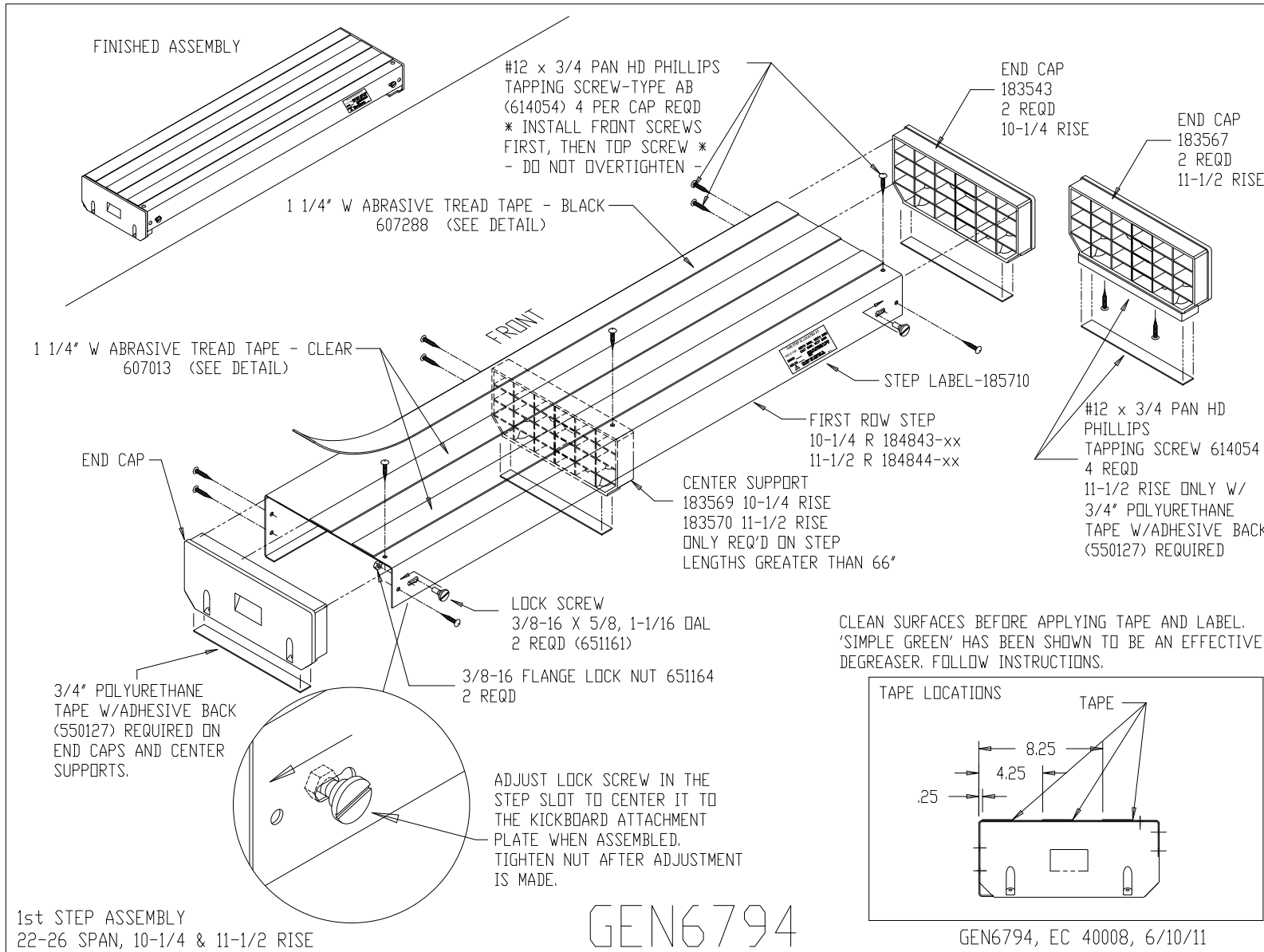
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STEP ASSEMBLIES

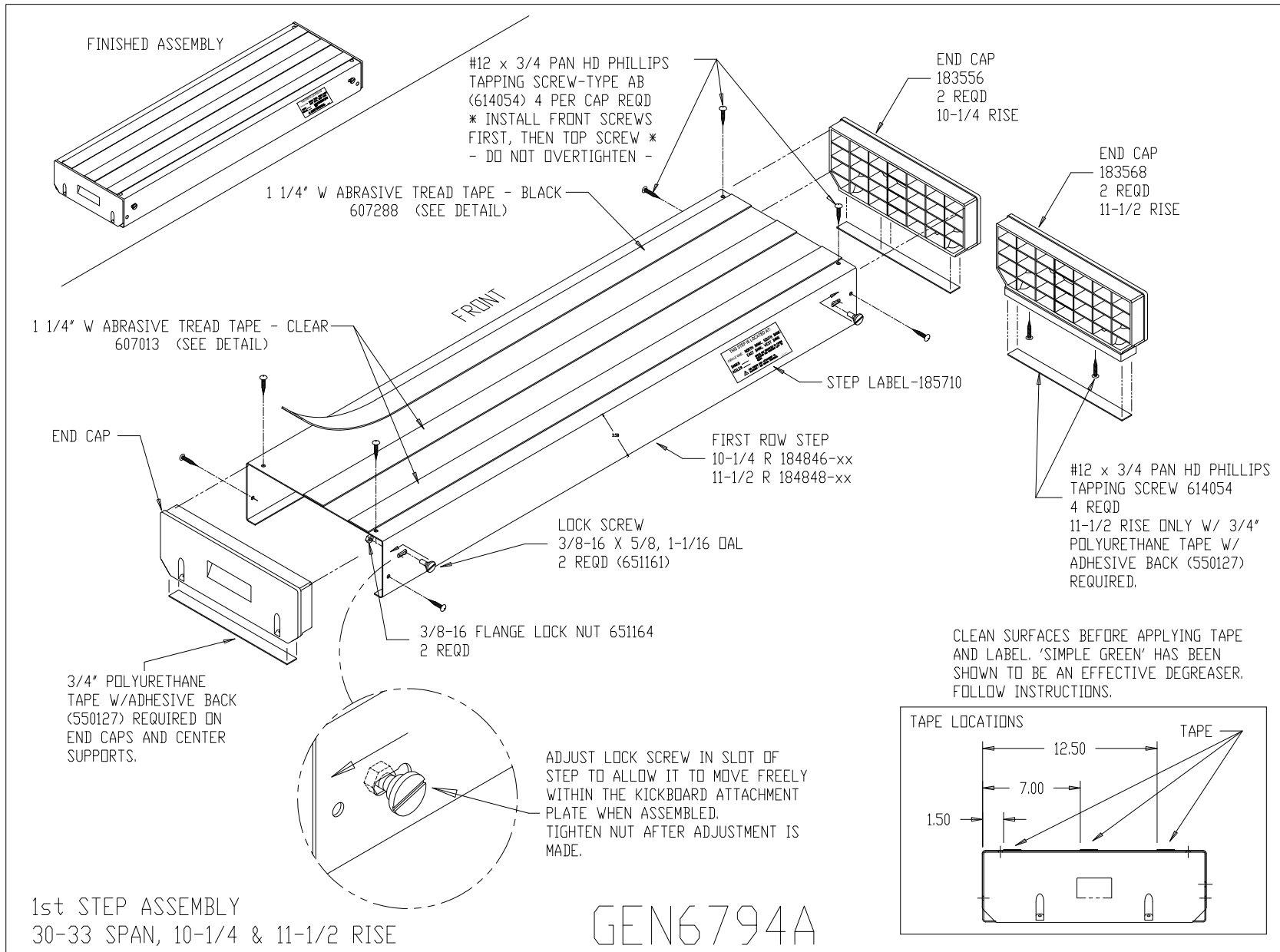
SKETCH #44

FIRST STEP ASSEMBLY:

Install First Step Assembly as shown on Sketch #44 & #44.1



SKETCH #44.1



SKETCH #44.2

DO NOT SCALE

UNLESS OTHERWISE SPECIFIED, LIMITS ON DIMENSIONS ARE
 2 PLACE DECIMAL ± .03 FRACTIONAL ± 1/32
 3 PLACE DECIMAL ± .010 ANGULAR ± 1°

END CAP (181942)

1/4-20 x 3/4 PAN HD PHILLIPS
 TAPPING SCREW (614050)
 TYP. 4 PLS

16" RISE 1ST ROW STEP
 (184850-xx)

