

BALCO INC

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***INSTALLATION INSTRUCTIONS
FOR RETROFIT HPG SERIES
PARKING GARAGE
EXPANSION JOINT COVER SYSTEMS***

INSTALLATION INSTRUCTIONS FOR BALCO, INC. RETROFIT HPG SERIES PARKING GARAGE EXPANSION JOINT COVERS

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 expansion joint covers are shipped unassembled. Store this product in the horizontal position in a clean, dry location. This is a finished product. Store this product in a protected area. Galvanized steel cover plates are typically supplied; however, these systems are also available with stainless steel cover plates. Some systems are also available with aluminum cover plates.

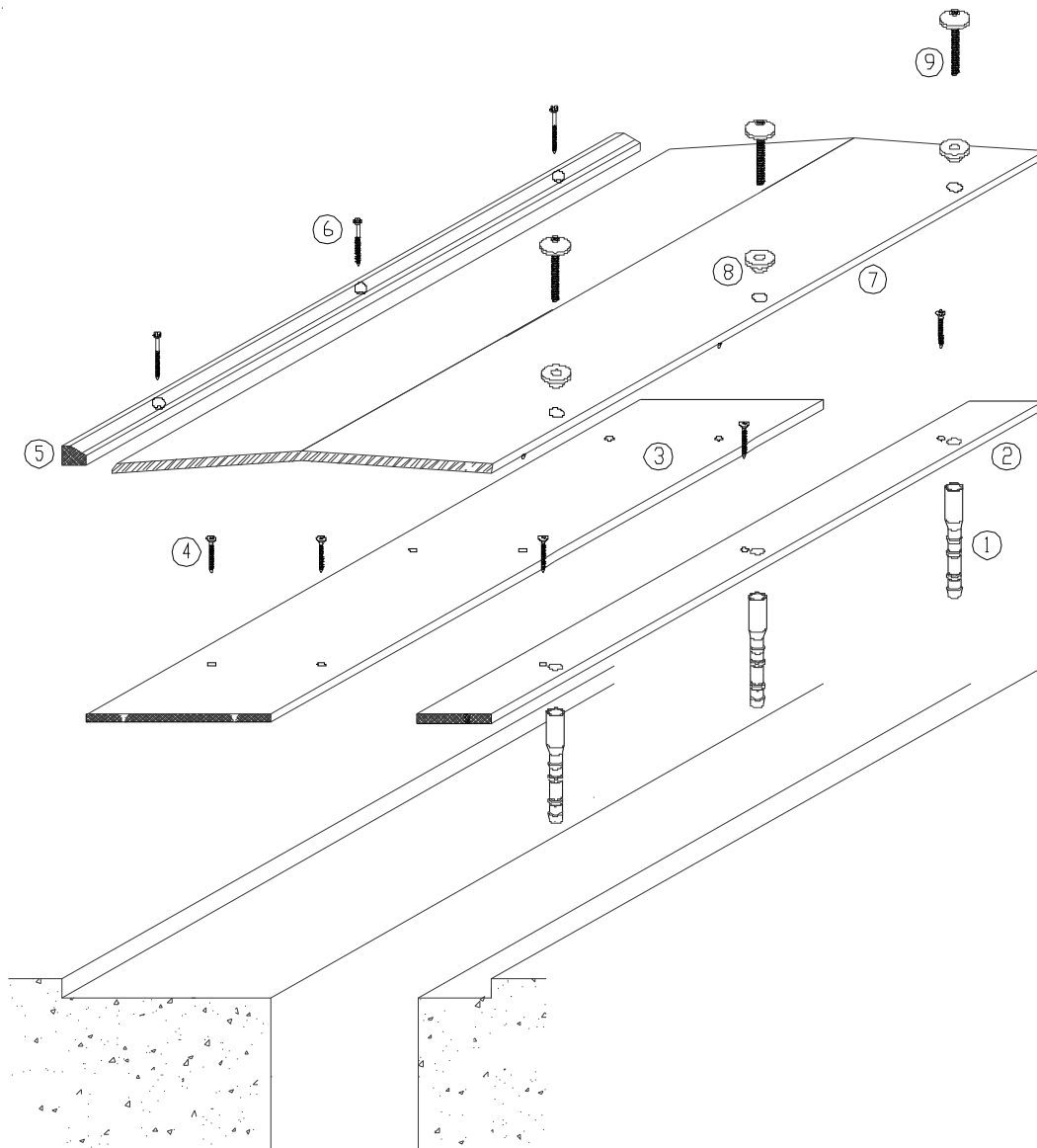


Figure 1

Parts:

1. Drop-In Anchors¹
2. Elastomeric Pad (3" width)
3. Elastomeric Pad
4. Elastomeric Pad Anchors
5. Nosing
6. Nosing Anchors
7. Crowned Cover Plate
8. Bushing
9. Anchors (Cover Plate)
10. Cold Galvanize²

¹ Anchors provided may differ from those shown

² Not Shown.

TOOLS REQUIRED

The following tools and materials are recommended for use in the installation of the joint cover system. Balco, Inc. does not provide these tools and materials:

- A. Drill Bits for Metal (Cover Plate Bushing)
- B. Drill Bits for Concrete (Nosing Anchors)
- C. Drill Bits for Concrete (Cover Plate Anchors)
- D. Electric Drill
- E. Sockets for Anchors
- F. 3/8" Hex Driver (Cap Screws)
- G. Pad Adhesive³
- H. Paint Brushes
- I. Acetylene Torch
- J. Phillips Drivers for Mechanical Fasteners
- L. Non-Curing Mastic

³ Pad Adhesive is not required if mechanical fasteners are used to attach the neoprene pad to the substrate. If fire barrier and/or water barrier are installed in conjunction with the HPG375 joint cover, then mechanical fasteners must be used to attach the neoprene pads to the concrete. The recommended Pad Adhesive is Edoco's Burkepoxy NS, Epoxy Gel Adhesive.

