BALCO INC

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INSTALLATION INSTRUCTIONS FOR BALCO, INC. HPG SERIES PARKING GARAGE EXPANSION JOINT COVER SYSTEMS

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INSTALLATION INSTRUCTIONS FOR BALCO, INC. 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.

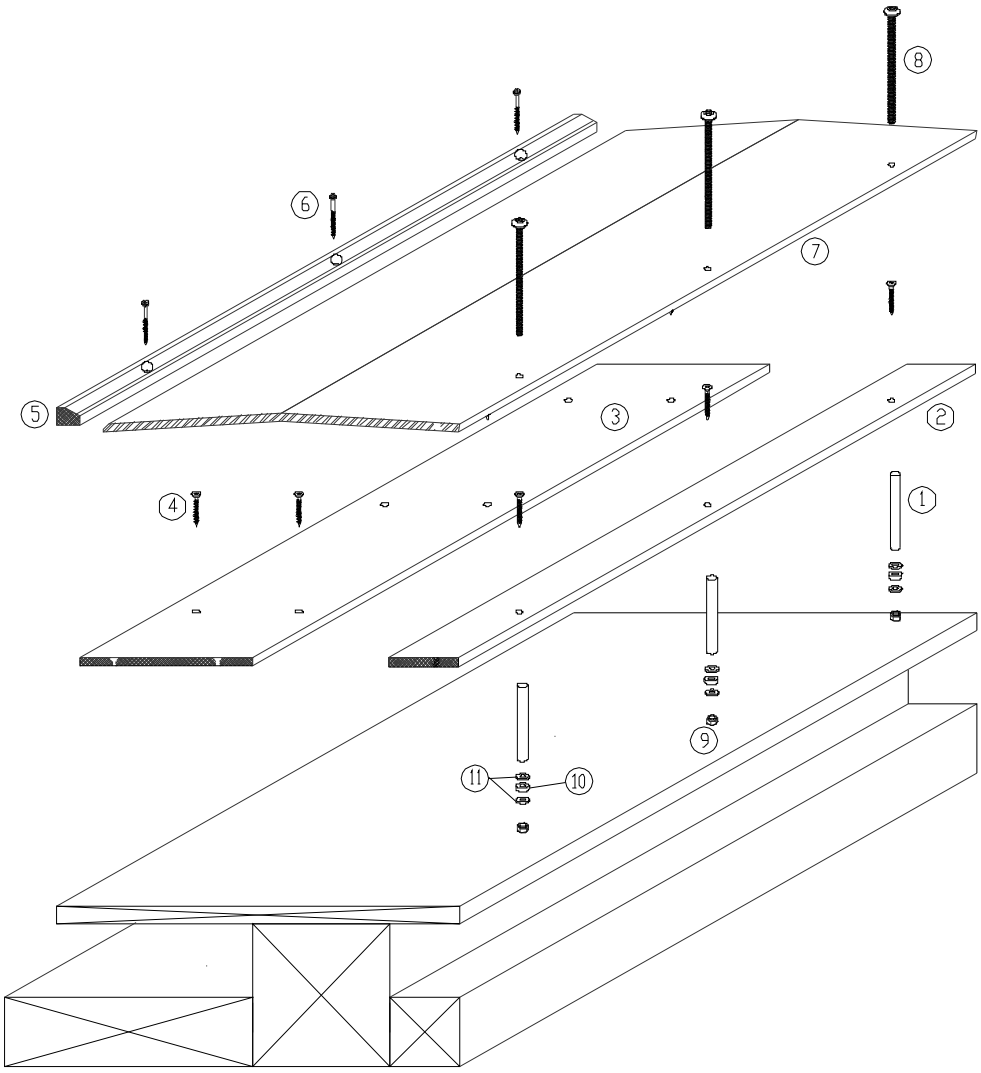

Figure 1

Parts:

1. Anchor Sleeves
2. Elastomeric Pad (3" width)
3. Elastomeric Pad
4. Elastomeric Pad Anchors
5. Nosing
6. Nosing Anchors
7. Crowned Cover Plate
8. Carriage Bolts (for Cover Plate)
9. Locking Nuts
10. Grommet
11. Washers
12. Cold Galvanize[1]

[1] 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. Concrete Forms
B. Drill Bits for Metal (Cover Plates)
C. Drill Bits for Concrete
D. Electric Drill
E. Phillips, Slotted, and Hex Drivers
F. Drivers for Carriage Bolts
G. Pad Adhesive[2]
H. Paint Brushes
I. Acetylene Torch
J. Phillips Drivers for Mechanical Fasteners

[2] 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. HPG Series Parking Garage Expansion Joint Cover Systems. The HPG Series is primarily designed for cast-in-place installation; however, these systems can be modified to allow retrofit installation. These installation instructions are designed for installation of the cast-in-place HPG Series. Installation instructions for the Retrofit HPG Series are available. The HPG Series is illustrated in Figure 1. The HPG Series Parking Garage Expansion Joint Cover System shall be installed as follows:

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

NOTE: BECAUSE THESE SYSTEMS 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. Assemble the concrete forms for the deck, joint, and system blockout in accordance with standard industry practice and all applicable requirements. Ensure that the concrete forms are straight, true, the proper dimensions, and at the proper elevation.

STEP 3. Determine what the plate section layout will be for the installation.

STEP 4. Using the plate layout determined in Step 3, mark the location of each end of each plate section on the system blockout forms.

STEP 5. Determine which edge of the blockout form will be the fixed side of the joint cover system.

NOTE: COVER PLATES MAY BE PROVIDED IN LENGTHS LESS THAN 10 FEET. DETERMINE THE PLATE LENGTH AND THE REQUIRED ANCHOR SLEEVE SPACING PRIOR TO BEGINNING THE ANCHOR SLEEVE INSTALLATION.

STEP 6. Mark the location for each anchor sleeve on the deck form or on the blockout form. Three anchor sleeves are provided for each 10 foot plate. One anchor sleeve is located at the center of the plate

and centered 1" from the plate's fixed edge (as determined in Step 5). The remaining two anchor sleeves are located a nominal 6" from one of the ends of the plate (as determined in Step 3) and centered 1" from the plate's fixed edge (as determined in Step 5).

NOTE: COVER PLATES THAT ARE FIVE FEET OR LESS IN LENGTH ONLY REQUIRE ANCHORS AT THE ENDS OF THE PLATES. IN THESE CASES, THE ANCHORS MUST BE CENTERED 1" FROM THE SELECTED EDGE OF THE PLATE AND AT A NOMINAL 6" FROM THE ENDS OF THE PLATE.

STEP 7. Select the anchor sleeves. Affix the anchor sleeves to the concrete forms at the locations marked in Step 6. Ensure that the anchor sleeves are straight, level, and properly aligned (see Figure 2).

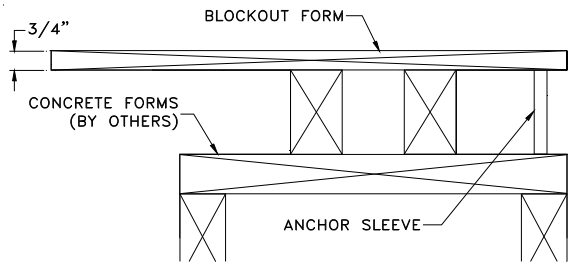

Figure 2

STEP 8. After all of the anchor sleeves have been affixed to the concrete forms, pour the concrete. Level and finish the concrete in accordance with standard industry practice and all applicable requirements. Ensure that the anchor sleeves remain affixed in their proper positions. After the concrete has cured, remove the forms (see Figure 3).