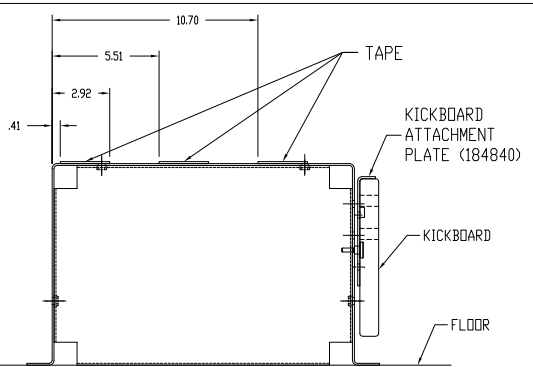
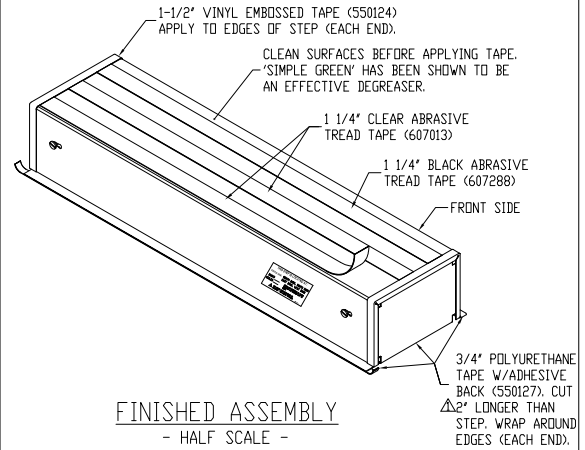
FRONT SIDE

LOCK SCREW
 3/8-16 X 5/8, 1-1/16 DAL
 2 REQD (651161)

STEP LABEL - 185710

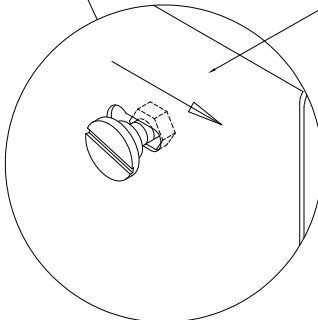
3/8-16 FLANGE LOCK NUT
 (651164)
 TYP. 2 PLS

END CAP (181942)



-FOR KICKBOARD ATTACHMENT PLATE INSTALLATION/ ADJUSTMENTS SEE GEN6813-
 SIDE VIEW STEP DETAIL

ADJUST LOCK SCREW IN
 THE STEP SLOT TO
 CENTER IT TO THE
 KICKBOARD ATTACHMENT
 PLATE WHEN ASSEMBLED.
 TIGHTEN NUT AFTER
 ADJUSTMENT IS MADE.



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ITEM	PPR	PART NUMBER	QTY	DESCRIPTION
Interkal 2981 EAST COOK STREET - KALAMAZOO, MICHIGAN 49008				
TITLE 1ST STEP DETAIL - 16" RISE				
MATERIAL				FINISH
DRAWN BY MGARZA				3/30/11
CHECKED BY		APPROVED BY		
SCALE NTS				REF. NO. PPR PART OR DRWG. NO. C GEN6795

SHEET 1 OF 1

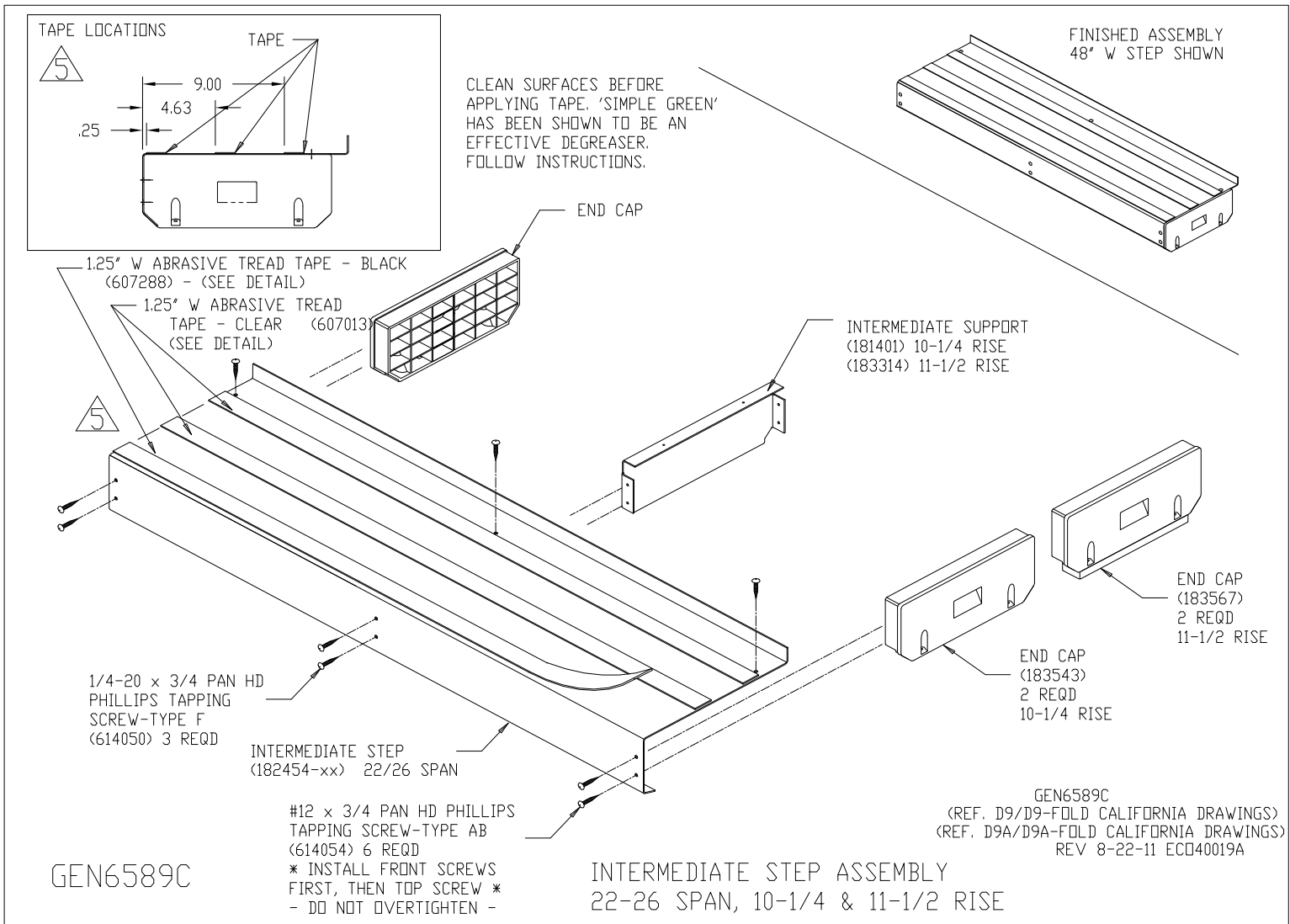
DRAWING LOCATION - P:\GEN\GEN6803\GEN6795.DWG - PRINTED BY KARRENS DN 10-09-12 - 1:51pm

SKETCH #44.3

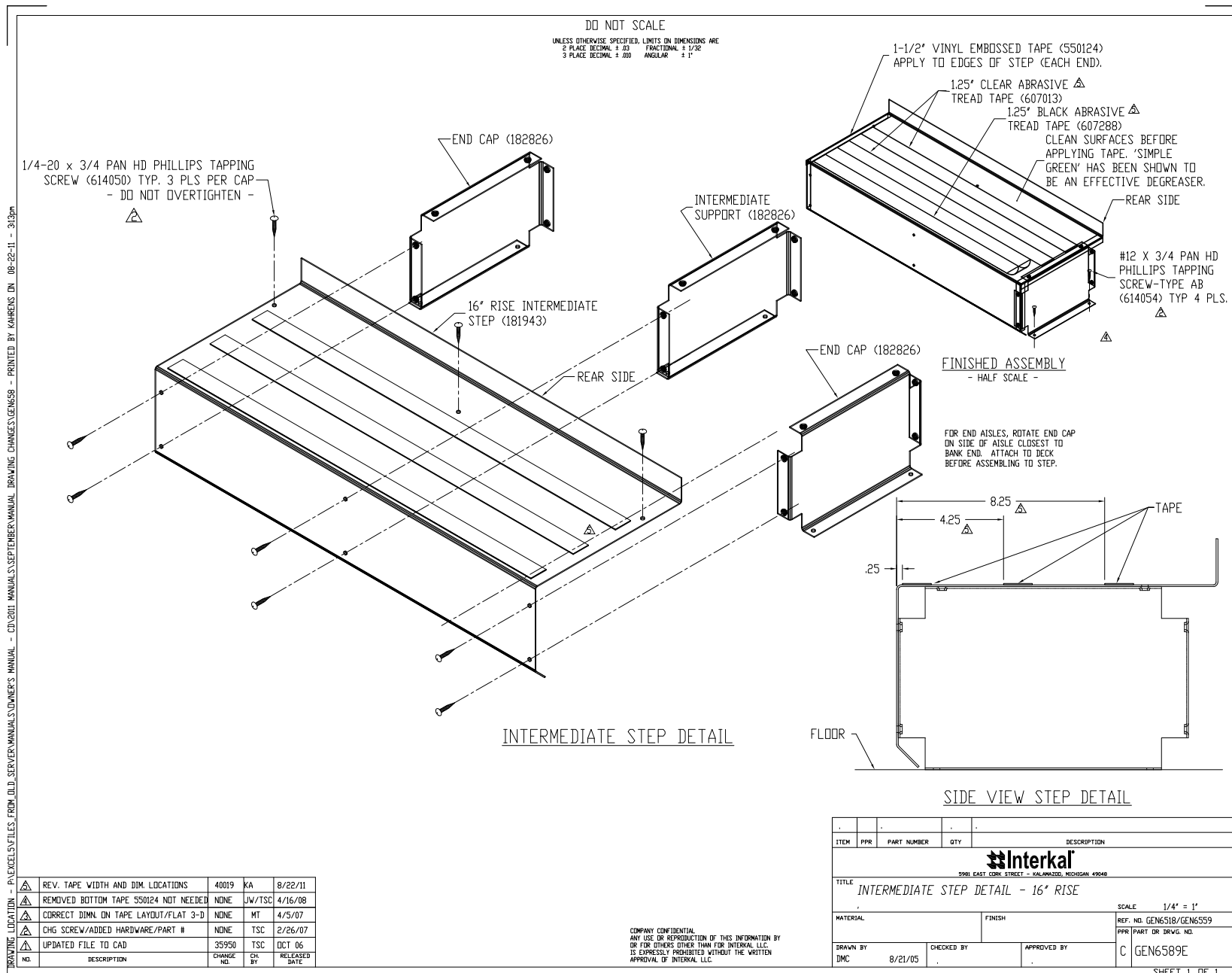
STEP ASSEMBLIES (CONTINUED)

INTERMEDIATE STEP ASSEMBLY:

Install Intermediate Step Assembly as shown.



