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INSTALLATION INSTRUCTIONS FOR BALCO, INC. DURAFLEX™ "BCS" SERIES - BALCO COMPRESSION SEAL TYPE BCSF-SL SERIES FLOOR SYSTEMS

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INSTALLATION INSTRUCTIONS FOR BALCO, INC. DURAFLEX™ BCSF-SL SERIES BALCO COMPRESSION SEAL 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 expansion joint systems are shipped in rolls (systems less than 1" in width) or in five foot (5') lengths, pre-compressed in hard board and wrapped in cellophane. Upon receipt, these products should be stored in the horizontal position in a clean, dry location. Store these products in a protected area. Do not allow these products to freeze. Store these products at a temperature range of 60-80°F. Wear insulated gloves, Neoprene or other appropriate material, safety glasses, long sleeve shirts and long pants when installing these products. The work area shall be well ventilated. All users should familiarize themselves with the Epoxy Adhesive EBA32 MSDS information prior to beginning the work. Recommended shelf life of EBA32 and BCSF foam seals is nine (9) months from date of manufacture. **EBA32 and BCSF foam seals require proper storage for maximum shelf life.**

BCSF SERIES BALCO COMPRESSION SEAL SYSTEMS PARTS LISTS[1]

	BCSF-100	BCSF-200	BCSF-300	BCSF-400
A. Foam Seal[2]	BCSF100	BCSF200	BCSF300	BCSF400
B. Epoxy Adhesive[3]	EBA32	EBA32	EBA32	EBA32

[1] A traffic plate and appropriate anchors are required with systems over 2" in width (BCSF-225 through BCSF-400).
[2] The listing of systems given above is not exhaustive. Intervening sizes are available (1/4" increments), as well as smaller sizes.
[3] EBA32 is a two component product. Part A and Part B are provided and are mixed by the installers at the job site.

TOOLS REQUIRED

This is a list of tools and materials recommended for use in the installation of these joint systems. Tools and materials in this list are not provided by Balco, Inc. Tools and materials marked with an asterisk (*) must be pre-approved by Balco, Inc. and the Project Structural Engineer.

A. Tape Measure
B. Level
C. Concrete Saw
D. Disc Grinder
E. Diamond Grinding Disc
F. Disc Grinder
G. Concrete Patching Material*
H. Air Compressor (fitted with an oil trap)
I. Markers for marking Concrete and Seal
J. Utility Knife
K. Clean White Rags
L. Tape (to mask substrate)
M. Margin Trowel
N. Clean Plastic Sheet
O. 18" Square Piece of Plywood (Clean!)
P. Miter Box
Q. Toluene
R. Putty Knife
S. Silicone Sealant* (Traffic Grade)

PRELIMINARY REQUIREMENTS

1. Scope of Preliminary Requirements

The expansion joint stem opening must be formed to a uniform width for the entire length of the joint. To select the proper seal size, the following should be considered:

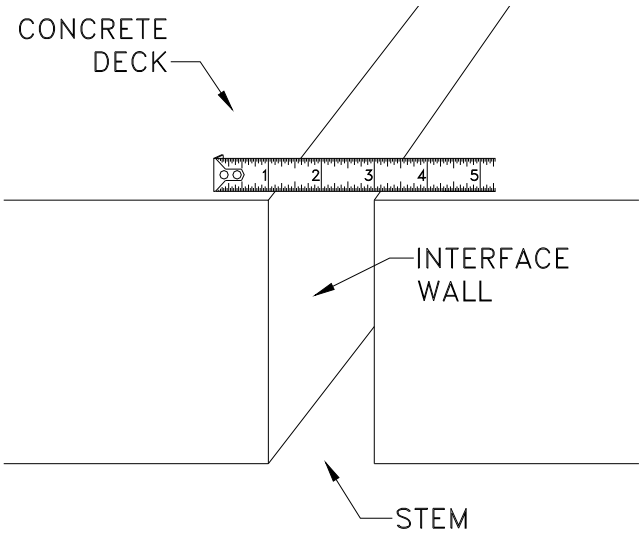

Figure 1

2. Jobsite Conditions and Survey and Joint Preparation

The conditions of the joint opening must be surveyed prior to beginning installation work. The following points should be considered and action implemented where required:

A. The size of the joint opening measured at a 70°F temperature should be verified and recorded by the Engineer of record (see Figure 1). Please note that the joint size provided in Figure 1 is representative, and the actual required joint size may vary from that indicated in Figure 1.

