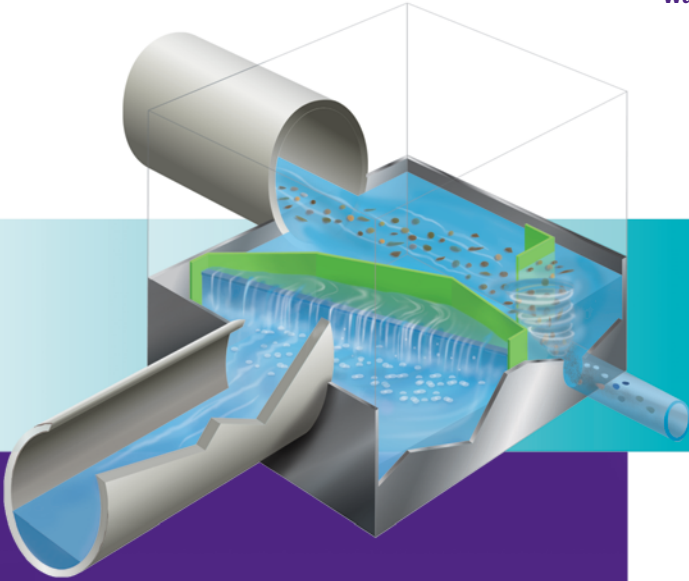


# FloatSep™

Vortexing baffle system for  
water surface control\*



# FloatSep™

## CONCEPT

Some things grab our attention and continue to fascinate us. The force of a whirlpool, whether in a natural setting or in the toilet is one such phenomenon. And then there are those things that we see and exclaim "That is so simple, why didn't I think of it?" Both of these occurrences usually have in common a level of sophistication and physical modeling that is just beyond our grasp until it is pointed out so vividly. Such is the FloatSep vortexing baffle system for controlling floating trash and debris in sewers.

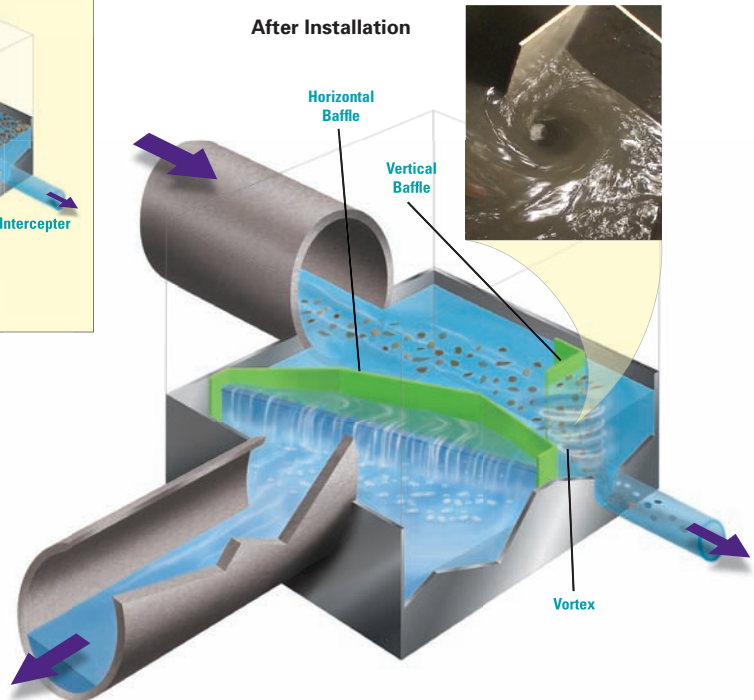
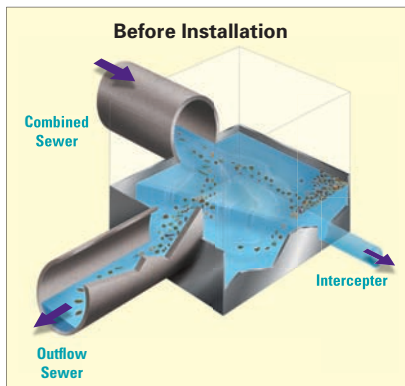
## PROCESS DESCRIPTION

The FloatSep design takes advantage of complex hydrodynamics to consistently direct floating solids to treatment and allow

clear flows to overflow to the outfall. The baffles produce a powerful vortex that 'flushes' the buoyant materials from the surface of the regulated chamber and draws neutrally buoyant materials that would otherwise overflow the control weir.

In the CSO chamber, a horizontal baffle is installed to keep materials from reaching the chamber's existing control weir, and a vertical baffle is added to facilitate the generation of a vortex that draws all solids to the controlled outlet of the structure.

When properly designed, the vortex that is generated increases in force as the rate of overflow continues. This vortex not only draws floating materials from the surface of the regulator, but also inhibits the flow of these materials under the horizontal baffle, improving the capture of materials that would otherwise be released to the receiving waters.