SKETCH #44.4



DRAWING LOCATION - P:\FILES\FILES_FROM_OLD_SERVER\MANUALS\OWNER'S MANUAL - CD\2011 MANUALS\SEPTEMBER MANUAL DRAWING CHANGES\GEN658 - PRINTED BY KHARENS DN 08-22-11 - 3:39pm

SKETCH #44.5

FIRST ROW KICKBOARD

- 22-24/ 30-33 SPAN -
- 10.25" RISE SHOWN -
- GEN6798/GEN6794 FOR REFERENCE -
- UNDERSTRUCTURE NOT SHOWN FOR CLARITY -

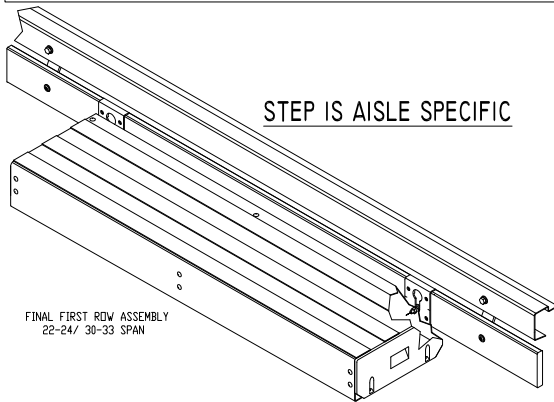
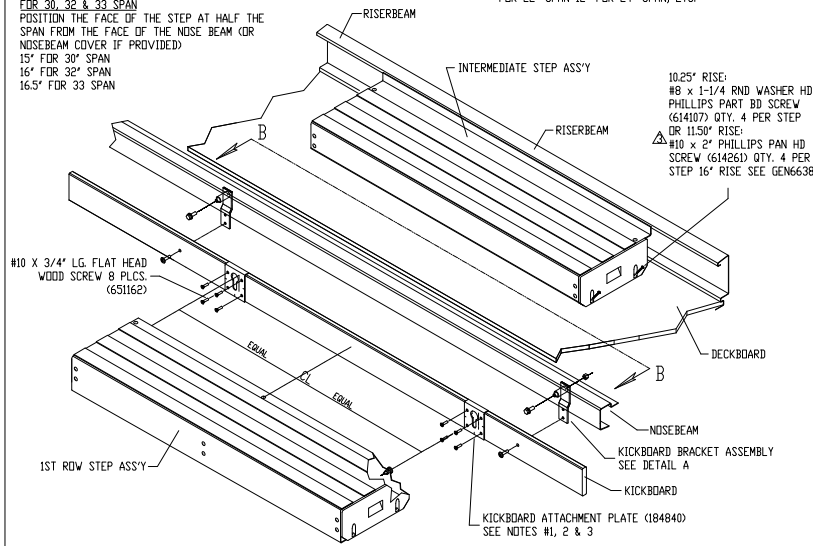
INTERMEDIATE STEPS

FDR 22 & 24 SPAN
POSITION THE FACE OF THE STEP AT HALF THE SPAN FROM THE FACE OF THE NOSE BEAM
11' FDR 22' SPAN
12' FDR 24' SPAN

FDR 26 SPAN
POSITION THE FACE OF THE STEP AT HALF THE SPAN FROM THE FACE OF THE AISLE CAP
13' FDR 26 SPAN

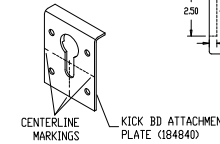
FDR 30, 32 & 33 SPAN
POSITION THE FACE OF THE STEP AT HALF THE SPAN FROM THE FACE OF THE NOSE BEAM (OR NOSEBEAM COVER IF PROVIDED)
15' FDR 30' SPAN
16' FDR 32' SPAN
16.5' FDR 33' SPAN

INTERMEDIATE STEPS:
POSITION THE FACE OF THE INTERMEDIATE STEP AT HALF THE SPAN FROM THE FACE OF THE NOSEBEAM 11' FDR 22' SPAN 12' FDR 24' SPAN, ETC.



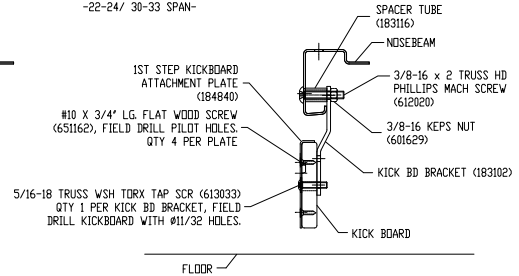
FINAL FIRST ROW ASSEMBLY
22-24/ 30-33 SPAN

BORE OUT A 2-1/2\" DIA. HOLE BY 3/8\" DEEP ON KICKBOARD WITH A 2-1/2\" DIA. FORSTNER BIT USING THE MARKING ON THE KICKBOARD ATTACHMENT PLATE TO FIND THE CENTER TO BORE OUT. INSURE THAT AFTER THE ASSEMBLY THE LOCK BOLT MOVES FREELY UP AND DOWN THE KEY HOLE SLOT.



DETAIL A

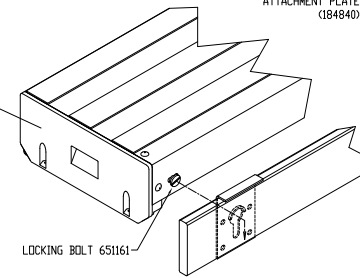
- 4x SCALE -
- 22-24/ 30-33 SPAN -



****DO NOT DRILL THRU KICKBOARD, SEE DETAIL****

VIEW B-B (REAR)

- ALL SPANS AND RISES -
- 24 SPAN SHOWN -



TO ATTACH STEP TO KICKBOARD INSERT LOCK SCREW THROUGH KICKBOARD BRACKET AND SLIDE DOWNWARD ENSURING THAT THE STEP RESTS COMPLETELY FLAT ON THE FLOOR. FOR LOCK SCREW ADJUSTMENT SEE GEN6794

NOTES:

- 1) CENTER THE 1ST ROW STEP IN FRONT OF AISLE WHILE MAKING SURE THE LOCK BOLTS ARE AGAINST THE KICKBOARD.
- 2) ON THE KICKBOARD MARK THE CENTER OF THE LOCK BOLTS W/ A SMALL PERPENDICULAR LINE ON TOP OF THE BOLTS.
- 3) FOR FURTHER INSTRUCTIONS SEE DETAIL A

STOCKBILLER REFERENCE:

- 10.25" & 11.50" RISE/22-24 & 30-33 SPAN USE: 183102 KICKBOARD BRACKET (POWER/MANUAL)
- ** GALVANIZED/EXPORT JOBS USE DIFFERENCE STEP END CAP HARDWARE 614107 SWITCHES TO 614109 FOR 10.25" RISE & 614261 SWITCHES TO 614023 FOR 11.50" RISE

				INSTL STEPS FOR FOOT LEVEL AISLE		BRVN NGARZA	03/29/11
				FDR 10.25", 11.50" RISE		CHKD	
				22-24/ 30-33 SPAN		APVD	
						SCALE	3/4"=1'-0"
						SHEET	1 OF 3
						DRGNO	C-GEN6808A
REV.	DESCRIPTION	BY	CHKD	APVD	DATE		
Δ	#10 X 2" 614261 WAS #8 X 2" 614110	KA			7/27/12		
Δ	PICTORIAL CHANGE PER ECO 40008A	MG			1/24/12		
Δ	RELEASED TO PRODUCTION PER ECO 40008	MG			9/9/11		



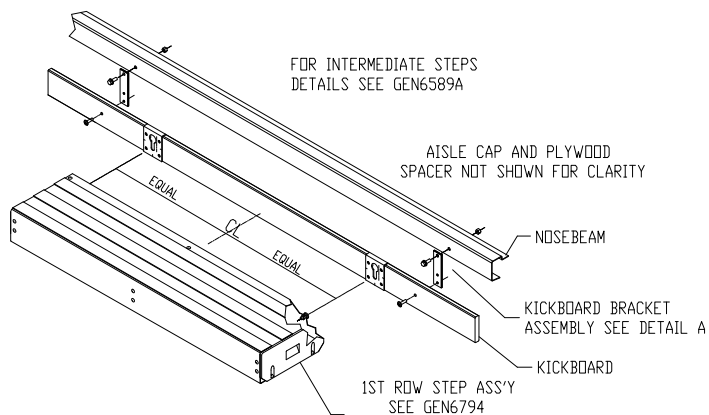
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

SKETCH #44.6

FIRST STEP ASSEMBLY:

Install First Step Assembly as shown on Sketch #44.6.

