Filter Replacement of an ecoStorm plus

The ecoStorm plus is a high efficiency storm water filtration system. To ensure its continued efficiency, periodic replacement of the filter must be performed.

It is suggested that each unit be checked routinely to ensure the system is performing as intended. Due to the nature of each project site, each system will experience different rates of sediment, heavy metal and nutrient loadings. Once it is determined the filter is no longer performing as intended and needs replacement, the following steps should be taken by a Royal Environmental Systems ***certified*** installer:

Replacement of the existing filter: Remove the 12" PVC standpipe, and clean any remaining sealant from the OD of the pipe. This pipe will be re-used, so be careful not to damage and ***do not*** cut it any shorter. Remove the cover of the street casting, and by using a typical vacuum truck, drop the 4" or 6" vacuum hose down into the 12" stand pipe all the way into the sump. Rotate the hose within the 12" pipe and vacuum all the sediment and water out of the structure.

The 7 block sections need to be removed individually. The foam sealant in-between each section must be cut ***the entire 10" thickness of the blocks, on all sides of the blocks, including the circumference of the 60" structure***. A standard compass saw with a minimum12" blade works well to penetrate the cured sealant, and easily cuts through the 10" depth.

Once the foam is cut, attach a chain or other properly rated OSHA approved supporting strap to the stainless steel lifting eyes in the top of a block, and begin extracting it thru the casting. The blocks are designed to pass through the casting opening, but may need to be rotated 90 degrees or so, using a second strap and stainless steel eye threaded into the insert on the underside of the filter. An OSHA approved tripod, a jib crane on a maintenance truck, or a small loader or backhoe can assist with the lifting of the approximately 250 pound blocks. The first block removed will be the most difficult due to the adhesion of the old sealant. (Note: It is the owner's responsibility to properly dispose of the used filter blocks. The owner should take proper steps to dispose of the filter in accordance with local regulations.)

Once all the existing blocks are removed, clean the old sealant from the interior wall of the structure and the stainless steel support brackets. Begin gently lowering a block through the casting opening, taking care not to damage the filter section. The use of two straps and lifting eyes may again be required to rotate through the opening. Position the block onto the stainless steel supports, (see attached drawing #Eplus –FM2 for proper installation). Repeat for all blocks.

There should be approximately ½" gap between all block edges, including the entire circumference of the structure if all blocks are correctly spaced on the supports. Adjust the blocks as needed to obtain this ½" gap.

Sealing the Gaps: Twelve cans of Hilti Insulating Filler Foam CF 116-14 have been provided to seal the 1/2" gaps, however, experience has shown approximately 10 or 11 cans total will complete the job. While standing on top of the filter, insert the 8" long nozzle extension on each can into the 1/2" gaps, and start filling the gaps around the bottom of the filter. Spray only enough foam to create an initial seal on the bottom 2 or 3 inches of the 10" deep filter, (being careful not to overfill initially as excessive foam may swell and cover the underside of the filter). This will seal the bottom of the gaps to avoid wasting the sealant. Approximately 3 cans should complete this initial seal.

Using approximately 5 or 6 cans of foam, continue to fill the rest of the ½" gaps in two or three separate lifts, allowing the foam to expand to the top of the filter blocks. Remember, the foam will expand several times its original size, so be careful to ensure there is minimal excess above the gaps when cured.

Install the 12" Overflow Pipe: Insert the 12" PVC standpipe in the center block, and seal around the pipe with the Hilti foam. Ensure the pipe is perfectly vertical during the curing process. If the pipe is not sealed securely to the filter, bypass of untreated water may occur.

Refill the structure: To perform correctly, the structure must be re-filled with clean water prior to finishing. The water level must be returned to the invert elevation of the downstream pipe, thus ensuring the filter is submerged. Replace the street casting.

Note: The structure must be initially installed watertight, with zero ex-filtration allowed. Each time the system is checked and cleaned, verify the water level is at or near the invert of the outlet pipe, (some evaporation may occur over long periods of dry weather). At all times, the water elevation must be above the top of the filter to maintain a submerged situation. If water levels have dropped, any leak must be found and fixed or the filter may not function as intended.