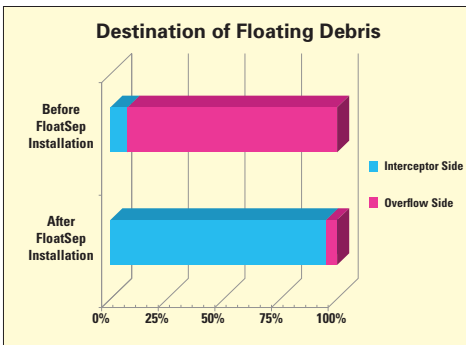
## PERFORMANCE

FloatSep baffle systems were installed at six different locations in Japan to test different sewerage characteristics and collection systems. Flows were sampled before the installation of the FloatSep in different overflow events, and the loss of suspended solids over the control (overflow) weir was quantified. Then the FloatSep baffles were installed and the sampling repeated in the same manner on subsequent overflow events.

The results from this sampling program showed that prior to installation over 90% of the solids in the sewer were going with the overflow over the weir. After installation, the results were reversed—now more than 90% of the solids are captured in the underflow into the interceptor.

The performance is consistent over a wide range of storm conditions. Removal efficiencies have been monitored for several generic compounds, including plastics, FOG (fat, oil, and grease), wood materials, rags, and stringy materials. Removal efficiencies are shown below for varying overflow rates. The 'design flow' is assigned a relative value of 1Q, and represents the rate at which 85% of annual overflow volume falls below that flow rate. (In many parts of the U.S. this is the equivalent of the runoff from a storm intensity of one inch per hour.) Removal efficiencies are then shown for flows that represent .5Q, 1Q, 1.5Q, and 2.0Q. The horizontal baffle is sized such that flows greater than 2.0Q will top the baffle, which in effect becomes a submerged weir. This prevents excessive head loss and potential up-stream flooding.

A detailed report of this testing is available at your request.



The FloatSep baffles reverse the destination of floating debris in the sewer. While greater than 90% of floating debris is discharged from the overflow without the baffle, more than 90% is captured and remains in the flow in the interceptor, going to the treatment plant.

## APPLICATIONS

In combined sewer systems:

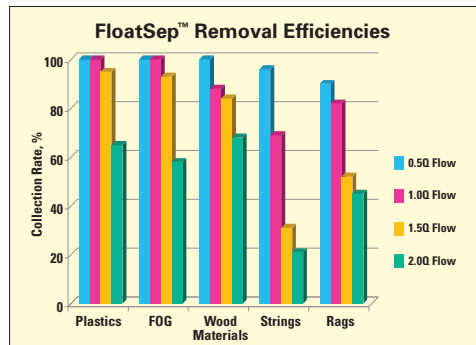
- CSO control structure treatment
- Retrofit overflow structures before net systems
- Any location that accumulates floatables

For separate sanitary sewer or combined systems:

- Offline storage facility pretreatment to reduce maintenance costs and frequency
- Tunnel storage pretreatment to reduce build-up of debris in the tunnel

## ADVANTAGES

- Costs only a fraction of other treatment technologies
- No head loss—zero impact on HGL
- Requires no external power—works off of the energy of the flow in the sewer
- Reduces maintenance requirements in the overflow control structure
- Installs without major structural modifications
- Reduces storm water-related problems for your city's administration
- ARRA compliant—made in the USA



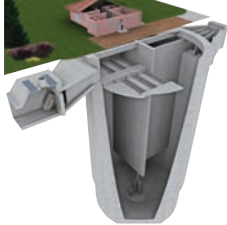
Capture rates are shown as a function of overflow rates for various types of floating materials. 1Q is the 'design flow' that is the equivalent of 85% AAOV reduction.

\* Water Surface Control is a registered trademark of the Tokyo Municipal Government, the Tokyo Metropolitan Sewerage Service Corporation, and Nippon Kosei Co., Ltd.

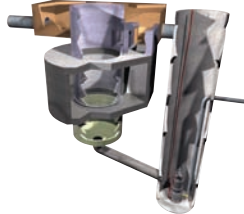
FloatSep is designed and manufactured in the U.S. under license from the above.

Japanese patent no. 3845042 and 2010-278329. Patents pending in the U.S. and Canada.

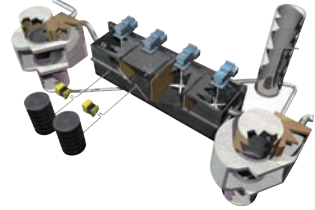
## OTHER WET WEATHER PRODUCTS FROM PWTECH



**Treatment Shaft**



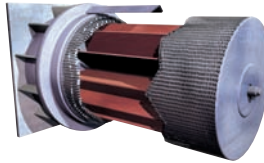
**SanSep**



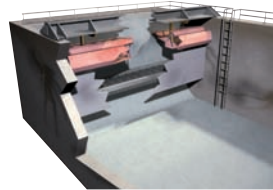
**FLOCCSEP**



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