INSTALLATION

These installation instructions are for use in the installation of Balco, Inc. Retrofit HPG375 Series Parking Garage Expansion Joint Cover Systems. The HPG375 Series is primarily designed for cast-in-place installation; however, these systems have been modified to allow retrofit installation. The Retrofit HPG375 Series Parking Garage Expansion Joint Cover System is illustrated in Figure 1. The system shall be installed as follows:

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

NOTE: BECAUSE THESE INSTALLATIONS ARE EXPOSED TO SIGNIFICANT DAILY AND SEASONAL TEMPERATURE CHANGES, IT IS NECESSARY TO LEAVE A 1/8" GAP BETWEEN ADJOINING COVER PLATES. THIS GAP IS TO ALLOW THE THERMAL EXPANSION OF THE PLATES.

STEP 2. Provide blockouts for Balco, Inc. expansion joint covers in accordance with the approved shop drawings (see Figure 1). Blockouts may be formed at the time of the initial concrete pour or at a later time by removing material from the slab. To ensure a good installation, use level and true blockout materials. Inspect the blockouts to see that they are flat, level, and clear of all debris. Prepare and clean the blockouts as needed.

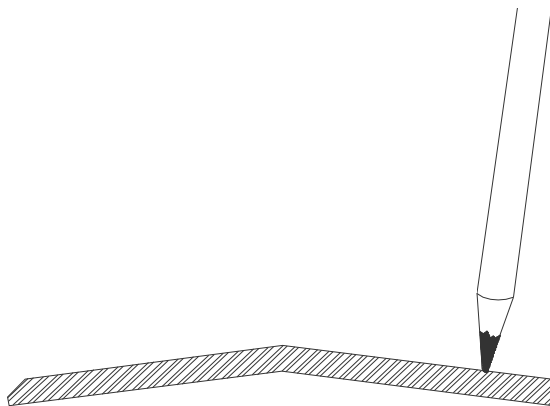


Figure 2

STEP 3. Select a section of the cover plate. Mark the location for the anchor holes on the cover plate (see Figure 2). The anchor holes must be centered a nominal 1" from the selected edge of the plate, with one anchor hole centered at the midpoint of the plate length and an anchor hole centered at a nominal 6" from each end of the plate. Repeat this procedure for each section of the cover plate.

