

BASE SEAL, LABYRINTH, & SPILT WATERSTOPS INSTALLATION

INTRODUCTION

Base seal (externally placed), labyrinth, and split waterstops comprise a special class of PVC waterstops and require somewhat different installation techniques. These techniques will be described for each style waterstop. While the installation of these waterstops differs, the splicing and joining requirements are the same as those for traditional, fully embedded waterstops. Please see Sika Greenstreak's "PVC Waterstop Installation Guide" for instructions. Furthermore, the generally asymmetric cross-section of these waterstops limits the variety of fabricated intersections and changes of direction that are possible. Vertical "T's" and "X's" are examples of non-recommended fabrications. Split waterstops are limited to primarily straight runs as corner fabrications and intersections are not possible.

BASE SEAL WATERSTOPS

Base seal type waterstops, sometimes referred to as externally placed waterstops, are installed prior to placement of concrete and reside either on a prepared subgrade, mudslab, or on vertical formwork. Base seal waterstops are positioned such that only the ribbed side of the waterstop engages the concrete. The design of these waterstops eliminates the need for split forming. A solid backing is required for proper initial support as well as for proper in service performance. Lack of support can lead to ballooning of the waterstop when exposed to high hydrostatic pressure. Base seal waterstops are secured in position by nailing or staking the outer edges of the profile to the underlying support as shown in Figure 1. Double-headed nails should be placed through the outer edges of the waterstop to secure the waterstop to the formwork. Larger nails or spikes should be used in securing the waterstop directly to a prepared subgrade. The waterstop should be positioned such that the longitudinal centerline of the waterstop runs parallel and at the base of the joint to be waterstopped. It is imperative that the external side of the waterstop is protected from potential mechanical damage or long-term exposure to ultraviolet light. Care should be taken in the placement of concrete to prevent movement or displacement of the waterstop.

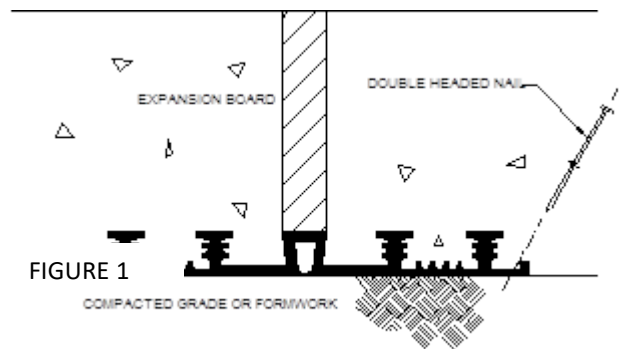


FIGURE 1

LABYRINTH WATERSTOP

Installation Of Labyrinth Waterstops Is Similar To The Installation Of Base Seal Waterstops With The Waterstop Residing Between Two New Sections Of Concrete. Labyrinth Waterstops Are Attached To Formwork Prior To The First Concrete Pour With Double-Headed Nails, As Shown In Figure 2. After Making The First Concrete Pour, Carefully Remove The Formwork And Cut The Protruding Nails From The Concrete Leaving The Labyrinth Waterstop Partially Embedded In The First Pour. The Second Placement Of Concrete Can Now Be Made.

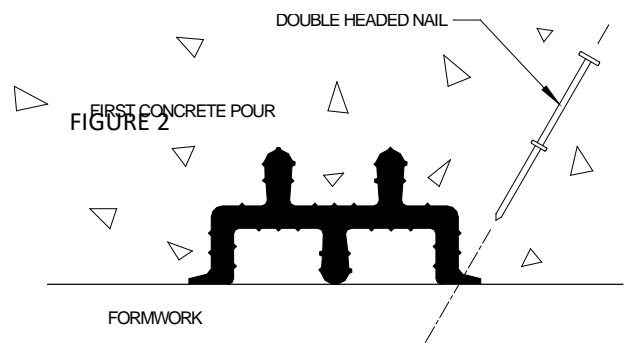


FIGURE 2

BASE SEAL, LABYINTH, & SPILT WATERSTOPS INSTALLATION

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SPLIT-FANGE WATERSTOPS:

Split-flange waterstops lend themselves to long, uninterrupted runs. Applications requiring intersections and corner fabrications are not possible. Split-flange waterstops are installed by spreading the split flanges of the waterstop apart and securing each flange to the formwork with small finishing nails in the outermost ribs as shown in Figure 3.