DRAWING LOCATION - \\SERVER-2\ECDS\40000\40000\40000\REVISED\GEN6808B-C_1ST_ROW_STEP.DWG - PRINTED BY KAARENS DN 04-19-12 - 910am



FOR INTERMEDIATE STEPS
DETAILS SEE GEN6589A

AISLE CAP AND PLYWOOD
SPACER NOT SHOWN FOR CLARITY

STOCKBILLER REFERENCE:

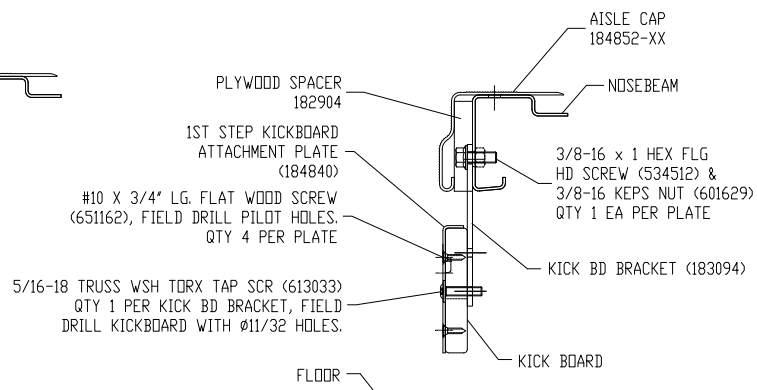
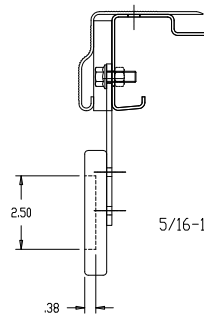
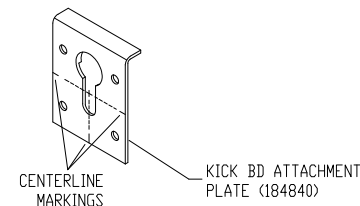
10.25" & 11.50" RISE/ 26 SPAN ONLY USE:
183094 KICKBOARD BRACKET (POWER/MANUAL)
184852-XX NOSEBEAM COVER (26 SPAN ONLY)
182904 PLYWOOD SPACER

STEP IS AISLE SPECIFIC

DETAIL A

- 4x SCALE -
-26 SPAN ONLY-

BORE OUT A 2-1/2" DIA. HOLE X 3/8" DEEP ON
KICKBOARD WITH A 2-1/2" DIA. FORSTNER BIT USING
THE MARKING ON THE KICKBOARD ATTACHMENT PLATE
TO FIND THE CENTER TO BORE OUT. INSURE THAT
AFTER THE ASSEMBLY THE LOCK BOLT MOVES
FREELY UP AND DOWN THE KEY HOLE SLOT.



****DO NOT DRILL THRU KICKBOARD, SEE DETAIL****

REV.	RELEASED TO PRODUCTION PER ECO 40008	MG			9/9/11
		DRWN.	CHKD.	APVD.	DATE

INSTL STEPS FOR FOOT LEVEL AISLE
10.25 & 11.50 RISE
26 SPAN ONLY



5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

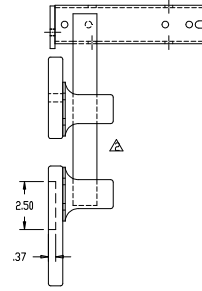
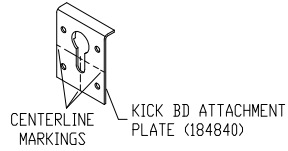
GEN6808B

DRWN	MGARZA	08/30/11
CHKD		
APVD		
SCALE	3/4"=1'-0"	
SHEET	2	OF 3
DRG.ND.	B-GEN6808B	

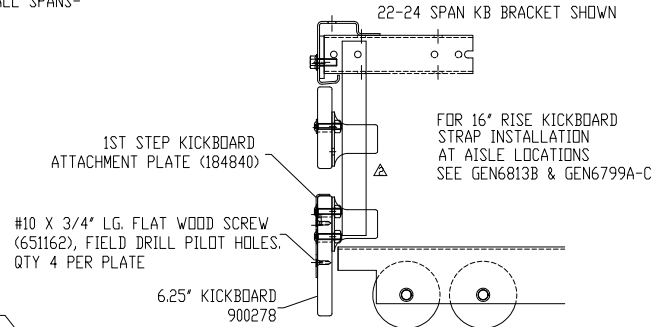
FIRST STEP ASSEMBLY: 16"

SKETCH #44.7

BORE OUT A 2-1/2" DIA. HOLE X 3/8" DEEP ON KICKBOARD WITH A 2-1/2" DIA. FORSTNER BIT USING THE MARKING ON THE KICKBOARD ATTACHMENT PLATE TO FIND THE CENTER TO BORE OUT. INSURE THAT AFTER THE ASSEMBLY THE LOCK BOLT MOVES FREELY UP AND DOWN THE KEY HOLE SLOT.



DETAIL A
KICKBOARD BRACKET INSTALLATION AT THE AISLE
-ALL SPANS-



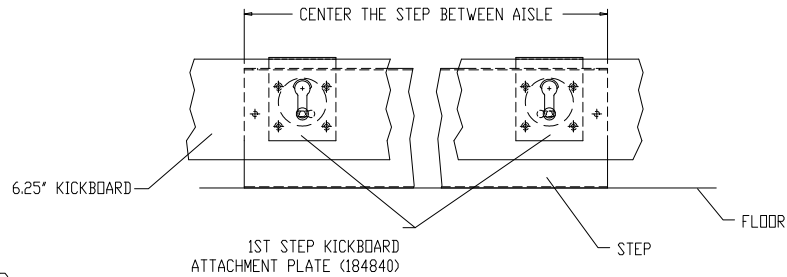
****DO NOT DRILL THRU KICKBOARD, SEE DETAIL A****

NOTES:

- 1) CENTER THE 1ST ROW STEP IN FRONT OF AISLE WHILE MAKING SURE THE LOCK BOLTS ARE AGAINST THE KICKBOARD.
- 2) ON THE KICKBOARD MARK THE CENTER OF THE LOCK BOLTS W/ A SMALL PERPENDICULAR LINE ON TOP OF THE BOLTS.
- 3) FOR FUTHER INSTRUCTIONS SEE DETAIL A

DETAIL B

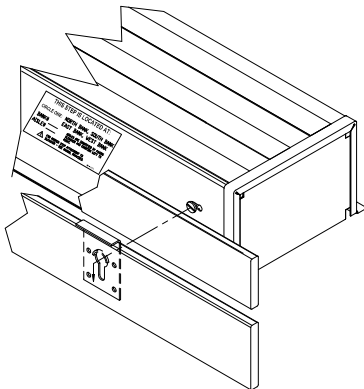
SEE NOTES 1 THRU 3 FOR ADDITIONAL INSTRUCTIONS



DETAIL C

REAR VIEW OF STEP

TO ATTACH STEP TO KICKBOARD INSERT LOCK SCREW THROUGH KICKBOARD BRACKET AND SLIDE DOWNWARD ENSURING THAT THE STEP RESTS COMPLETELY FLAT ON THE FLOOR. FOR LOCK SCREW ADJUSTMENT SEE GEN6795