NOTE: 3/8" HOLES ARE DRILLED INTO EACH END OF EACH COVER PLATE AT THE FACTORY FOR GALVANIZING. THESE HOLES SHOULD BE WITHIN THE ANCHOR HOLES' LOCATIONS AND SHOULD INCORPORATE INTO THE FINAL ANCHOR HOLES.

STEP 4. Drill the anchor holes into the cover plates at the marked locations. The anchor holes must be 3/4" in diameter.

STEP 5. If fire barrier is specified, install it at this time. Refer to the appropriate fire barrier type installation instructions for additional instructions regarding the installation of Balco, Inc. Fire Barrier Systems.

STEP 6. If water barrier is specified, install it at this time. Refer to "Installation Instructions For .045 EPDM Water Barrier Systems" for additional instructions concerning the installation of optional EPDM Water Barrier.

STEP 7. Select the 3" wide elastomeric pad (see Figure 3).

STEP 8. If fire barrier and/or water barrier is installed in conjunction with the expansion joint cover, place the fire barrier and/or the water barrier into its installed position.

NOTE: THE NEOPRENE PADS ARE TYPICALLY ADHERED TO THE CONCRETE SUBSTRATE. HOWEVER, FIRE BARRIER AND WATER BARRIER MUST BE MECHANICALLY FASTENED TO THE CONCRETE. THEREFORE, IT IS NECESSARY TO USE MECHANICAL FASTENERS IN PLACE OF THE ADHESIVE TO ATTACH THE PADS TO THE CONCRETE WHENEVER FIRE BARRIER OR WATER BARRIER ARE INSTALLED IN CONJUNCTION WITH



Figure 3

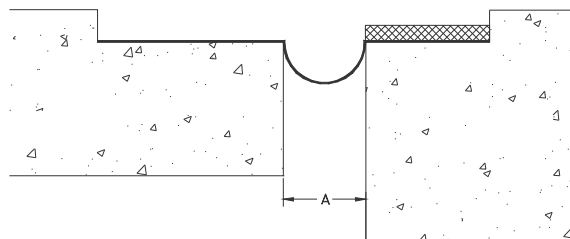


Figure 4

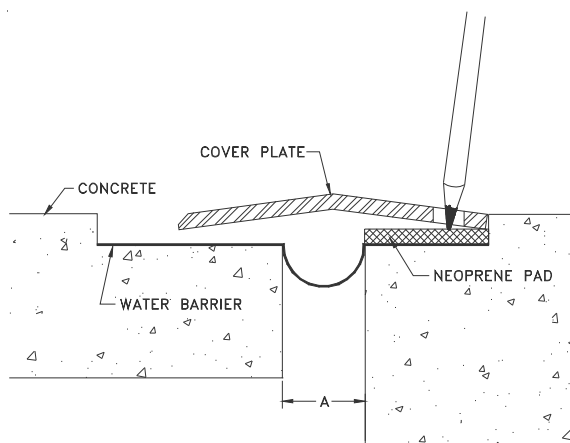


Figure 5

THE RETROFIT HPG SYSTEM. IF THE NEOPRENE PADS ARE MECHANICALLY ATTACHED TO THE CONCRETE, NO ADHESIVE IS NECESSARY.

STEP 9. Place the 3" pad into its installed position. The pad will be atop the fire barrier and/or the water barrier, if they are installed in conjunction with the system (see Figure 4).

STEP 10. Select the cover plate, and place the cover plate into its installed position. Using the cover plate as a template, mark the locations for the cover plate anchors on the neoprene pad (see Figure 5).