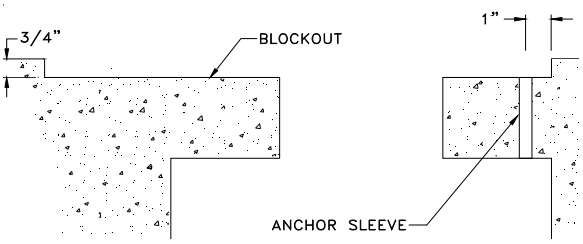

Figure 3

STEP 9. 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 10. 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 11. Select the 3" wide elastomeric pad. Mark the locations for the sleeve anchors on the pad. The anchor holes are located 1" from one edge of the pad and are aligned with the sleeve anchors in the concrete (see Figure 4). Ensure that the edge of the pad will be flush with the edge of the cover plate when both are installed.

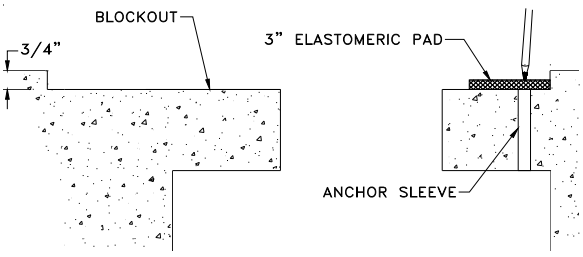

Figure 4

STEP 12. Drill the anchor holes into the 3" pad at the marked locations.

NOTE: THE NEOPRENE PADS MAY BE ADHERED TO THE CONCRETE

OR THEY MAY BE MECHANICALLY FASTENED TO THE CONCRETE. IF ANCHORS ARE PROVIDED TO ATTACH THE PAD TO THE CONCRETE, NO ADHESIVE IS REQUIRED FOR THE PAD.

STEP 13. If water barrier and/or fire barrier are not installed in conjunction with the expansion joint cover, use the epoxy gel 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 4. The adhesive must be applied in accordance with the adhesive manufacturer's written instructions. Ensure that the anchor holes in the 3" pad are aligned with the anchor sleeves in the concrete and that the edge of the pad will be flush with the edge of the cover plate when both are installed (see Figure 5).

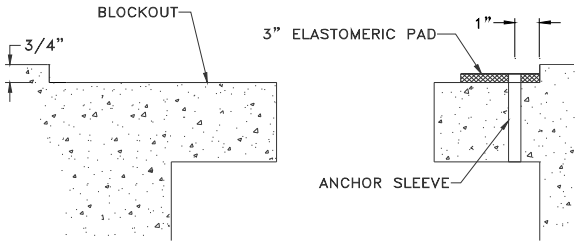

Figure 5

STEP 14. If pad anchors are provided, select the pad anchors. Mark the locations for the fastener holes on the 3" wide pad (see Figure 6). Center the fasteners along the pad. The fastener hole spacing is a nominal 20" o.c. Drill countersunk holes into the 3" pad at the marked locations. Standard pilot holes may also be used, if countersinking is not possible.

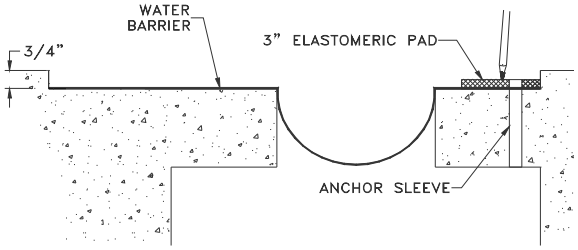

Figure 6

STEP 15. 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 fastener holes on the substrate (water barrier or fire barrier retainer), (see Figure 7). Remove the pad from its installed position, and drill the fastener 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.

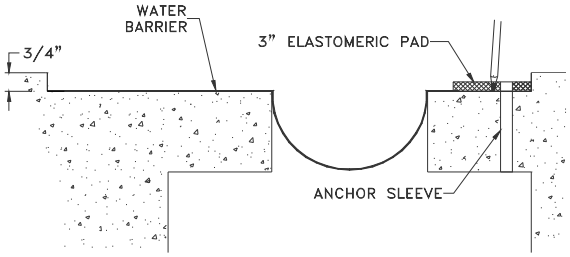

Figure 7

STEP 16. Place the pad back into its installed position. Ensure that mastic has been applied to the top surface of water barrier. Attach the pad 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. Repeat the applicable procedures in Step 11 through Step 16 for each successive section of the 3" wide pad.

