

## EXPOSURE GUIDELINES FOR WATERSTOP-RX

### Introduction

Like any active sealing product, Waterstop-RX must be evaluated if hydration occurs prior to encapsulation in concrete. Ideally, Waterstop-RX will hydrate only after it has been encapsulated by concrete. This Technical Reference assists in determining the acceptability of Waterstop-RX in a partially hydrated condition prior to being encapsulated in concrete. It also addresses some of the issues that may arise in the event that hydration does occur before confinement.

To ensure that Waterstop-RX performs properly, it is necessary to remove and replace any materials which have undergone excessive hydration to the extent that it dissociates from the substrate and/or loses its latent swelling capacity. The following guidelines should be used to assess whether it is necessary to remove and replace Waterstop-RX that has excessively pre-hydrated prior to encapsulation in concrete.

### Exposure Guidelines

In unconfined conditions, Waterstop-RX can swell up to 3.5 times its original size. This is the ultimate swelling capacity of the product when completely submerged in water for a period of at least 7 days. Actual exposure scenarios are usually much less severe, meaning that the Waterstop RX will likely not swell to its maximum potential prior to concrete placement. The product does not need to achieve this maximum swell value in order to seal a joint. In other words, even if Waterstop-RX is partially hydrated, it still possesses enough swell capacity to create an effective seal. Thus, it is possible to accept partially hydrated Waterstop-RX provided that it neither dissociates from the substrate nor loses its physical integrity.



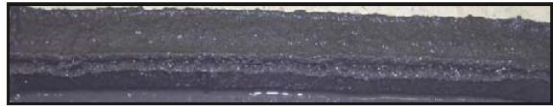




**Figure 1.** Properly installed Waterstop-RX prior to concrete encapsulation.

In the field, it may be difficult to assess the condition of the product with respect to these two attributes, and so this guideline offers some visual clues on making a determination. To assess substrate adhesion of partially hydrated Waterstop-RX, visually inspect for gaps between the waterstop and the substrate. Grasp the product and assess the quality of adhesion to the substrate. If the Waterstop-RX is easily removed, it should be replaced. To assess the hydration condition, look for signs of significant swelling at the corners of the Waterstop-RX and for lateral expansion cracks. The product should still exist as a contiguous whole, without excessive surface cracking; otherwise, it should be replaced.

In summary, if the inspection indicates that the Waterstop-RX is still well bonded and has not lost its physical integrity, it may remain in place. If either of these criteria is not achieved, however, it should be removed and replaced with new material. Timely removal of standing water in areas where Waterstop RX has been installed will help prevent the possibility that any material will need to be removed.

**WATERSTOP-RX VISUAL ASSESSMENT CHART**  
**(Waterstop-RX 101 Sample Accept/Reject)**

	.....Accept (Not hydrated, fully adhered)
	.....Accept (Slightly hydrated, fully adhered)
	.....Accept (Moderately hydrated, adhered)
	.....Accept (Partially hydrated, adhered)
	.....Reject (Excessively hydrated, poorly adhered)

If hydration occurs *before* confinement, one or both of the following phenomena may be observed:

- Debonding from the substrate. Waterstop-RX is applied to a concrete joint or detail area using CETSEAL. Assuming that the product has been installed in accordance with CETCO’s published guidelines, it will remain adhered to the substrate surface before, during and after the surrounding concrete is poured. This is a central requirement for the proper function of Waterstop-RX.
- Excessive swell and loss of integrity. Waterstop-RX functions by reacting with water, hydrating and swelling into void spaces in the concrete joint area. If the swelling ability of the product is diminished because it has already hydrated to a large percentage of its available swelling capacity, the Waterstop-RX again may reduce performance. Hydration to this extent could also be associated with loss of substrate adhesion.