STEP 11. Remove the cover plate. If fire barrier and/or water barrier are not being installed in conjunction with the system, proceed directly to Step 14.

STEP 12. Mark the locations for the pad anchors on the 3" wide pad (see Figure 6). Center the anchors along the pad. The anchor hole spacing is a nominal 20" o.c. between the locations marked in Step 10.

STEP 13. Drill the anchor holes through the 3" pad, the fire barrier retainer and/or the water barrier and into the concrete at the marked locations. Balco, Inc. recommends that the anchor holes be countersunk into the neoprene pad; however, standard pilot holes may also be used, if countersinking is not possible.

NOTE: OBSERVE NORMAL SAFETY PRECAUTIONS WHEN DRILLING TO AVOID ALL UTILITIES AND RE-BAR. ENSURE THAT THE RESULTING DUST AND DEBRIS ARE CLEANED OUT OF THE BLOCKOUT AND FROM THE NEOPRENE PAD.

STEP 14. Remove the pad and the fire barrier and/or the water barrier, if present, from the blockout, and if drop-in anchors are provided, using the adhesive provided by the factory, insert the drop-in anchors into the anchor holes drilled in Step 14 (see Figure 7). Ensure that the drop-in anchor adhesive is applied in accordance with the adhesive manufacturer's written instructions. For installations not containing fire barrier or water barrier, proceed directly to Step 18.

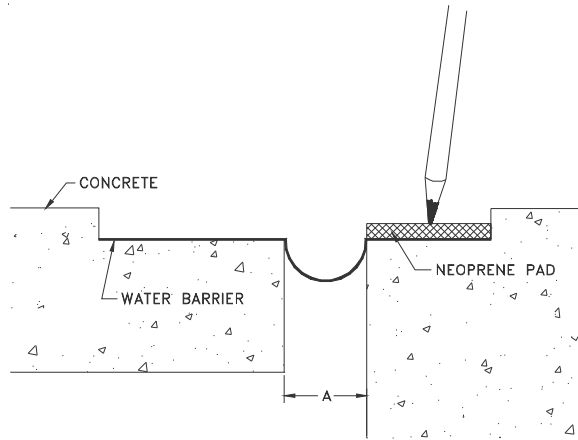


Figure 6

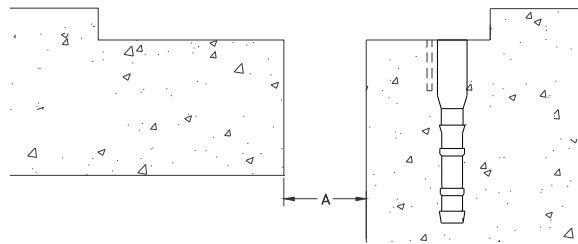


Figure 7

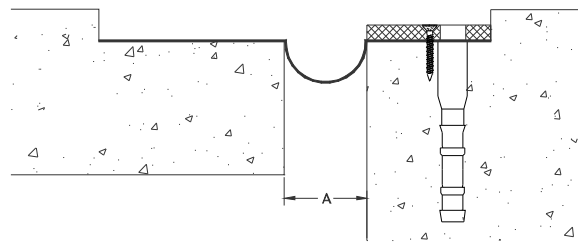


Figure 8

STEP 15. If fire barrier and/or water barrier are being installed in conjunction with the system, place the fire barrier and/or water barrier back into their installed position in the blockout. Ensure that the fire barrier and/or the water barrier are properly aligned.

STEP 16. If water barrier is installed in conjunction with the system, apply mastic (by others) to the water barrier's bottom surface which will interface with the concrete and to its top surface which will interface with the neoprene pad.

STEP 17. Place the pad back into its installed position, and attach the pad, along with the fire barrier and/or the water barrier, to the concrete using the fasteners provided by the factory (see Figure 8). Ensure that the heads of the fasteners are flush with or below the top surface of the pad. Ensure that the pad is properly aligned.

