

BALCO INC

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**INSTALLATION INSTRUCTIONS
FOR
TRENCH & ACCESS
COVER SYSTEMS**

INSTALLATION INSTRUCTIONS FOR BALCO, INC. TRENCH & ACCESS COVER SYSTEMS

The following installation instructions are very important. Read them carefully, and be sure you understand them completely before you begin any work.

STORAGE & HANDLING

The trench cover system may require some assembly. Store this product in the horizontal position in a clean, dry location. This is a finished product. Store this product in a protected area.

TRENCH & ACCESS COVERS PARTS LIST

<u>TST-XX-XXXP¹</u>	<u>CAST-IN-PLACE</u>	<u>BLOCKOUT</u>
A. Cover Assembly	Cover	Cover
B. Anchor	F1434S	F1434S
C. Frame Assembly		
1. Frame	Frame	Frame
2. Liner ²	Liner	Liner
D. Anchorage		
1. Cast-in-Place	HB14212	-----
2. Blockout		
a. Angle	-----	GAP58S
b. Frame Anchor	-----	H1412S
c. Concrete Anchor	-----	TH316134
E. Frame Splices		
1. Splice Bar	Splice Bar	Splice Bar
2. Anchors	H1412S	H1412S

¹ This system number is representative. The system number indicates cover plate surface finish, thickness, and width.

² The Liner is typically steel, but aluminum and stainless steel are also available.

TOOLS REQUIRED

This is a list of tools and materials recommended for use in the installation of these joint cover systems. These tools and materials are not provided by Balco, Inc.

- A. Wooden Bracing
- B. Plywood for temporary replacement of cover
- C. Electric Drill
- D. Drill Bits for drilling metal (aluminum and steel)
- E. Drill Bits for drilling wood.
- F. Drill Bits for drilling concrete.
- G. Sockets for hex head screws
- H. Phillip's Head Drill Bit
- I. Air Gun for clearing debris and dust from installation area
- J. Rivet Gun
- K. Silicone Sealant
- L. Hammer
- M. Nails or wood screws for assembling bracing

INSTALLATION

These installation instructions are for use in the installation of Balco, Inc. TSP/ACP, TST/ACT, TSD/ACD, and TSA/ACA Series Trench and Access Cover Systems. These systems may be cast into place or they may be installed into a blockout in a preformed trench. These systems shall be installed as follows:

STEP 1. Review Balco, Inc. approved shop drawings for types and locations.

STEP 2. If the system is to be installed into a blockout, prepare the blockout in accordance with standard industry practices and all applicable requirements (see Figure 1). Ensure that each blockout surface is at the proper elevation and that it is even, level, straight, and the proper dimensions. Proceed directly to Step 12.

NOTE: BALCO, INC. RECOMMENDS THAT A CONCRETE SUPPORT PAD BE USED FOR INSTALLATION OF CAST-IN-PLACE TRENCH & ACCESS COVERS. HOWEVER OTHER METHODS FOR INSTALLING CAST-IN-PLACE TRENCH & ACCESS COVERS MAY BE USED AND ARE ACCEPTABLE, PROVIDED THE SELECTED METHOD IS GOOD, STANDARD INDUSTRY PRACTICE AND PROVIDED THE SELECTED METHOD CONFORMS TO ALL APPLICABLE STANDARDS AND REQUIREMENTS.

STEP 3. If the system is to be cast into place, pour the concrete support pad, if required (see Figure 2). Ensure that the support pad is the proper width, thickness, elevation, configuration, and length. Ensure that the top surface of the pad is level.

STEP 4. Attach the anchors (part no. HB14212) to the trench cover or access cover frame, spacing the anchors at 20" o.c. (see Figure 3).

STEP 5. Assemble the trench cover on the support pad, splicing the liner and frame sections of the assembly in accordance with the procedures provided in the appropriate sections of these installation instructions (see Figure 4).

STEP 6. Remove the cover plate from the frame (see Figure 5).

STEP 7. Provide continuous wooden bracing inside the trench liner (see Figure 6). This will help ensure that the assembly maintains its shape during the pouring, finishing and curing of the concrete.