STEP 17. 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 the marked dimension (see Figure 9). Repeat this procedure for each cover plate anchor. Standard anchor spacing is 3 feet o.c.

STEP 18. Select a section of the opposite elastomeric pad.

NOTE: THE NEOPRENE PADS MAY BE ADHERED TO THE CONCRETE OR THEY MAY BE MECHANICALLY FASTENED TO THE CONCRETE. IF ANCHORS ARE PROVIDED TO ATTACH THE PAD TO THE CONCRETE, NO ADHESIVE IS REQUIRED FOR THE PAD.

STEP 19. If water barrier and/or fire barrier is not installed in conjunction with the expansion joint cover, using the epoxy gel adhesive (by others, see product recommendation, Step 13), bond the pad to the concrete, aligning the outside edge of the pad with the marks made in Step 17. Follow the adhesive manufacturer's instructions regarding application, clean-up, safety, etc. Ensure the pad is straight, level, and properly aligned.

STEP 20. If pad anchors are provided, mark the locations for the fastener holes on the pad (see Figure 10). Two (2) rows of fasteners are used, aligned a nominal 1 1/2" from their respective edge of the pad. The rows are staggered, and the fastener hole spacing is a nominal 20" o.c. with an fastener in each row spaced a maximum of 3" from each end of the pad.

STEP 21. Drill countersunk holes into the pad at the marked locations marked. Standard pilot holes may also be used, if countersinking is not possible.

STEP 22. 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 fastener holes on the substrate (water barrier or fire barrier retainer), (see Figure 11).

STEP 23. Remove the pad from its installed position, and drill the anchor holes into the concrete at the marked locations.

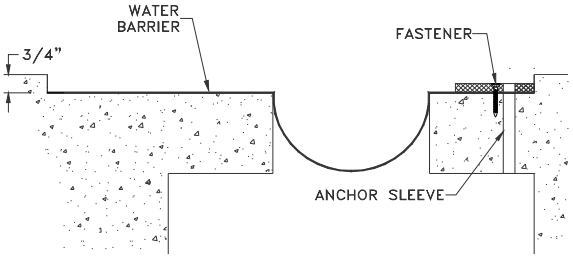

Figure 8

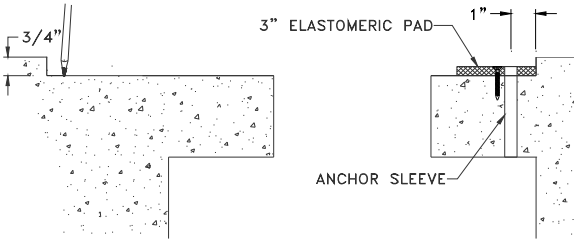

Figure 9

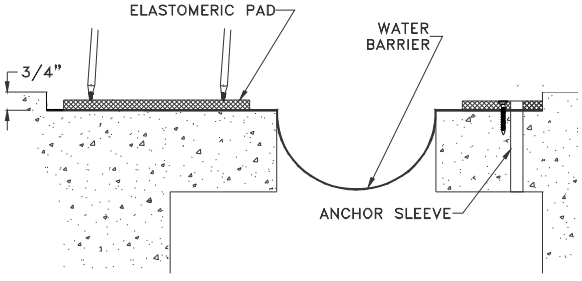

Figure 10

STEP 24. Place the pad back into its installed position. Ensure that mastic has been applied to the top surface of water barrier. Attach the pad to the concrete using the fasteners provided by the factory (see Figure 12). Ensure that the heads of the fasteners are flush with or below the top surface of the pad. Repeat the applicable procedures in Step 18 through Step 24 for each successive pad section.

NOTE: BECAUSE THESE SYSTEMS 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.