STEP 18. If epoxy adhesive is used to attach the neoprene pad to the concrete, place the pad back into its installed position, and using the adhesive (by others, Balco, Inc. recommends Burkepoxy NS manufactured by Edoco; Phone: 310-834-3401 or: 888-BURKEUSA; Website: www.burkebyedoc.com), attach the 3" pad to the blockout as shown in Figure 2. The adhesive must be applied in accordance with the adhesive manufacturer's written instructions. Ensure that the edge of the pad is flush with the edge of the cover plate when both are installed (see Figure 9). Ensure that the pad is properly aligned.

STEP 19. Repeat the applicable procedures in Step 7 through Step 18 for each successive section of the 3" wide pad.

STEP 20. Select a representative cover plate and measure its width (straight, plate edge to plate edge). Add one inch to the measured width of the cover plate, and measure that distance from the outside edge of the installed pad across the joint. Make a mark on the substrate at this calculated dimension (see Figure 10). Repeat this procedure twice at intervals of 3 feet.

STEP 21. Select a section of the opposite elastomeric pad (see Figure 11).

STEP 22. If fire barrier and/or water barrier is not being installed in conjunction with the expansion joint cover, use the epoxy gel adhesive (by others) to bond

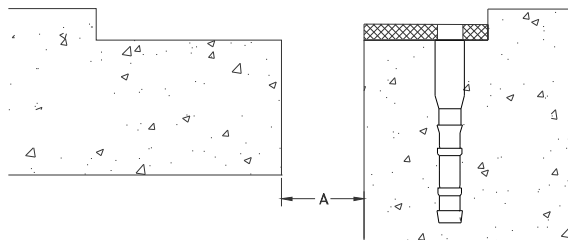


Figure 9

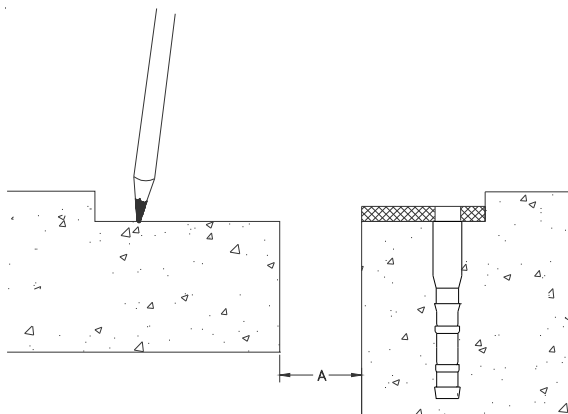


Figure 10



Figure 11

the pad to the concrete, aligning the outside edge of the pad with the marks made in Step 20. Follow the adhesive manufacturer's instructions regarding application, clean-up, safety, etc. Ensure that the pad is straight, level, and properly aligned (see Figure 12).

STEP 23. If fire barrier and/or water barrier is installed in conjunction with the expansion joint cover, ensure that the fire barrier and/or the water barrier is in its installed position in the blockout.

STEP 24. Mark the locations for the fastener holes on the pad (see Figure 13). Two (2) rows of anchors are used, aligned a nominal 1 1/2" from their respective edge of the pad. The rows are staggered, and the anchor hole spacing is a nominal 20" o.c. with an anchor in each row spaced a maximum of 3" from each end of the pad.

NOTE: OBSERVE NORMAL SAFETY PRECAUTIONS WHEN DRILLING TO AVOID ALL UTILITIES AND RE-BAR. ENSURE THAT THE RESULTING DUST AND DEBRIS ARE CLEANED OUT OF THE BLOCKOUT AND FROM THE NEOPRENE PAD.

STEP 25. Drill countersunk holes into the pad at the marked locations. Standard pilot holes may also be used, if countersinking is not possible.

STEP 26. Put the pad into its installed position. Ensure that the pad is properly aligned. Using the pad as a template, mark the locations for the anchor holes on the substrate (see Figure 14). Remove the pad from its installed position, and drill the anchor holes through the water barrier and/or fire barrier retainer, if specified and provided, and into the concrete at the marked locations.