B. The Project Structural Engineer shall determine the movement required at the joint location. Ensure that other movement requirements, such as longitudinal rack, deflection, etc. are considered and accounted for.

C. The joint interface walls must be constructed equidistant from one another, straight, parallel to one another and plumb. Concrete saws and diamond grinding disks should be used to correct any deviations. A tooled edge on the corners of the concrete is desired. The radiused edge reduces the effects of impact loading from vehicles and lessens the chance of edge erosion, cracking or spalling. Access to the bonding surface of the interface walls must be free and clear. Any obstructions must be accounted for in the installation process.

D. Edge spalling, sharp projections and concrete voids (bug holes) shall also be repaired prior to proceeding with the joint installation. Consult the Project Structural Engineer for a list of acceptable patching products. Repair mortars recommended by Balco, Inc. include; Thoroc 1060, Emaco T-415 and Sika 123. Contact Balco, Inc. for recommendations on other compatible repair mortars. All repair materials used should have reached full cure conditions as specified by the repair material manufacturer before installation of the joint system begins. All obstructions such as form work and refuse shall be removed from the joint opening.

E. Concrete adjacent to the expansion joint system must be sound. This should be confirmed by tapping these areas with a hammer (see Figure 2). If a hollow sound is heard or the concrete cracks, crumbles or loosens, the unsound concrete must be removed and repaired with a structural repair mortar.

F. Repaired areas must also be sound. Confirm that they are by tapping these areas with a hammer. If a hollow sound is heard or the repaired area cracks, crumbles or loosens, the

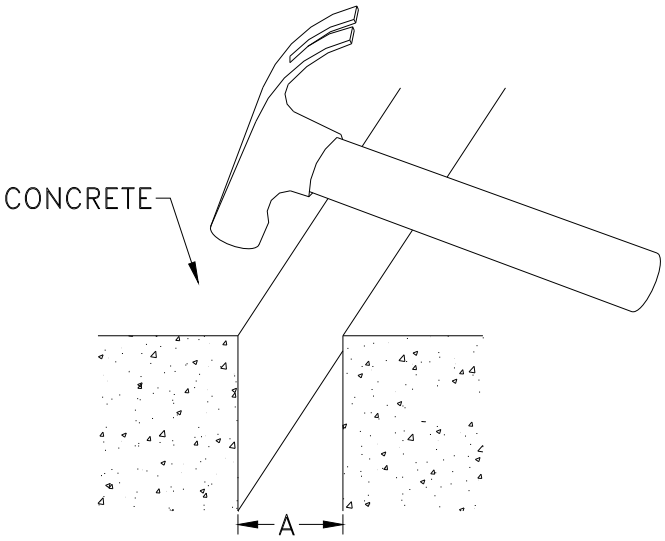

Figure 2

unsound repair must be completely removed and repaired again with a structural repair mortar. Access to the bonding surface of the interface walls must be free and clear. Any obstructions must be accounted for in the installation process.

G. Measure the stem opening and correlate with the deck temperature. Verify that the opening width is synchronized with the values in the Temperature-Adjustment Table supplied by the Project Structural Engineer.

H. Review all directional change locations; advise Balco, Inc. of the details.

I. Sandblast the interface walls to expose the aggregate (see Figure 3). This will enhance the bond and remove any surface contaminants. If sandblasting is not possible, the joint faces must be ground with a coarse disc grinder to produce an abraded surface. Be careful not to polish the concrete surface as this could cause failure of the adhesive. After sandblasting, or abrading, blow out the area with an air compressor fitted with an oil trap; this will eliminate the possibility of recontamination from oil and moisture in the lines. Solvent wipe the concrete joint interface walls.