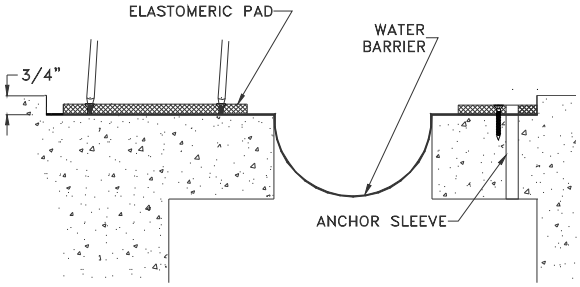

Figure 11

STEP 25. Select a section of the Nosing. Ensure that the bonding surface of the nosing is clean and dry. 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 13). 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. The anchor must be recessed into the nosing.

STEP 26. Drill the anchor holes, if necessary, into the nosing at the locations marked in Step 37. Ensure that the head of the nosing anchors will be recessed when the nosing is installed. Repeat this procedure until the anchor holes have been drilled into each nosing section.

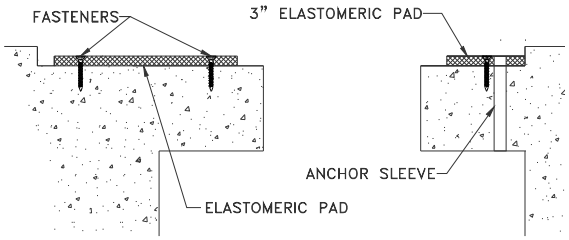

Figure 12

STEP 27. Select a section of the nosing, and place it 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 14). Ensure that the nosing remains straight, level, and properly aligned.

STEP 28. Remove the nosing from the blockout, and drill the anchor holes into the concrete at the marked locations.

STEP 29. If adhesive is being 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.

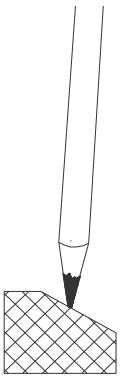

Figure 13

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.

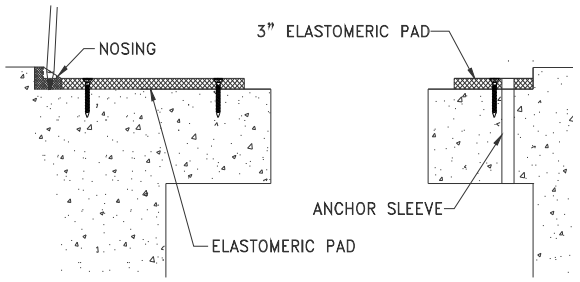

Figure 14

STEP 30. 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).

STEP 31. Put 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.

STEP 32. If adhesive is used, firmly press the nosing into the adhesive to adhere it to the concrete. Ensure that the nosing is straight, level, and properly aligned (see Figure 15).

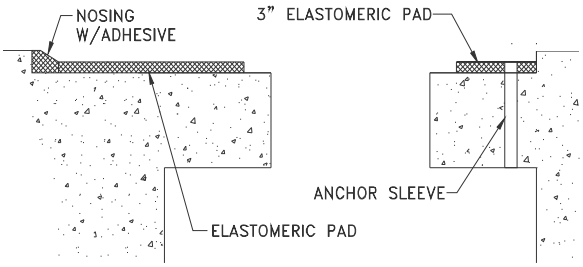

Figure 15

STEP 33. For nosing installations using mechanical fasteners, affix the nosing to the concrete, using the fasteners provided by the factory. Ensure that the nosing is straight, level, and properly aligned (see Figure 16). Repeat the applicable procedures above, Step 27 through Step 33, for each section of the nosing until all the nosing has been installed.

STEP 34. Place the cover plate into its installed position, aligning the edge of the plate with the outside edge of the 3" wide pad. Ensure that the cover plate is straight, even, and properly aligned.