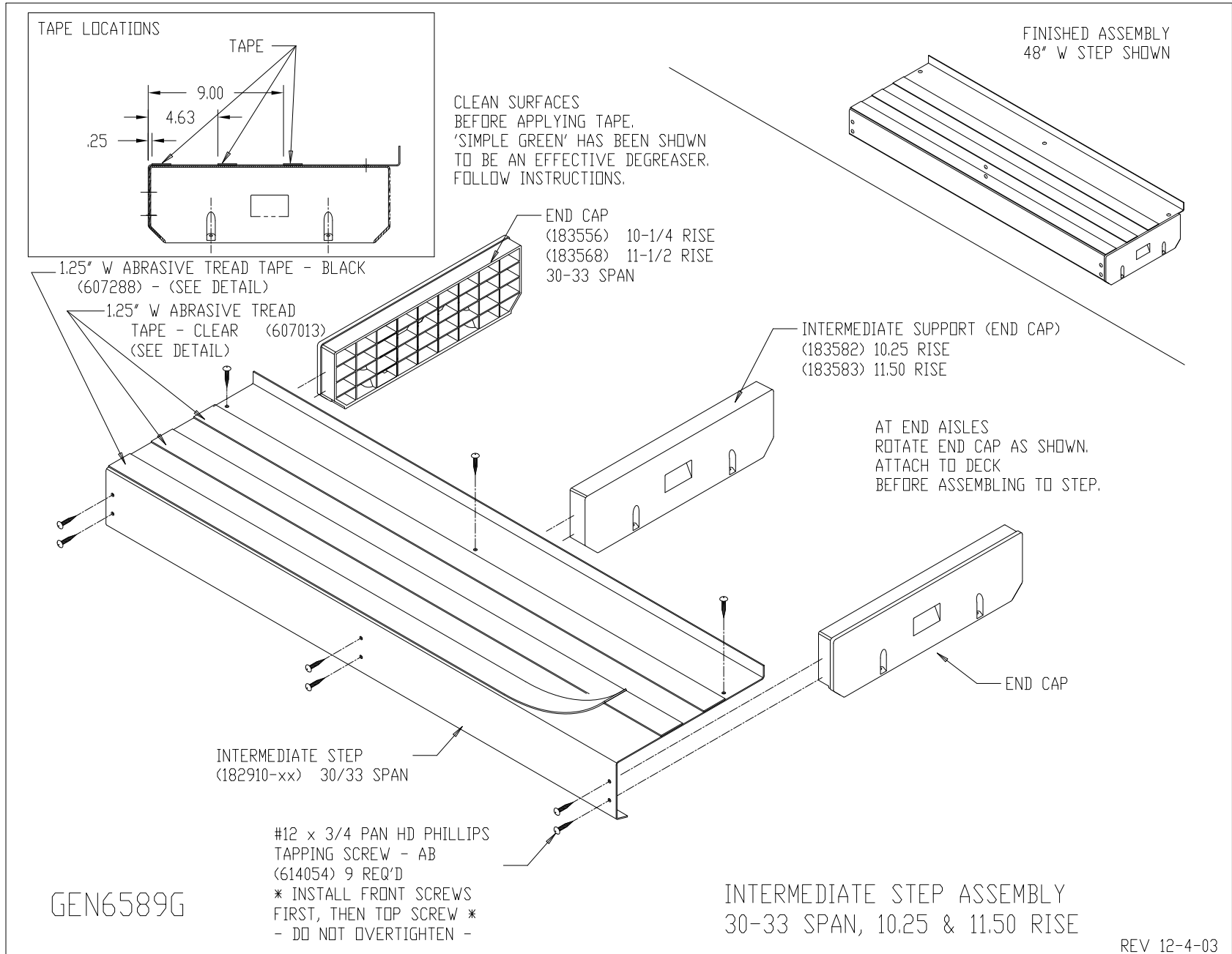


STEP IS AISLE SPECIFIC

DRAWING LOCATION - P:\GEN\GEN6813_1ST ROW_STEP_DRAWING - PRINTED BY KARENS DN 10-09-12 1:55pm

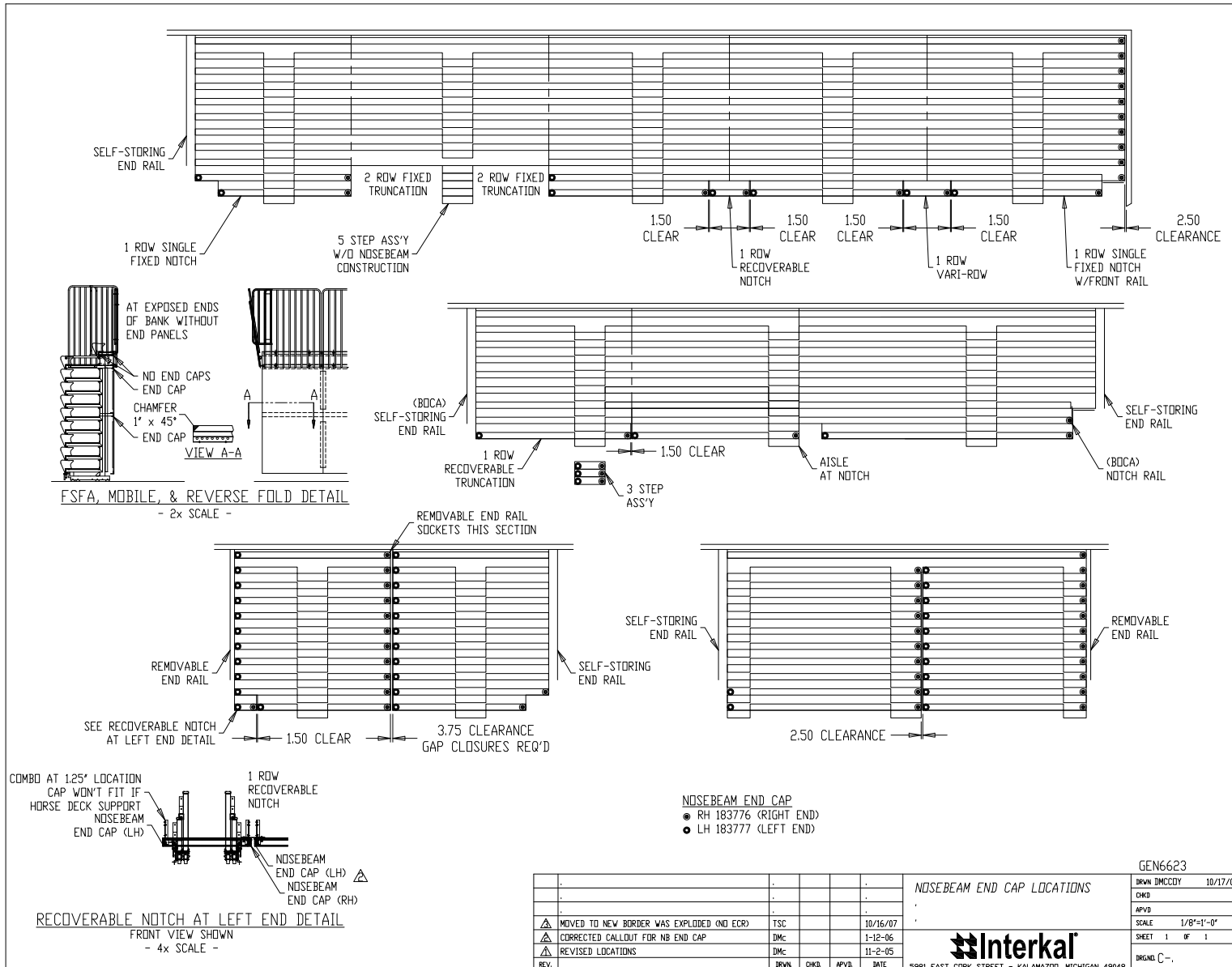
				GEN6813	
				DRWN MGARZA 08/02/11	
				CHKD	
				APVD	
				SCALE 1/4" = 1"	
				SHEET 1 OF 2	
				DRGNG C-	
REV.	DRWN	CHKD	APVD	DATE	FIRST ROW KICKBOARD & STEP INSTALLATION 16" RISE
△		KA		8/21/12	Interkal
△		MG		1-19-12	
△		MG		08-02-11	
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048					

SKETCH #44.9



NOSEBEAM END CAPS

NOSEBEAM END CAP LOCATIONS:

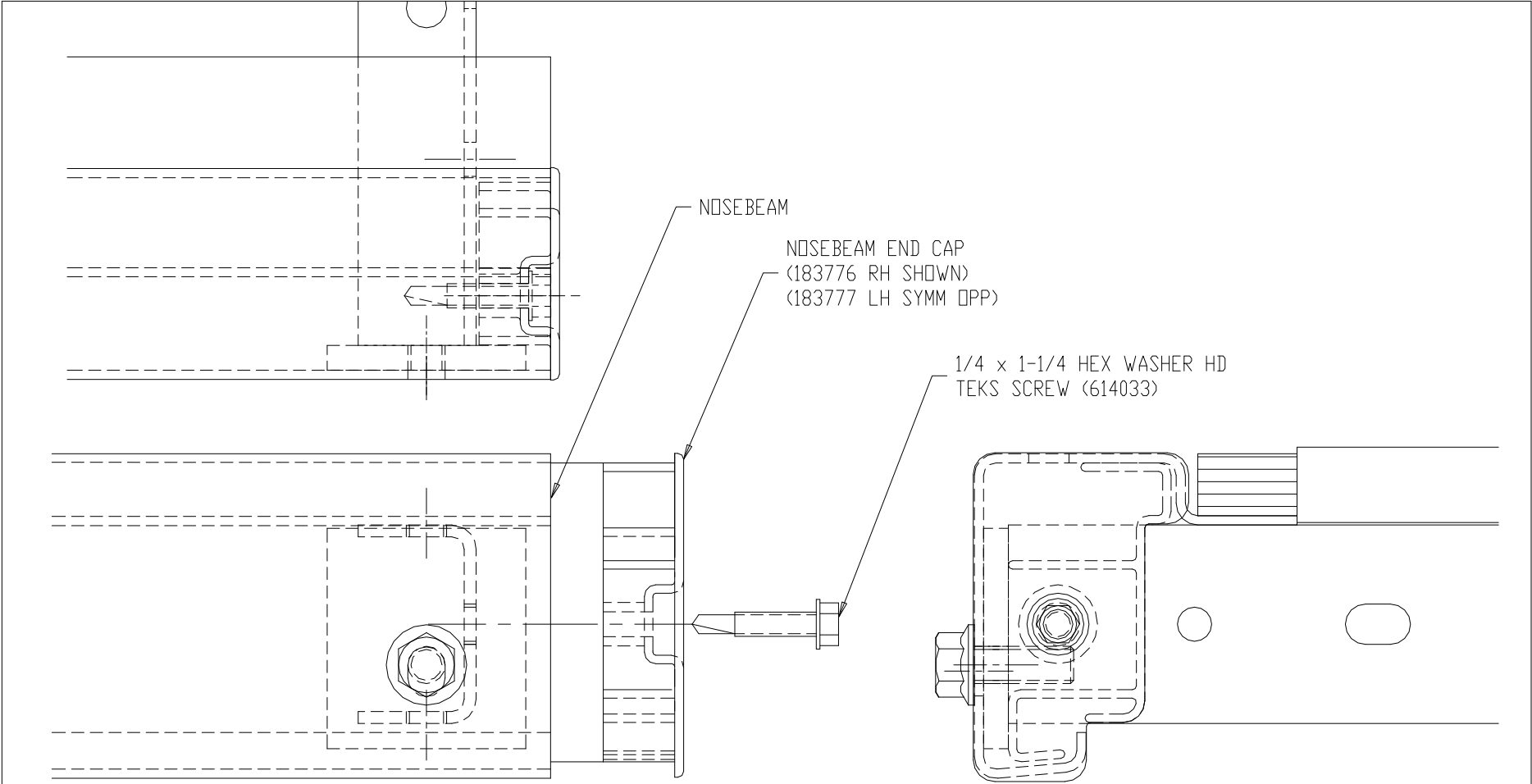


SKETCH #48

NOSEBEAM END CAPS (CONTINUED)

NOSEBEAM END CAP:

Nosebeam End Cap per Sketch #48.



					GEN6622(A)	
					INSTALLATION OF NOSEBEAM END CAP	
					DRWN DMCCDY 10/13/05	
					CHKD	
					APVD	
					SCALE 1" = 1"	
					SHEET 1 OF 1	
					DRGND. B-	
△ REV.		DRWN.	CHKD.	APVD.	DATE	

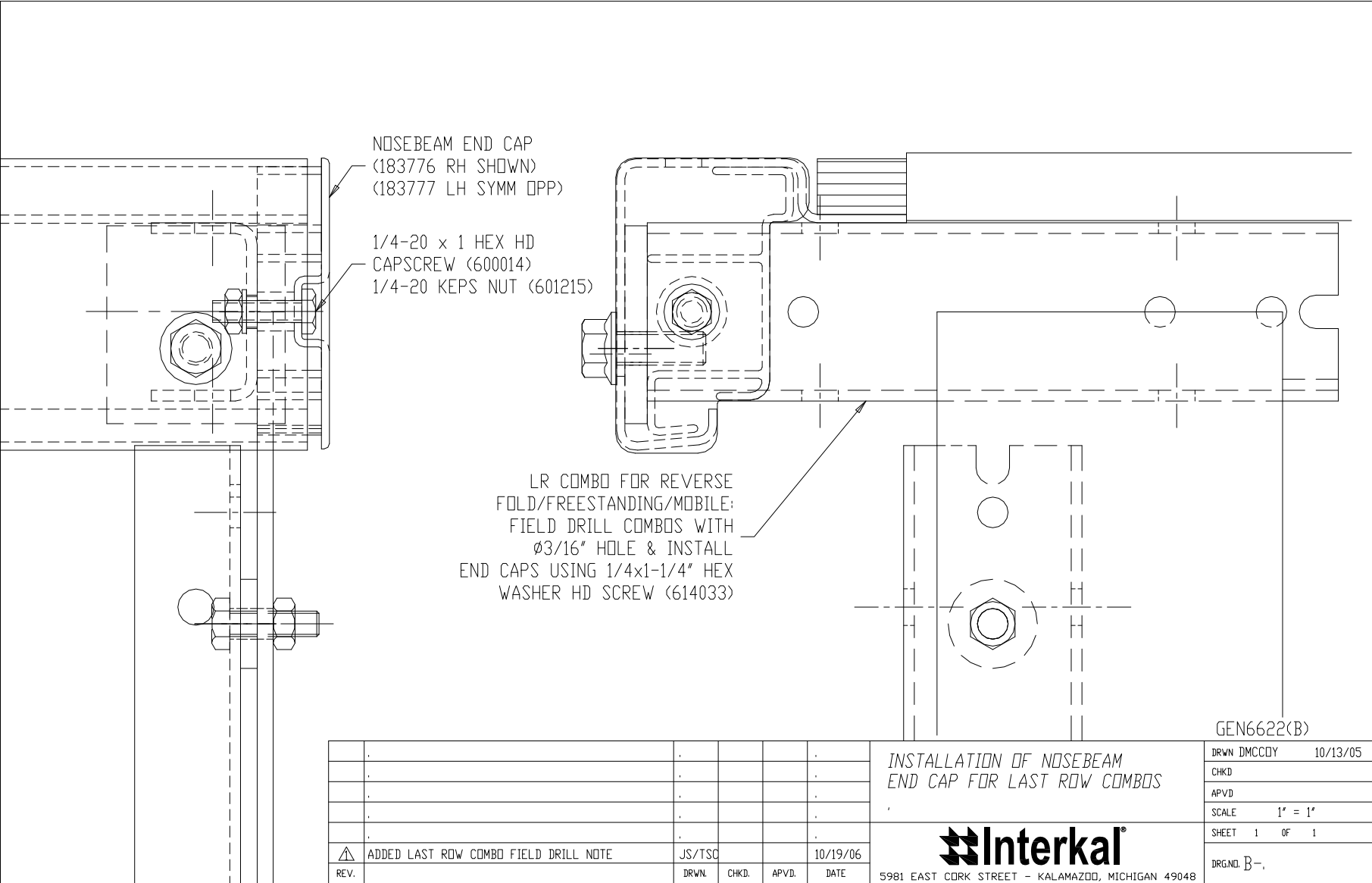


5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

SKETCH #49

LAST ROW NOSEBEAM END CAP:

Last Row Nosebeam End Cap per Sketch #49.



GEN6622(B)

REV.	ADDED LAST ROW COMBO FIELD DRILL NOTE	JS/TSC	10/19/06
		DRWN.	CHKD.
		APVD.	DATE

INSTALLATION OF NOSEBEAM
END CAP FOR LAST ROW COMBOS



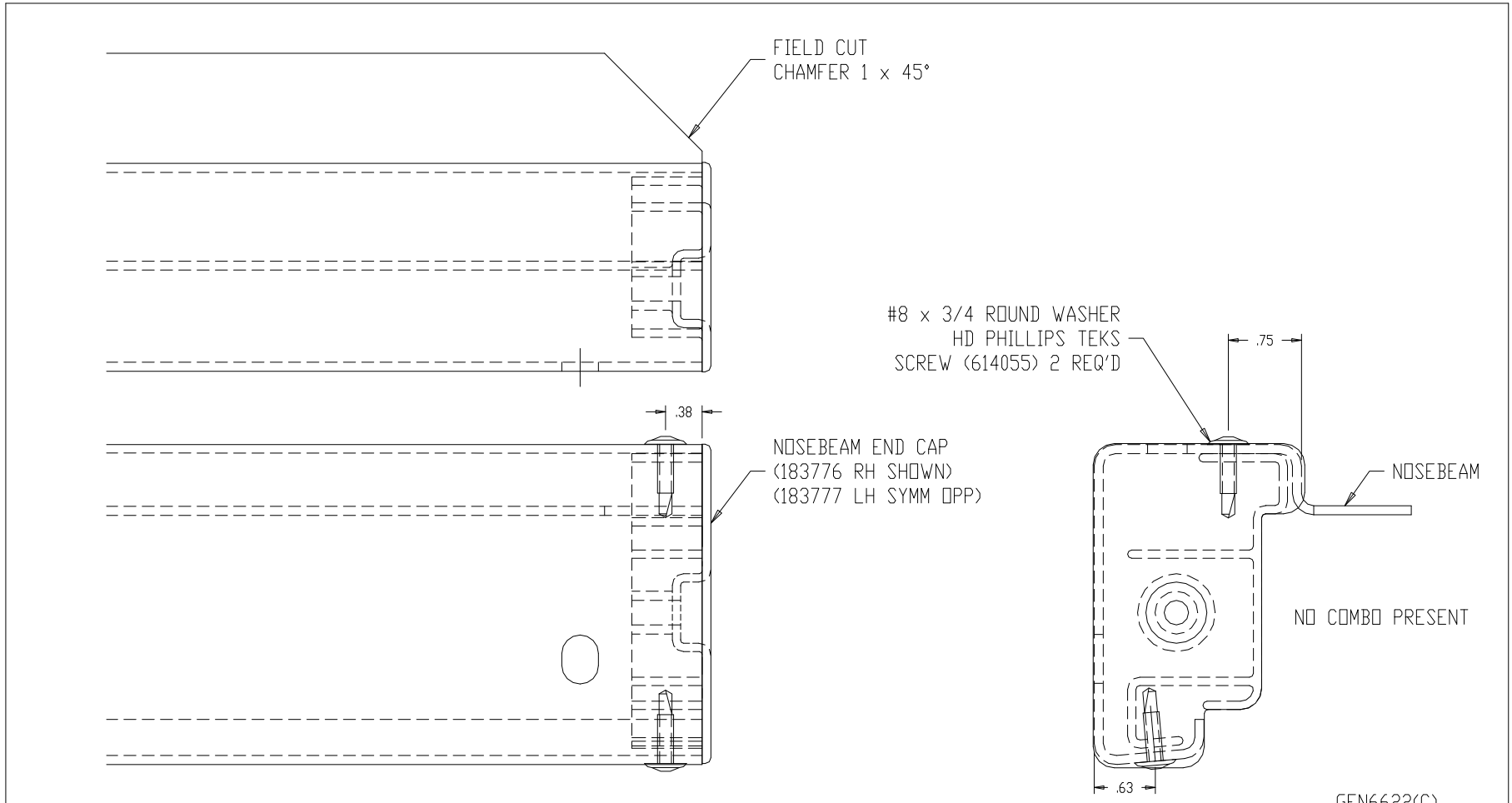
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

DRWN	DMCCOY	10/13/05
CHKD		
APVD		
SCALE	1" = 1"	
SHEET	1	OF 1
DRGNO.	B-	

SKETCH #50

NOSEBEAM END CAP NOT AT COMBO:

Nosebeam End Cap Not At Combo per Sketch #50.