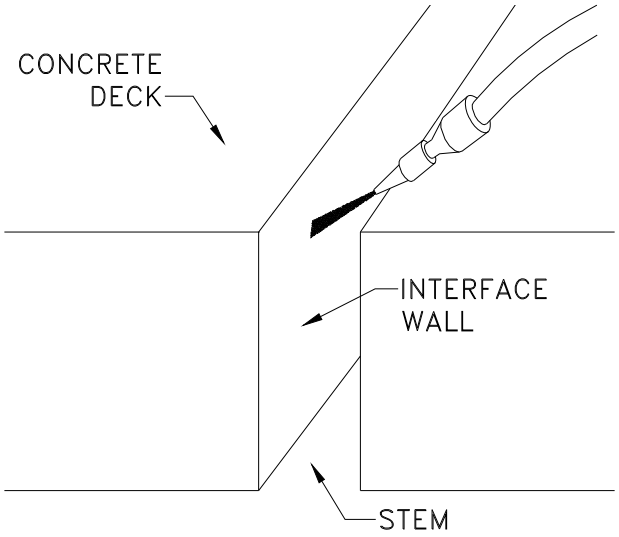

Figure 2

3. Steel Joint Opening Preparation

A. If the stem is lined with steel plates, the steel surfaces must be sandblasted to a 'white metal' finish. Paint specification SSP-6 for cleaned finishes is an acceptable criterion.

B. Use an air compressor fitted with an oil water trap to blow the area free of dust. Sandblasting is to be accomplished less than 2 hours prior to the installation of the seal. If the actual installation of the adhesive and seal exceeds this requirement, the steel must be cleaned again.

C. Stainless steel surfaces must be prepared in the same manner as described above. Sandblasting is required.

D. Galvanized surfaces must be sandblasted to a "white metal" finish. Paint specification SSP-6 for cleaned finishes is an acceptable criterion. Two layers of duct tape can be employed to protect surrounding areas. Only those areas to receive adhesive must have the galvanizing removed.

E. Wipe the sandblasted metal surface down with a solvent.

INSTALLATION

These installation instructions are for use in the installation of the DuraFlex™ BCSF Series - Balco Compression Seal Floor Systems. The system shall be installed as follows:

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

STEP 2. Ensure that the joint and concrete, or steel, have been properly prepared for the seal installation in accordance with the section of these instructions entitled "Concrete Joint Opening Preparation", or "Steel Joint Opening Preparation", as applicable.

NOTE: THE SEAL MUST BE RECESSED 1/4" BELOW THE TRAFFIC SURFACE. IF TRAFFIC PLATES ARE PROVIDED, REFER TO THE DETAILS FOR REQUIRED RECESS DEEP.

STEP 3. Select the Traffic Plate, if provided, and place it into its installed position. Ensure that the traffic plate is straight, level and properly positioned over the joint. Using the traffic plate as a template, mark the locations for the anchor holes on the substrate (see Figure 4). Remove the traffic plate