STEP 27. If water barrier is being installed, remove the water barrier from its installed position and place mastic, by others, on the surface of the water barrier that interfaces with the concrete. Place the water barrier into its installed position. Ensure that the anchor holes in the water barrier are properly aligned with the anchor holes in the concrete.

STEP 28. Place the pad back into its installed position. If water barrier is being installed, ensure that mastic has been applied to the top surface of water barrier. Attach

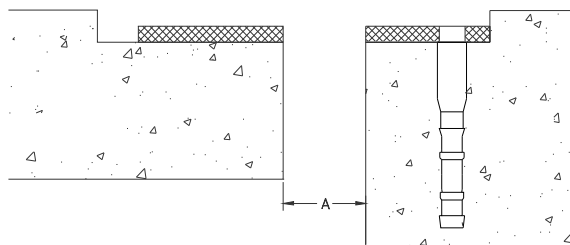


Figure 12

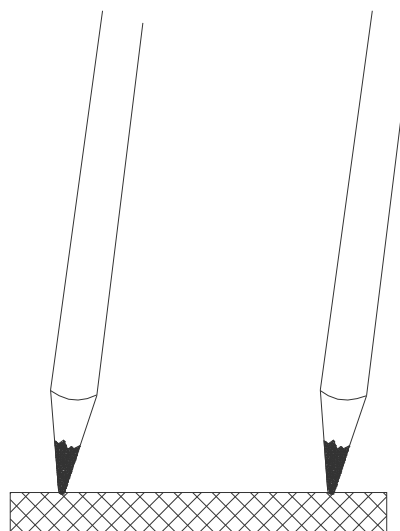


Figure 13

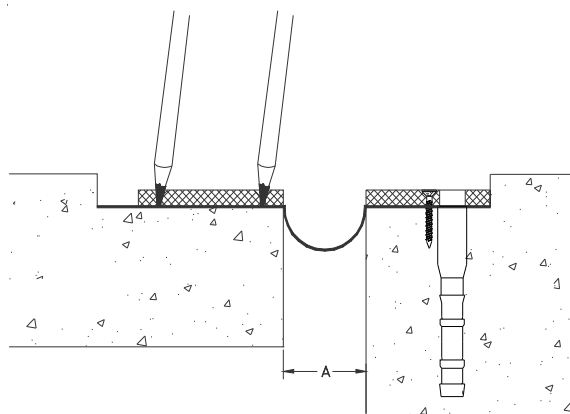


Figure 14

the pad to the concrete using the fasteners provided by the factory (see Figure 15). Ensure that the heads of the fasteners are flush with or below the top surface of the pad.

STEP 29. Repeat the applicable procedures in Step 20 through Step 28 for each successive section of the pad.

NOTE: BECAUSE THESE INSTALLATIONS ARE EXPOSED TO SIGNIFICANT DAILY AND SEASONAL TEMPERATURE CHANGES, IT IS NECESSARY TO LEAVE A 1/8" GAP BETWEEN ADJOINING NOSINGS (HPGN). THIS GAP IS TO ALLOW THE THERMAL EXPANSION OF THE NOSINGS.

STEP 30. Select a section of the Nosing, part no. HPGN, and its adhesive or anchors or both. Ensure that the bonding surface of the nosing is clean and dry.

STEP 31. If the nosing is to be mechanically attached to the concrete, and if anchor holes have not been drilled into the nosing, mark the location for the anchor holes on the nosing (see Figure 16). Anchor holes are spaced 20" o.c. with an anchor hole at a nominal 3" from each end of the nosing. Repeat this procedure until each nosing section has the anchor hole locations marked on it. Drill the anchor holes, if necessary, into the nosings at the marked locations marked. Ensure that the anchor holes will allow the anchor heads to be completely recessed when the nosing is installed.