GEN6622(C)

REV.		DRWN.	CHKD.	APVD.	DATE

INSTALLATION OF NOSEBEAM
END CAP FOR NO COMBO PRESENT

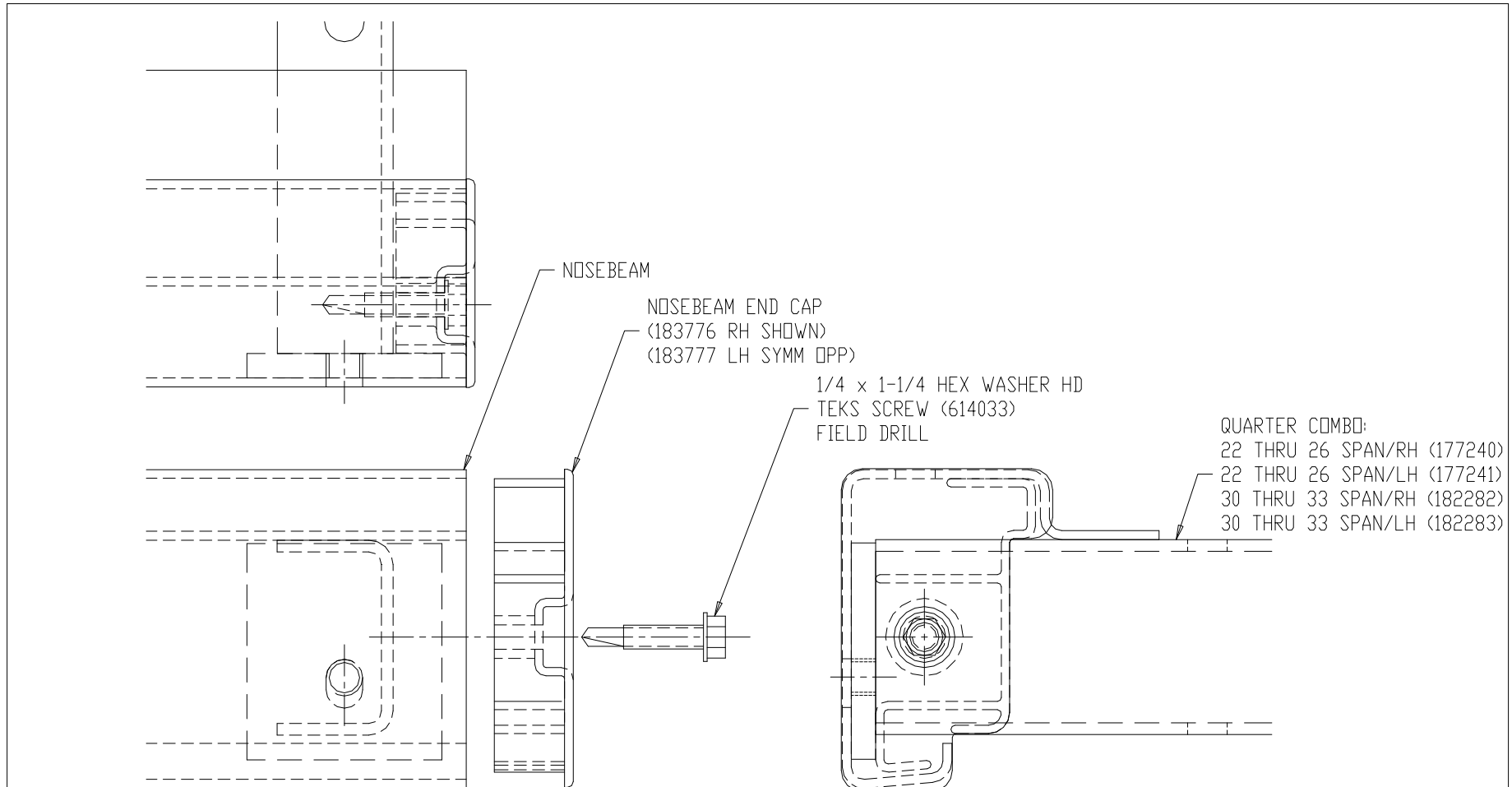
Interkal
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

DRWN	DMCCDY	10/13/05
CHKD		
APVD		
SCALE	1" = 1"	
SHEET	1	OF 1
DRGNO.	B-	

SKETCH #51

NOSEBEAM END CAP AT QUARTER COMBO:

Nosebeam End Cap At Quarter Combo per Sketch #51.



GEN6622(D)

REV.	DRWN.	CHKD.	APVD.	DATE

INSTALLATION OF NOSEBEAM
END CAPS FOR QUARTER COMBOS



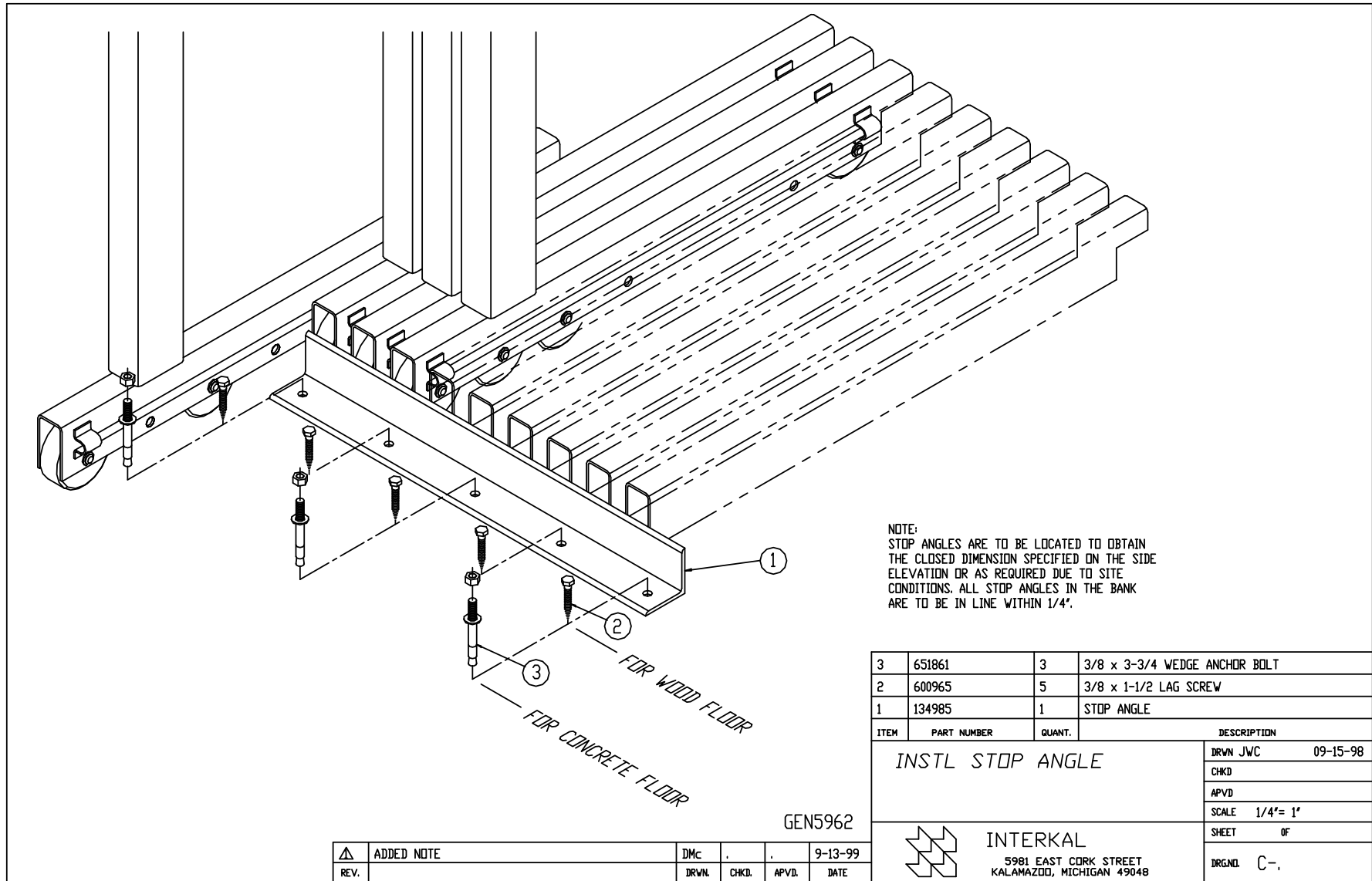
5981 EAST CORK STREET - KALAMAZOO, MICHIGAN 49048

DRWN	DMCCOY	10/13/05
CHKD		
APVD		
SCALE	1" = 1"	
SHEET	1 OF 1	
DRG. NO.	B-	

STOP ANGLES

INSTALLATION:

The presence of columns, pipes, floor vents, etc. may require the closed dimension be greater than the minimum normally attainable. This condition also exists when non-friction power is supplied. Install stop angles as shown on Sketch #52.