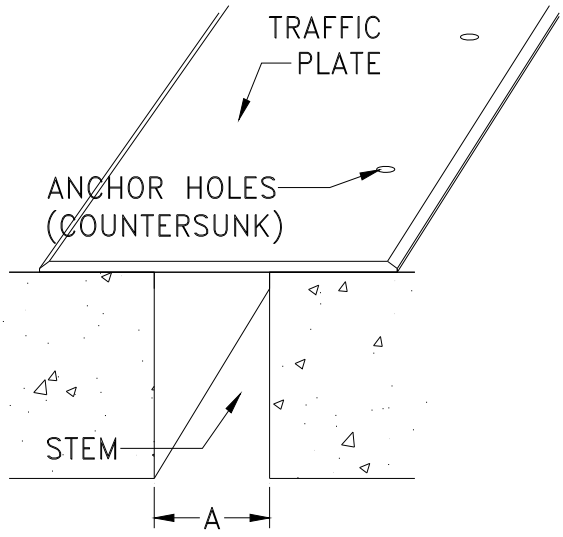

Figure 4

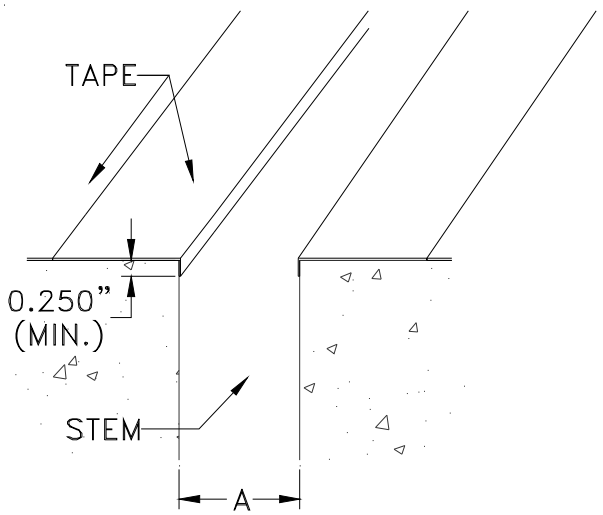

Figure 5

from its installed position, and drill the anchor holes into the concrete at the marked locations. Clean away any dust, dirt or debris from the joint area.

STEP 4. Apply tape to the deck surfaces adjacent to the joint opening to mask substrate (see Figure 5).

STEP 5. Select the seal and lay it out next to the joint. Balco, Inc. recommends placing the seal on a clean plastic sheet to ensure that it does not become soiled.

STEP 6. Select the **Epoxy Bonding Adhesive - EBA32** components, Part A and Part B. Pour the **EBA32 Part A** onto a clean piece of plywood, an 18" square piece of plywood is recommended. Pour an equal amount of the **EBA32 Part B** onto the piece of plywood. Use a trowel or a putty knife to fold the materials together until they are fully mixed and there is no sign of streaking in the batch. Approximately two minutes should allow for full blending.

NOTE: COVERAGE RATES FOR THE **EBA32** DEPEND ON THE SEAL SIZE BEING BONDED IN PLACE AND ON CONTRACTOR CARE AND APPLICATION. **EBA32** HAS A POT LIFE OF 60 MINUTES AT 68°F (20°C); ITS POT LIFE DECREASES AS THE TEMPERATURE INCREASES.

STEP 7. Apply the adhesive to the interface walls using a trowel or putty knife (see Figure 6). Wipe the trowel or putty knife clean with a solvent soaked rag frequently. Do not allow the adhesive to set up on the surface of the trowel or putty knife.

STEP 8. When working with stick-packaged material, remove the binding holding the stick(s) compressed (see Figure 7). Cut the binding along the hardboard edges. Do not cut along the face of the seal. Remove the release paper from the sides of the seal, exposing the pressure sensitive adhesive in preparation for installation (see Figure 8). Apply **Epoxy Bonding Adhesive - EBA32** to the lower half of the seal side walls

NOTE: WORK QUICKLY. THE SEAL WILL BEGIN TO EXPAND AS SOON AS THE BINDING IS REMOVED. IF THE MATERIAL EXPANDS BEFORE YOU ARE READY FOR INSTALLATION,