NOTE: IT WILL BE NECESSARY TO DRILL ANCHOR HOLES INTO THE TEMPORARY WOODEN COVER SO THAT IT MAY BE ATTACHED TO THE TRENCH COVER FRAME.

STEP 8. Place a temporary wooden cover (plywood is recommended) into the frame, attaching it to the frame as shown in Figure 6. This procedure is recommended to protect the cover plate from concrete splatter during the pouring and finishing of the concrete.

STEP 9. Ensuring that the trench cover or access cover assembly is in the proper position, that it is level, and that it will not shift during the pouring or finishing of the concrete, affix the assembly to the support pad. The assembly may be wired into place or otherwise affixed in place.

STEP 10. Pour the concrete in accordance with standard industry practice and all applicable requirements. Clean away any excess concrete from the exposed surfaces of the frame before the concrete is allowed to cure.

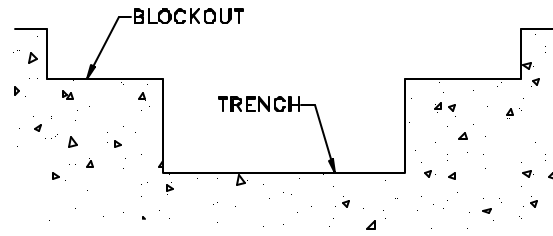


Figure 1

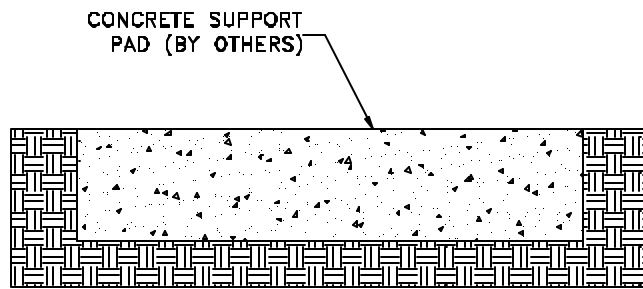


Figure 2

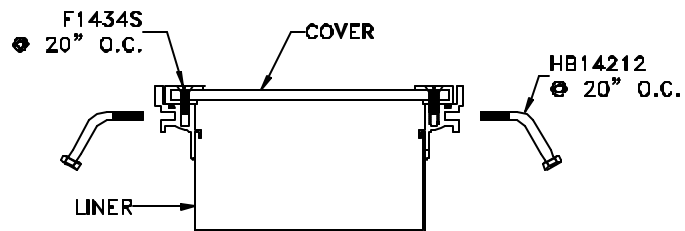


Figure 3

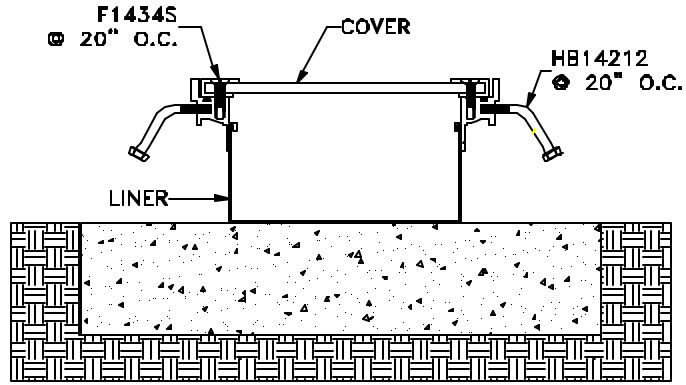


Figure 4

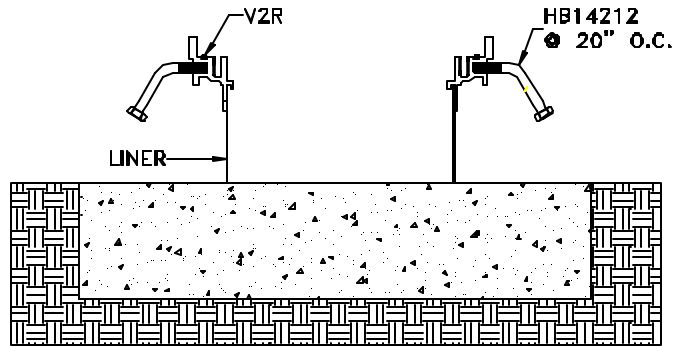


Figure 5

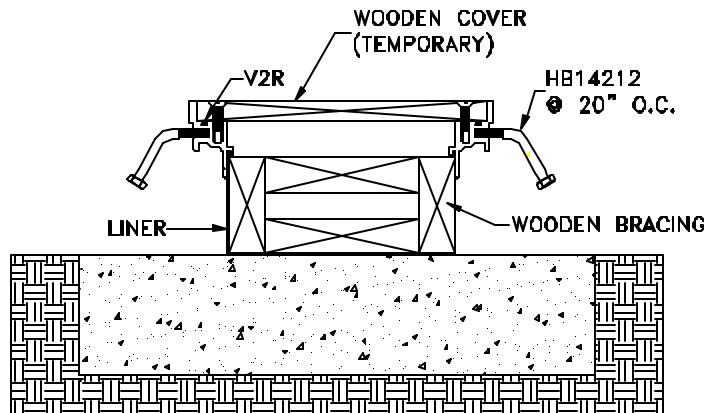


Figure 6

- STEP 11.** After the concrete has cured, remove the temporary wooden cover from the frame and remove the wooden bracing from the liner (see Figure 7). Proceed directly to Step 24.
- STEP 12.** If the system is to be installed into a blockout, attach the angles (part no. GAP58S) to the frame using the fasteners provided (part no. H1412S). Spacing for the angles is 20" o.c. (see Figure 8).
- STEP 13.** After all the angles have been attached, place the system, if it is completely assembled, or the first section of the system, if it is not completely assembled, into the prepared blockout and trench (see Figure 9).
- STEP 14.** Put the next section of the trench cover into place in the blockout and trench, splicing it to the first section of the trench cover in accordance with the procedures provided in the appropriate sections of these installation instructions.
