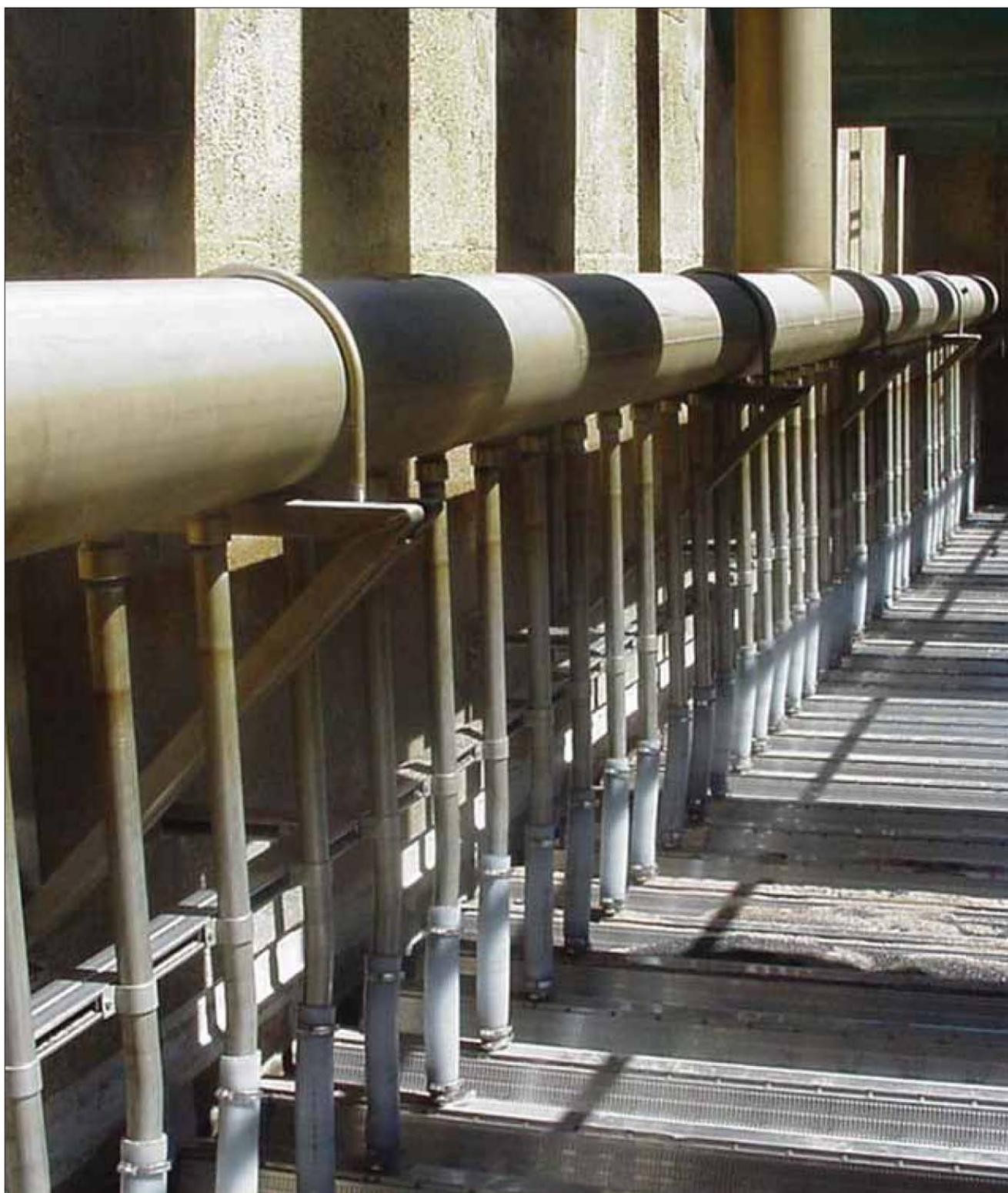
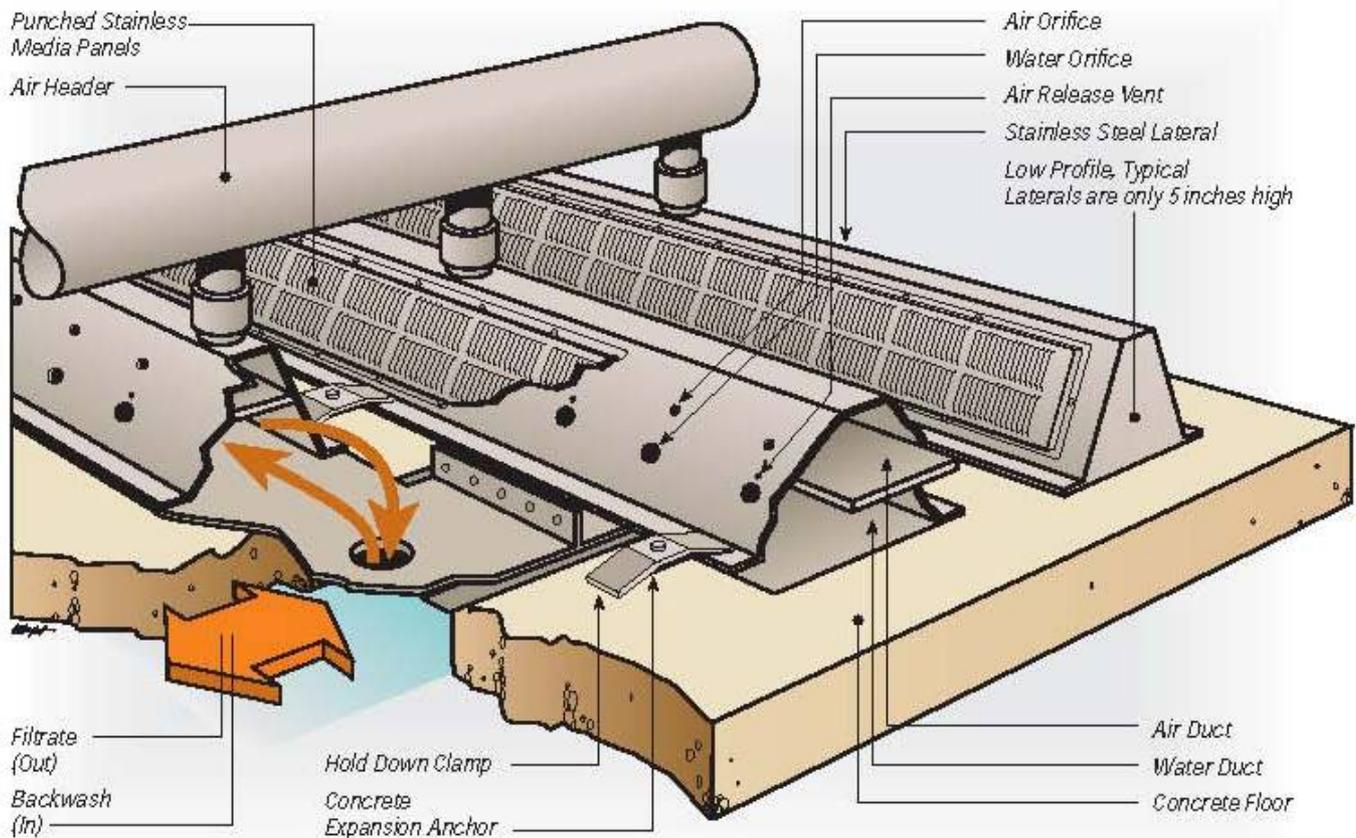