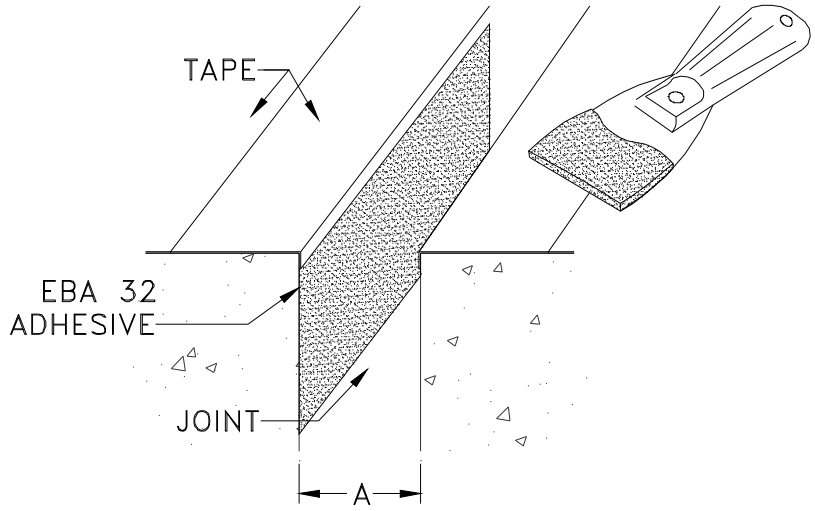

Figure 6

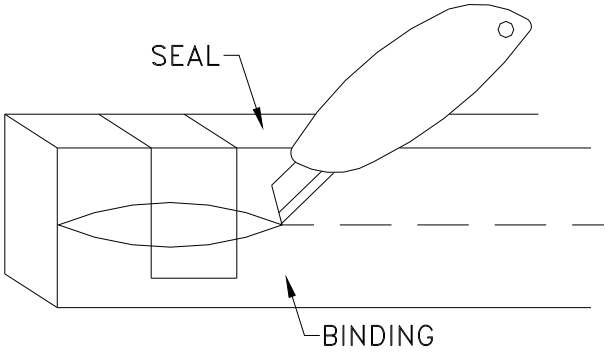

Figure 7

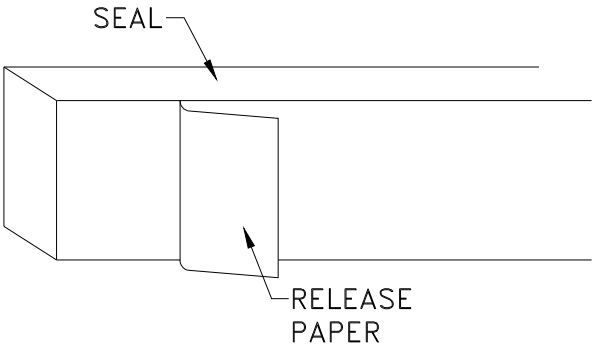

Figure 8

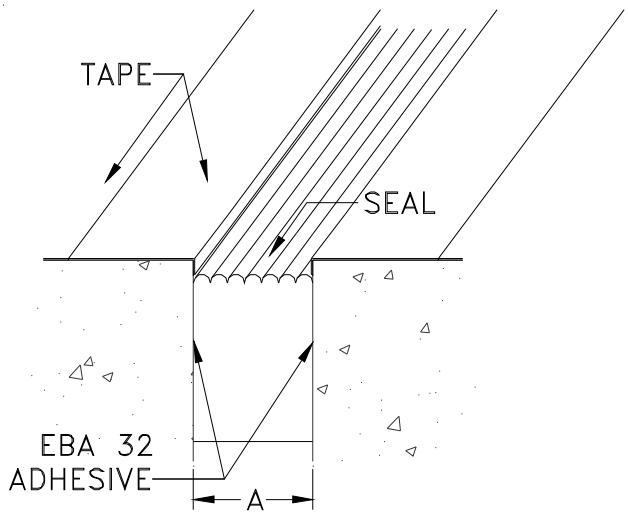

Figure 9

IT IS POSSIBLE TO RE-COMPRESS IT BY HAND PRIOR TO THE REMOVAL OF THE RELEASE PAPER. IF THE RELEASE PAPER HAS BEEN REMOVED, WET YOUR HANDS WITH WATER AND RE-COMPRESS THE SEAL BY HAND. WATER WILL NOT ADVERSELY AFFECT THE SEAL.

STEP 9. Place the seal into the joint gap, pressing it to one side of the joint using either a clean putty knife or by hand (see Figure 9). In cool weather conditions, wedges may be placed intermittently along one side to hold the stick in place until the seal has expanded to fill the gap.

STEP 10. Cut and miter the seal to the lengths required for the application. To ensure proper fit, add 1/2" to the joint length and cut the seal. If splicing sections of the seal together is necessary, select the silicone sealant. Using a putty knife, apply a thin film of silicone sealant to the end of the installed section of the seal, and install the mating section of the seal as described above, pressing the mating section of the seal together with the installed section of the seal (see Figure 10). Ensure that the silicone sealant does not smear onto the seal's surfaces that will contact the EBA32 adhesive. Ensure that the mating seal sections are properly aligned and level with one another. Repeat this splicing procedure for each splice.