NOTE: 3/8" HOLES ARE DRILLED INTO EACH END OF EACH COVER PLATE AT THE FACTORY FOR

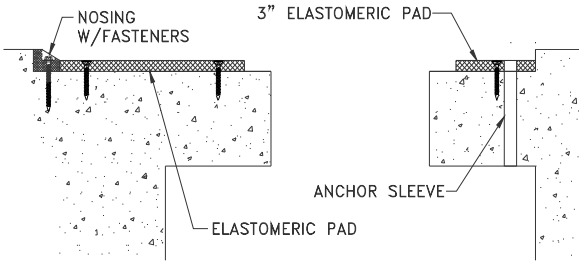

Figure 16

GALVANIZING. THESE HOLES SHOULD BE WITHIN THE ANCHOR HOLES LOCATIONS AND SHOULD INCORPORATE INTO THE FINAL ANCHOR HOLES.

STEP 35. Mark the location of each anchor hole on the plate. The anchor holes must align with the anchor sleeves cast into the concrete (see Figure 17).

STEP 36. Remove the plate from the installed position, and drill the anchor holes into the plate at the marked locations. After the anchor holes have been drilled into the plate, coat the drilled area completely with Cold Galvanize (part no. ZRCGC). Repeat Step 34 through Step 36 for each section of the cover plate.

STEP 37. Select a section of the cover plate, and put it into its installed position. Ensure that the cover plate is straight, level, and properly aligned. If anchor sleeves are not used for the installation, use the cover plate as a template to mark the locations for the anchor holes on the 3" pad. Drill the anchor holes into the pad at the marked locations.

STEP 38. Place the cover plate into its installed position. If anchor sleeves have been installed, align the anchor holes in the cover plate with the anchor sleeves cast into the concrete. Select a bolts for each anchor hole in the cover plate. Place a bolt through the plate and into each of the sleeves along the plate (see Figure 18).

STEP 39. Repeat the applicable procedures given in Step 37 and Step 38 until all the cover plates are affixed to the concrete or until a cover plate bolt has been inserted into each anchor sleeve, whichever is applicable.

STEP 40. From the underside of the deck, slide a washer, a grommet, and another washer onto a bolt and firmly tighten the washer/grommet assembly onto the bolt using the nut provided by the factory. Do not compress the grommet (see Figure 19). Repeat this procedure until a washer/grommet assembly has been attached to each bolt and each cover plate section is fastened firmly in place.

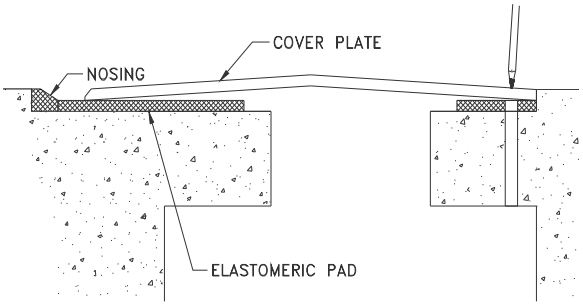

Figure 17

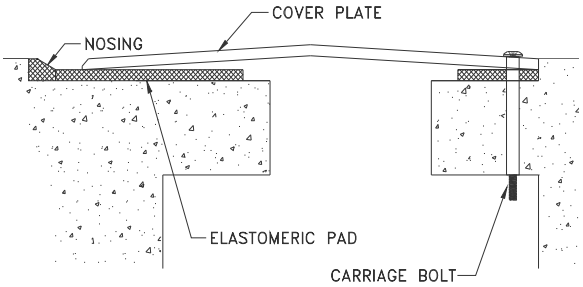

Figure 18

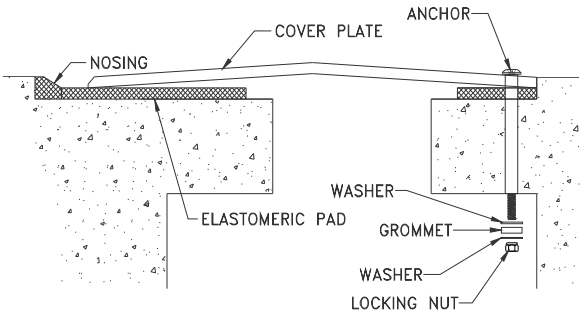

Figure 19

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