Care must be taken to avoid tearing the waterstop. Precautions should also be taken to keep the waterstop flush against the formwork to prevent concrete from entering any gap between the formwork and waterstop. After making the first concrete pour, carefully remove the formwork and cut the protruding nails from the concrete. Use a PVC compatible adhesive to continuously and firmly join the split flanges together.

Tie wire through grommets, pre-punched holes, or hog rings (by others) should be used to secure the now bonded flange to adjacent rebar as shown in Figure 4. The waterstop is now ready for the second concrete pour.

SPLICING REQUIREMENTS:

Splicing guidelines and instructions are detailed in Sika Greenstreak's "Splicing PVC Waterstop Installation Guide". These guidelines should be followed for all PVC Waterstops. Please refer to this document for specific instructions. It should be noted that not all transitions are possible with nonsymmetrical profiles. Vertical "T's" and "X's" are not recommended for nonsymmetrical profiles. Split-flange waterstops are impossible to properly splice at transitions and changes of direction.

IMPORTANT PRECAUTIONS:

Thoroughly consolidate the concrete around the waterstop to prevent voids or honeycombing next to the waterstop. Pay particular attention to the underside of horizontally placed waterstops. Intimate contact of the concrete and waterstop is necessary for full performance of a waterstop. Voids next to the waterstop can significantly reduce its performance. Furthermore, adequate clearance should be maintained between reinforcing steel and the waterstop. Typical clearance should be twice the maximum aggregate size of the concrete mix design. Inadequate clearance can promote the formation of voids due to aggregate bridging. It is important to maintain continuity of the entire waterstop system. Splices must be properly completed at all changes of directions, transitions, and butt joints. Any discontinuity in the waterstop system can be a leakage point. Be sure the PVC waterstop is clean prior to the concrete pour. It is difficult to achieve a quality seal if the waterstop is greasy, dirty, or covered with concrete laitance. Store PVC waterstops under tarps or indoors to avoid direct exposure to sunlight since PVC can suffer UV degradation from the sun. Extended UV exposure will leach plasticizer from the PVC, reducing its physical properties and causing the PVC to become brittle. Protect installed waterstops from UV if the second pour of concrete will be delayed more than 30 days.

FIGURE 3

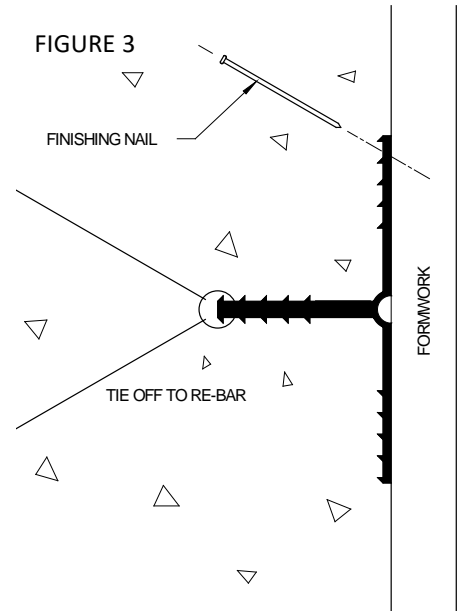
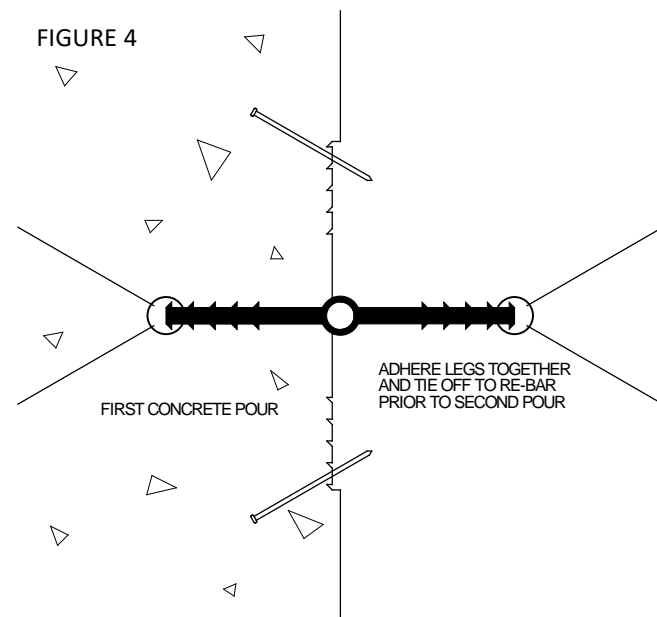


FIGURE 4



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