STEP 11. Remove the tape from the deck surface.

STEP 12. Select the traffic grade silicone sealant (by others). Apply a nominal 1/4 bead of sealant along each edge of the seal at its interface with the substrate (see Figure 11). Balco, Inc. recommend using Dow Corning 888 Silicone Joint Sealant (contact Dow Corning Corporation at (989) 496-6000 for availability and distributors).

STEP 13. If a traffic plate is purchased and provided with the system, install the traffic plate at this time using the fasteners provided by the factory (see Figure 12).

STEP 14. Clean the installation area. Ensure that any remaining Adhesive, Sealant, etc. are properly stored away or are disposed of properly. Ensure that all trash and refuse are disposed of properly.

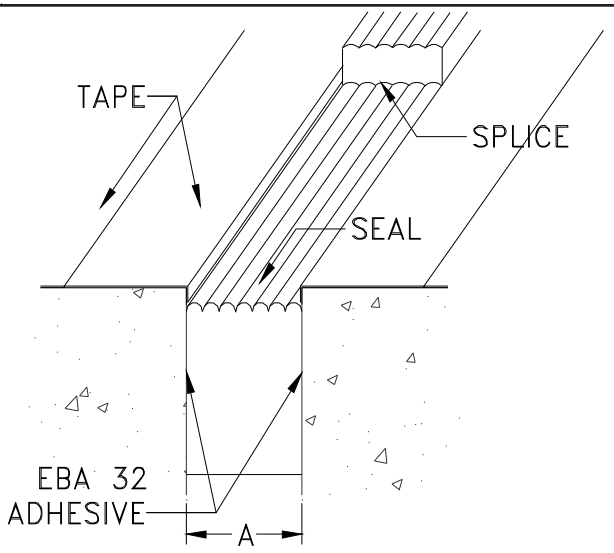

Figure 10

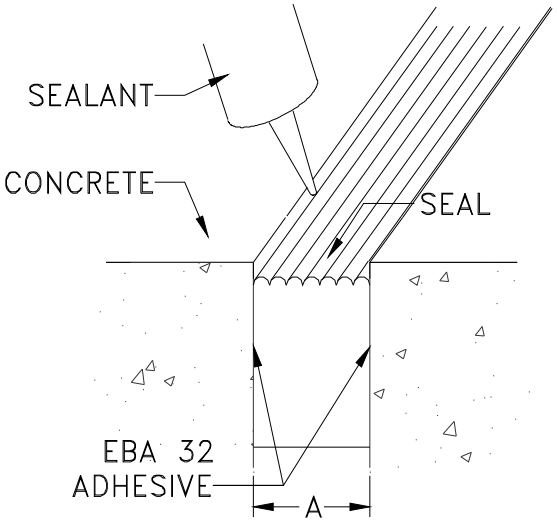

Figure 11

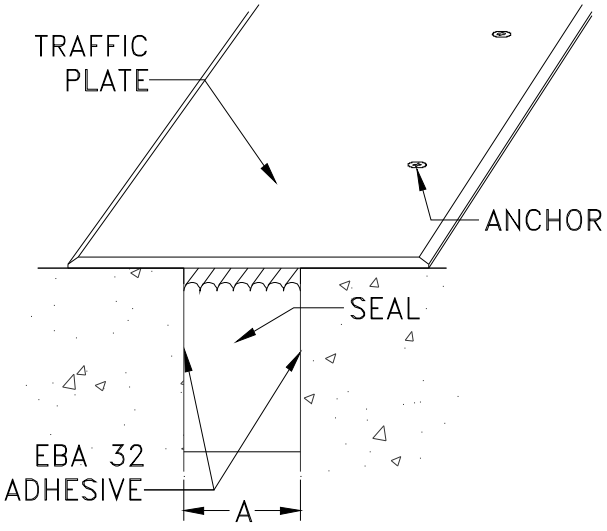

Figure 12

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