- STEP 15.** Repeat the procedure given in Step 14 until the trench cover system is completely assembled in the prepared blockout and trench and all frame and liner splices have been completed.
- STEP 16.** Remove the cover plate from the frame.

NOTE: IT WILL BE NECESSARY TO DRILL ANCHOR HOLES INTO THE TEMPORARY WOODEN COVER SO THAT IT MAY BE ATTACHED TO THE TRENCH COVER FRAME.

- STEP 17.** Place a temporary wooden cover (plywood is recommended) into the frame, attaching it to the frame (refer to Figure 10). This procedure is recommended to protect the liner from concrete dust as the anchor holes are drilled into the blockout, and to protect the cover plate from grout splatter during the pouring and finishing of the grout.
- STEP 18.** Ensure that the trench cover or access cover system is at the proper elevation, that it is flush with the finished floor, and that it is level, even, and plumb.
- STEP 19.** Drill the anchor holes into the concrete blockout at the locations indicated by the anchor holes in the frame angles (part no. GAP58S). Ensure that the system remains level, even, plumb, and in the proper position.

NOTE: OBSERVE NORMAL SAFETY PRECAUTIONS WHEN DRILLING TO AVOID ALL UTILITIES AND RE-BAR.

- STEP 20.** Clean away any dirt, dust, and debris from the blockout and exposed frame surfaces.
- STEP 21.** Using the anchors provided (part no TH316134), fasten the trench cover or access cover to the blockout (see Figure 11).
- STEP 22.** Grout the system into place. Follow the grout manufacturer's instructions for mixing and installation of the grout (see Figure 12).
- STEP 23.** Remove the temporary wooden cover from the frame (see Figure 13).
- STEP 24.** Place the trench cover plate back into position in the frame. Ensure that each section of the cover plate is properly aligned and in the proper position.