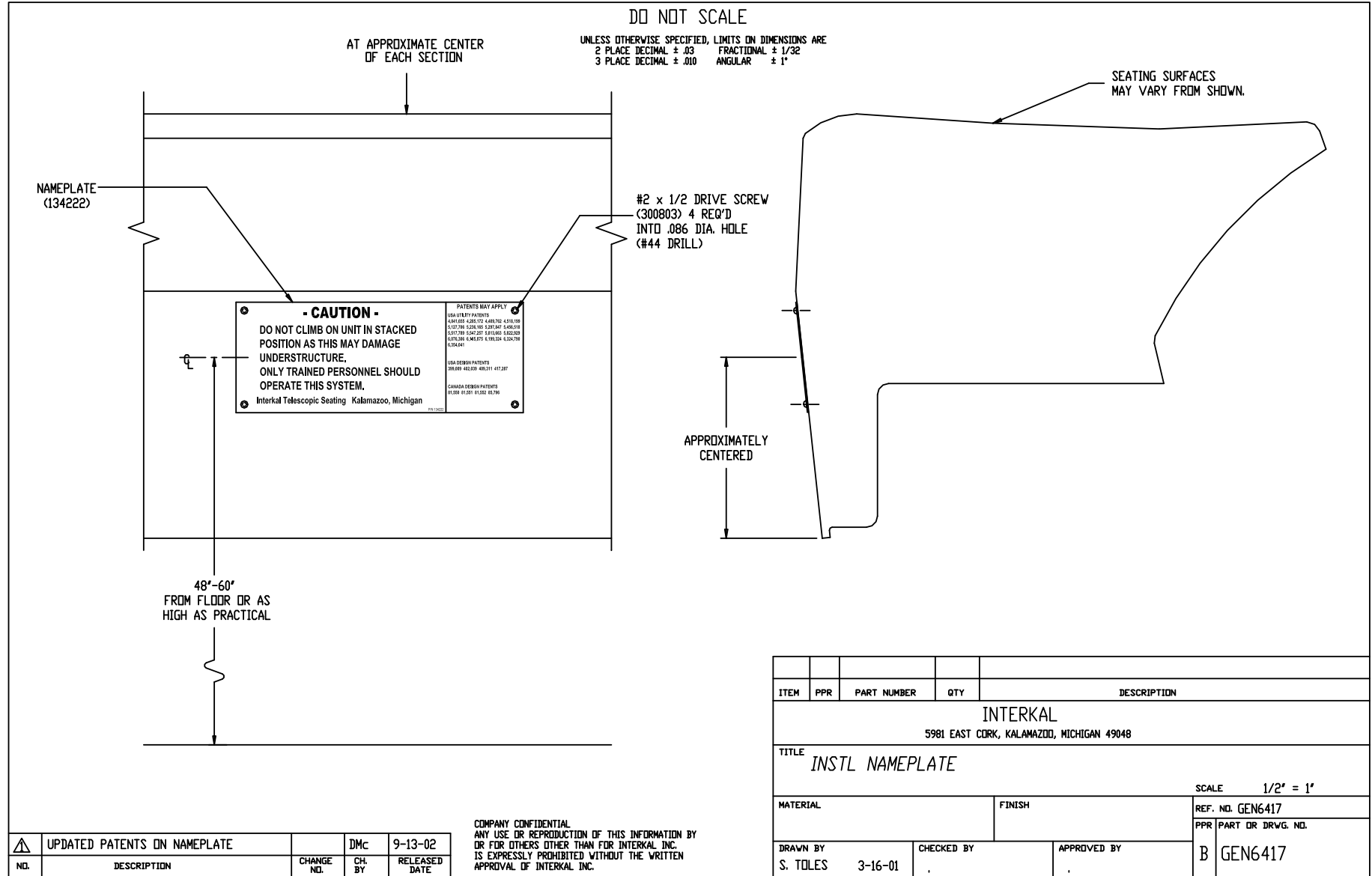


SKETCH #53

NAME PLATES

INSTALLATION:

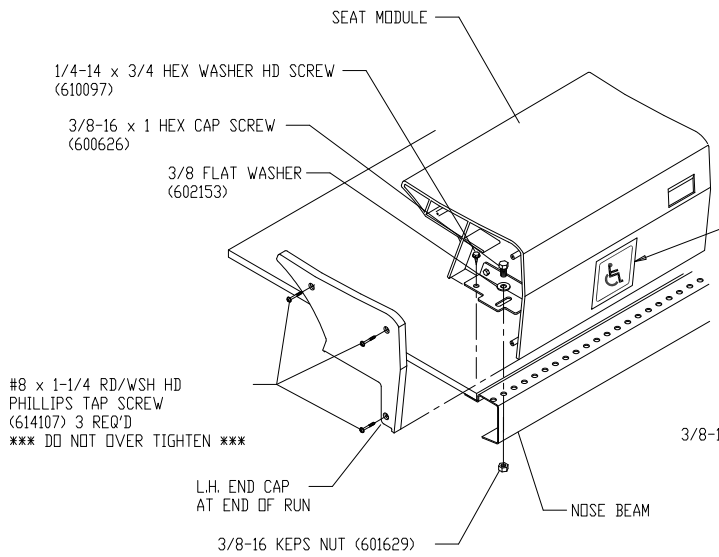
Install Name Plates per Sketch #53.



HANDICAP SEATING LABEL

SKETCH #54

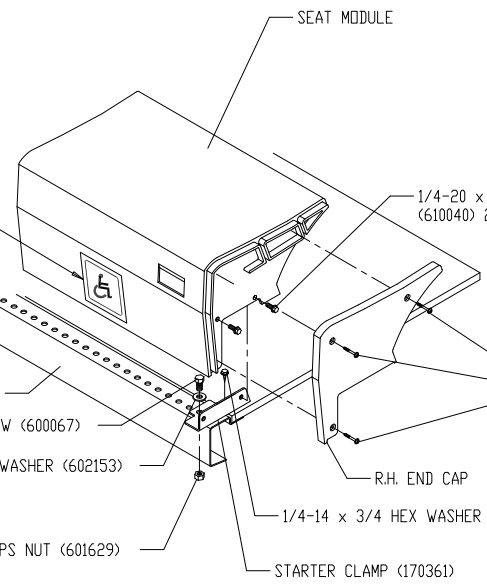
DRAWING LOCATION - P:\EXCELS FILES - FROM OLD SERVER\MANUALS\DMWERY'S MANUAL - CD\2012 MANUALS\AUGUST\MANUAL DRAWINGS\GEN6829.DWG - PRINTED BY KAHRENS DN 07-23-12 - 10:00am



INSTALLATION OF TYPICAL SSM MODULE IN RUN

1
D5

1
G1
PROVIDED AT:
COMPANION SEATS (C)
SEMI-AMBULANT SEATS (S)
TRANSFER SEATS (T)
SEE PLAN VIEW LAYOUT



INSTALLATION OF FIRST SSM MODULE IN RUN

2
D5

NOTE:
ALWAYS START MODULES
AT R.H. END OF ROW

GEN6829

7/6/12

REV.		DRWN.	CHKD.	APVD.	DATE

COMPANION SEAT LABEL ATTACHED TO SCULPTURE SEAT MODULE



5981 EAST CDRK STREET - KALAMAZOO, MICHIGAN 49048

DRWN MBARKER	3-8-11
CHKD	
APVD	
SCALE	1/8" = 1"
SHEET 1 OF 1	
DRGNO. B- D5	Pg. No.

MISCELLANEOUS APPLICATIONS

GREASING GUIDE RODS & WHEEL CHANNELS:

Apply white lithium grease to all guide rods. At the same time, grease the wheel channels along the guide rods on both sides. Reference Maintenance Manual for additional information.

FINAL INSPECTION

***** WARNING *****

All manuals contain critical information on maintenance requirements & must be read thoroughly. All maintenance is to be done on a regularly scheduled basis preformed by owner, installer, and/or dealer or agent. Intekal is not liable for maintenance performed by others. Neglecting routine maintenance may result in injuries. Reference Maintenance Manual for additional information.

- All nuts and bolts installed and tightened.
- Specified bolts and nuts or screws used at each location.
- Lock washers installed where required.
- Row locks properly adjusted.
- Remove all spare bolts, nuts, and screws from on and under the unit.
- Units operate easily in both directions without binding.
- All wall and floor tie components properly installed and tightened.
- All surface dirt resulting from installation and storage removed.
- Obtain Installation Approval Form**
- Owner's Manual to be turned over to the Owner**