STEP 32. Select a section of the nosing. Place the nosing into its installed position, abutting the nosing to the outside edge of the pad. Ensure that the nosing is straight, level, and properly aligned. Using the nosing as a template, mark the location of the anchors on the concrete (see Figure 17). Ensure that the nosing remains straight, level, and properly aligned. Remove the nosing from the blockout, and drill the anchor holes into the concrete at the marked locations.

NOTE: OBSERVE NORMAL SAFETY PRECAUTIONS WHEN DRILLING TO AVOID ALL UTILITIES AND RE-BAR. ENSURE THAT THE RESULTING DUST AND DEBRIS ARE CLEANED OUT OF THE BLOCKOUT AND FROM THE NEOPRENE PAD.

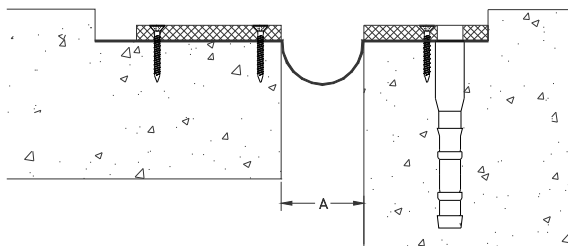


Figure 15

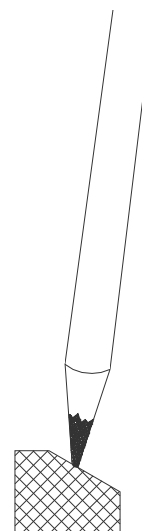


Figure 16

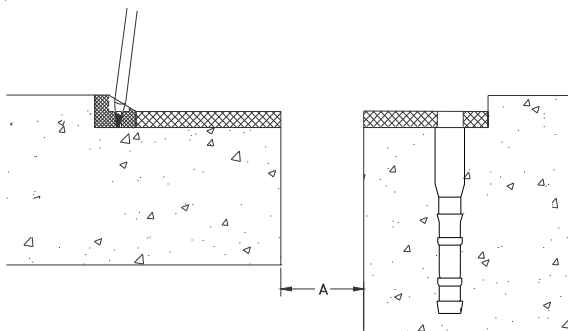


Figure 17

STEP 33. If adhesive is to be used to attach the nosing to the concrete, flame the surface of the nosing to which the adhesive is to be applied. Run the flame across the surface once or twice.

NOTE: FLAMING THE NOSING SURFACE WILL ETCH IT, IMPROVING THE ADHESION OF THE ADHESIVE TO THE NOSING. BALCO, INC. RECOMMENDS USING AN ACETYLENE TORCH FOR THIS OPERATION. FAILURE TO FLAME THE BONDING SURFACE OF THE NOSING MAY RESULT IN AN INFERIOR BOND OF THE NOSING TO THE CONCRETE. EXERCISE CAUTION! OVER-EXPOSURE OF THE NOSING TO FLAME WILL CAUSE THE NOSING MATERIAL TO BECOME BRITTLE.

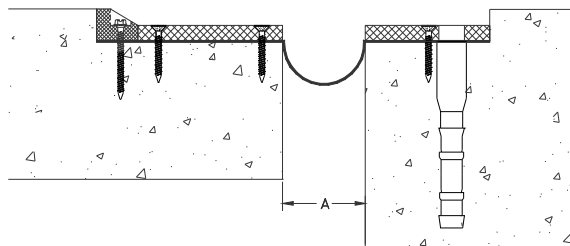


Figure 18

STEP 34. Apply the adhesive supplied by the factory to the nosing and to the nosing installation area of the concrete along the outside edge of the installed pad installed. Follow the adhesive manufacturer's instructions regarding application, clean-up, safety, etc. Balco, Inc. recommends Armstrong C-7 Epoxy w/ Activator W manufactured by Ellsworth Adhesives; Phone: 508-230-8070; Toll Free: 1-800-888-0698.