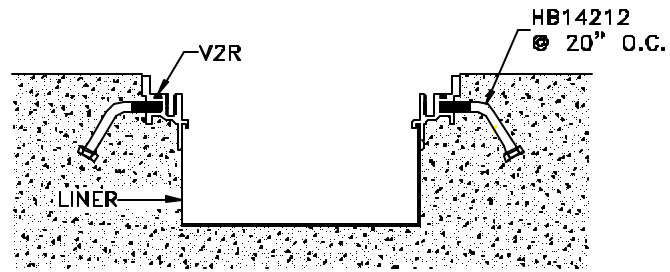


Figure 7

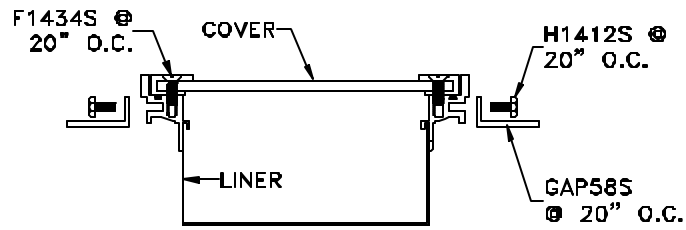


Figure 8

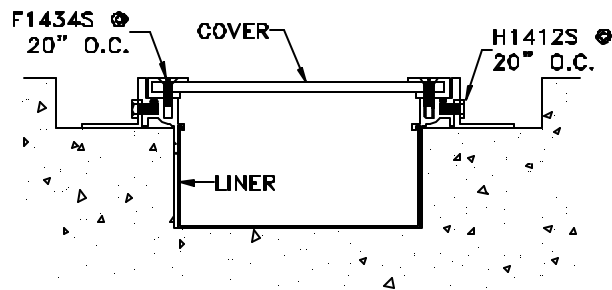


Figure 9

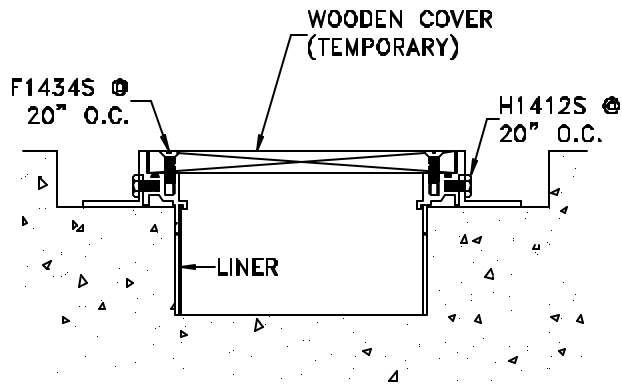


Figure 10

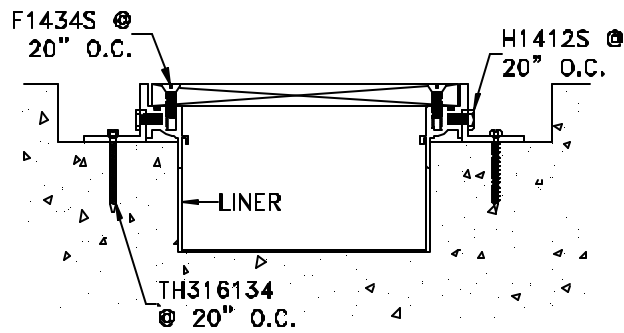


Figure 11

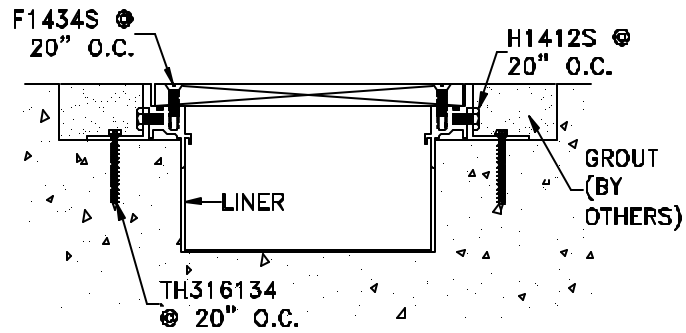


Figure 12

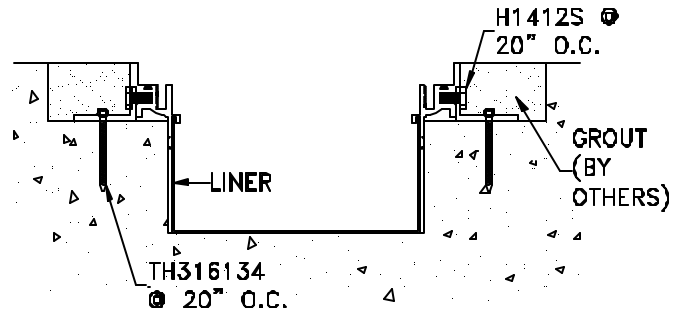


Figure 13

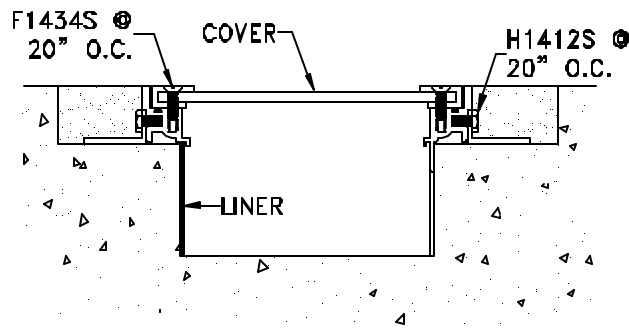


Figure 14

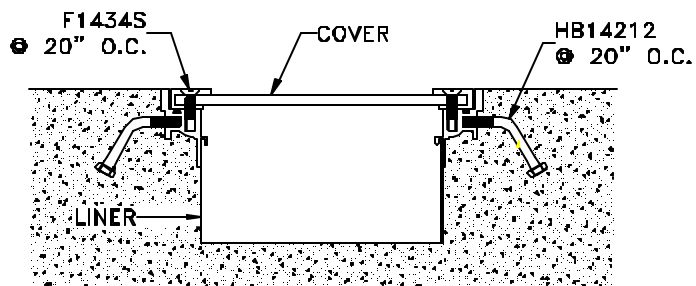


Figure 15

- STEP 25.** Using the fasteners (part no F1434S) provided by the factory, attach the cover plate to the frame (see Figure 14 and Figure 15).
- STEP 26.** If the cover plate is to have tile installed into it, install the tile into the cover plate recess at the time of installation of the finished floor. Install the tile in accordance with the tile and adhesive manufacturers' instructions.

SPLICING TRENCH LINERS

Splice plates for the trench liners are fabricated by the factory and are attached to the inside of one of the mating sections of the trench liner at the factory. The splice plates may be spot welded to the liner or they may be riveted to the liner. The splice plates extend beyond the section of the trench liner to which they are attached so that they can be inserted into the mating section of the trench liner. Trench liners are typically attached to the trench cover frames at the factory. Refer to the section of these instructions entitled "Splicing Trench & Access Cover Frames" for the procedures necessary to splice the trench cover or access cover frames.

- STEP 1.** Remove the sections of the trench cover plate from their corresponding sections of the trench cover frame and liner.
- STEP 2.** Select a section of the trench liner and place it into its installed position (see Figure 16). Ensure that the liner is level, even, and properly aligned.
- STEP 3.** Place a mating section of the liner into its assembled position relative to the liner section already put into place (see Figure 17).
- STEP 4.** Place a continuous bead of silicone caulk (by others) on the exposed outside surface of the splice plate at a nominal 1" from the plate's end.
- STEP 5.** Slide the free end of the attached splice plate into the receiving end in the mating section of the trench liner (see Figure 18). Ensure that the mating sections of the trench liner are level, the proper width, and properly aligned. Ensure that the mating sections of the liner abut as closely as possible with one another.
- STEP 6.** Press the splice plate and the mating section of the liner together to spread the caulk and to form a better seal.
- STEP 7.** Caulk the splice with silicone caulk (by others) to provide additional moisture protection.
- STEP 8.** Spot weld or rivet the free end of the splice plate to the mating section of the trench liner, ensuring that the mating sections of the trench liner remain as tightly abutted together as possible (see Figure 19).
- STEP 9.** Repeat Step 3 through Step 8 for each subsequent section of the trench liner until the liner is completely assembled.
- STEP 10.** Splice the trench cover frames, as needed, in accordance with the appropriate procedures given in these installation instructions.
- STEP 11.** Complete the installation of the trench cover or access cover system in accordance with the procedures given above in these installation instructions.