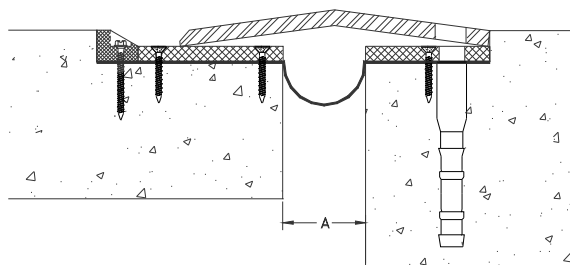


Figure 19

STEP 35. Place the nosing into its installed position. Ensure that it is straight, level, and properly aligned. If mechanical fasteners are to be used in the nosing installation, align the anchor holes in the nosing with the anchor holes in the concrete. Firmly press the nosing into the adhesive to adhere it to the concrete. Ensure that the nosing is straight, level, and properly aligned.

STEP 36. For nosing installations using mechanical fasteners, affix the nosing to the concrete, using the fasteners provided by the factory (see Figure 18). Ensure that the nosing is straight, level, and properly aligned.

STEP 37. Repeat the applicable procedures above, Step 30 through Step 36, for each section of the nosing until all the nosing has been installed.

STEP 38. Select a section of the cover plate. Place the cover plate into its installed position, aligning the edge of the plate with the outside edge of the 3" wide

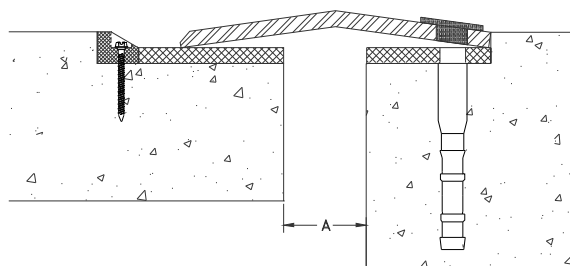


Figure 20

pad (see Figure 19). Ensure that the cover plate is straight, even, and properly aligned.

STEP 39. For each cover plate, coat the inside of the anchor holes and the drilled area completely with Cold Galvanize (part no. ZRCGC).

STEP 40. Select the cover plate, and the cover plate anchors. Place the cover plate into its installed position. Ensure that the cover plate is straight, even, and properly aligned. Ensure that the anchor holes in the cover plate align properly with the drop-in anchors installed in the concrete. Place a bushing into each anchor hole in the cover plate. The bushing flanges must rest on the top of the cover plate and the body of each bushing must be inserted into the anchor hole through the cover plate (see Figure 20). Attach the cover plate to the concrete using the fasteners provided by the factory (see Figure 21). Repeat the procedures given in Step 37 through Step 40 for each section of the cover plate.

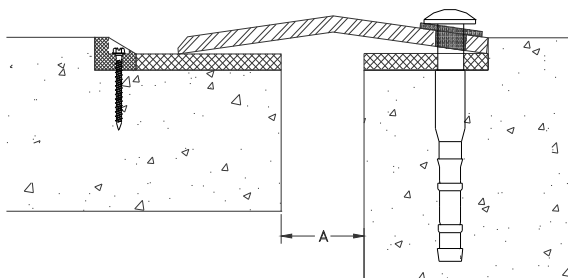


Figure 21

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 exterior joint cover systems (Duraflex™) is five (5) years provided the systems are installed by a Balco Certified Installer. The established warranty period for grids and mats 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. Balco, Inc. shall have no obligation under this warranty if owner subjects materials to improper conditions (refer to Balco's installation instructions) 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. It is further agreed and understood that the price stated for the seller's products is consideration for the limitation of seller's liability hereunder.

REGISTERED TRADEMARKS:

"VINYLINES" "SAF-T-GLO"
"METAFLEX" "SAF-TEN BEVEL"
"SENTRY" "DURAFLEX"
"ILLUMI-TREAD"

BALCO, INC. PATENT NUMBERS:

5,357,727; 5,782,044; 5,829,216;
5,832,678; 6,014,848; 6,115,980;
6,581,347; 6,942,419; 6,955,017;
6,962,026; 7,104,717; 7,856,781
SAF-T-GLO patent pending