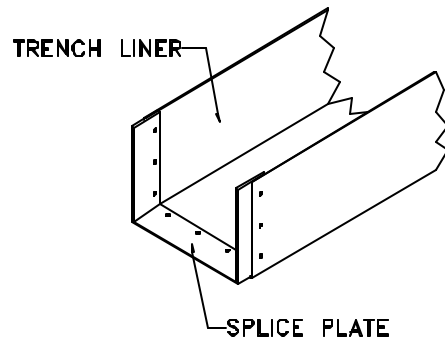


Figure 16

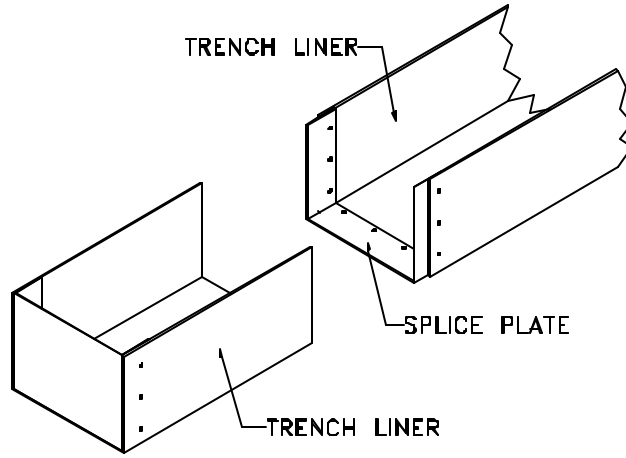


Figure 17

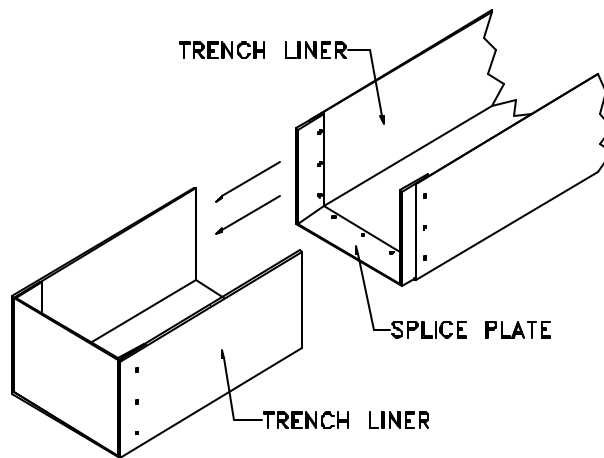


Figure 18

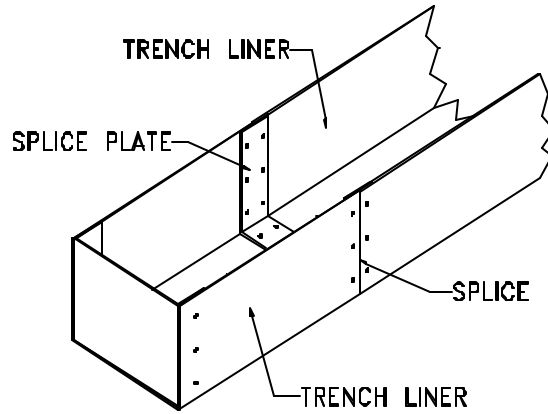


Figure 19

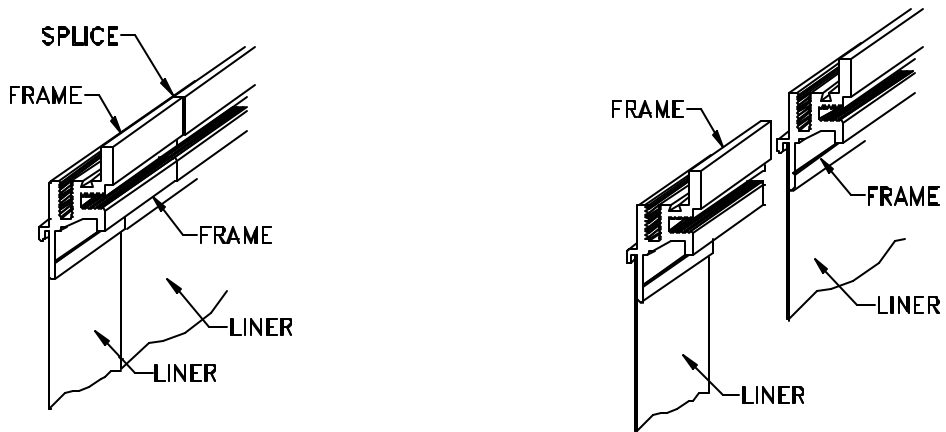


Figure 20

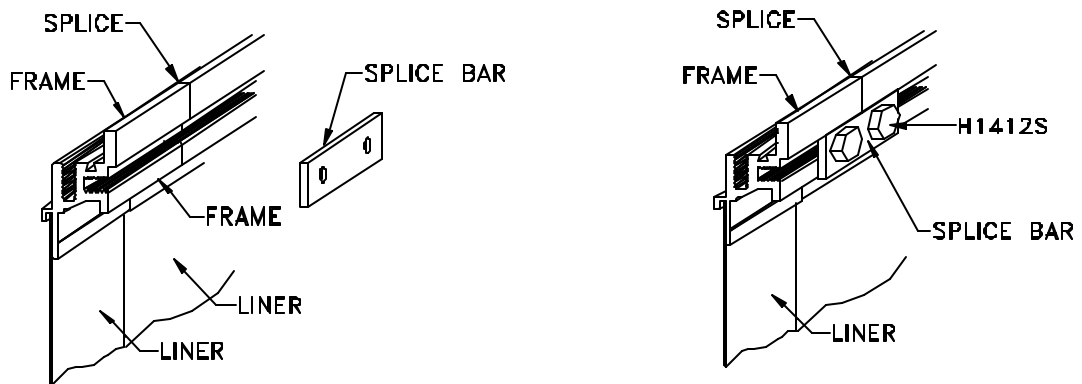


Figure 21

SPLICING TRENCH & ACCESS COVER FRAMES

Splice bars used to splice trench & access cover frames are fabricated by the factory. Splice bars are provided with factory drilled anchor holes.

- STEP 1.** Select a section of the trench cover frame and place it into its installed position. Ensure that the frame is level, the proper width, flush with the finished floor, and properly aligned.
- STEP 2.** Place a mating section of the frame into its assembled position relative to the frame section already put into place (see Figure 20).
- STEP 3.** Abut the mating sections of the frame together as tightly as possible (see Figure 20). Ensure that the system is level, even, the proper width, flush with the finished floor, and properly aligned.
- STEP 4.** Select a splice bar and place it into position on the frame so that the splice bar traverses the splice and so that the splice is centered behind the splice bar (see Figure 21).
- STEP 5.** Attach the splice bar to the to the frame sections using the fasteners (part no. H1412S) provided by the factory (see Figure 21).
- STEP 6.** Complete each splice in the frame using the procedures given in this section of these installation instructions.
- STEP 7.** Splice the trench liner in accordance with the procedures given above.
- STEP 8.** Complete the trench or access cover system installation in accordance with the procedures provided in these installation instructions.

WARRANTY POLICY

Balco, Inc. warrants to its purchasers that all products sold by it will be free from manufacturing and material defects. Any defective product will be replaced or repaired free of any charge, provided a claim is brought to our attention, in writing, within the established warranty period following the date of shipment by us and provided our examination shows the product has failed under the terms of this warranty. The established warranty period for wall protection is five (5) years. The established warranty period for mats is three (3) years. The established warranty period for grids is two (2) years. The established warranty period for all other Balco, Inc. products is one (1) year. Balco, Inc. will not be responsible for installation costs involved in such repair or replacement. This is in lieu of all other warranties, expressed or implied, and is the sole warranty extended by Balco, Inc. Our liability under this warranty is limited to repair or replacement and does not include any responsibility for consequential or other damage of any nature.

REGISTERED TRADEMARKS

"MULTI-MOVE" "ADJUSTAFLEX"
"RAIN-DRAIN" "VINYLINES"
"SAF-T-GLO" "SAF-TEN BEVEL"
"SENTRY"

BALCO, INC. PATENT NUMBERS

4,517,779; 4,522,861; 4,557,082;
4,566,242; 4,611,449; 4,649,129;
4,967,527; 4,968,170; 4,999,962;
5,140,797; 5,263,293; 5,326,609;
5,351,448; 5,357,727; 5,782,044;
5,829,216; 5,832,678; 6,014,848;
6,115,980; 6,581,347;
Patents Pending