Stainless Steel Filter Underdrain For Uniform Air + Water Backwash



Uniform Choice for simultaneous Air + Water Backwash



Uniform flow distribution is the key to successful air + water backwash.

The underdrain is the heart of every granular media filter. If the underdrain is well designed, durable and efficient, the filter will provide many years of continuous service. If not, the underdrain and perhaps the entire filter may require replacement after only a few years use.

Our Flexscour® filter underdrains provide a durable, corrosion-resistant system for collecting filtered effluent and accurately metering uniform air + water backwash flows. Innovative design features eliminate the two flow problems that have plagued other

combined air + water cleaning systems: improper sizing of variable diameter orifices and media displacement by surging or irregular flows.

Flexscour® underdrains feature lateral ducts constructed of 18 ga. Stainless steel, axially partitioned into upper and lower channels for air and water.

Typically, air is supplied from an overhead steel pipe while filtrate and backwash water flow through a concrete floor channel and primary orifices in lateral baseplates. A variety of feed and drainage arrangements are possible, depending on existing basin layout and dipping all distribution orifices are

specifically sized for each application to ensure flow equalization. Lateral orifices are covered by stainless steel shields. The entire assembly is fastened to the filter floor with stainless steel anchor bolts.



Photo above: Illustrates the uniformity of the air distribution in this new Flexscour® underdrain installation at the Medicine Hat, Alberta WTP; the photo was taken less than two seconds after the start of the air scour.



These photos show the retrofitting of an 11' x 30' filter cell with Flexscour® underdrain components. This is one of sixteen cells refurbished with the Flexscour® system at the Medicine Hat, Alberta municipal waterworks. Average installation time for a four man crew was 41/2 days per cell, including demolition.

Built-in flexibility makes Flexscour® underdrains an ideal retrofit selection

The Flexscour underdrain was originally developed as a retrofit system that would be flexible enough to accommodate any existing tank and piping arrangement without sacrificing efficient flow management. Because Flexscour underdrains require no false floor and the unitized laterals need not be sealed against a perfectly prepared floor, installation is fast and straightforward, making this an ideal selection for rehabilitating older filters. The low, five inch lateral height provides an extra measure of flexibility, allowing for extra media depth or providing critical clearance for air-scour bed expansion without raising the launder elevation. Reduced backwash storage requirements also contribute to making Flexscour filters compact and economical, and enhance their ability to operate on less influent head.

Flexscour® package plants
Flexscour underdrain systems are available in prefabricated steel tank filters. Underdrain components are shipped for rapid installation on the concrete floor prior to installation of the tank. Filter tanks are shop assembled and trucked to the site where they are field welded to preset anchor channels. Because of their rectangular configuration, Flexscour filters of up to 540 square feet (equal in area to a 26' diameter round tank) can be shipped fully assembled.

New hydraulic models allow accurate orifice sizing

Most header and lateral underdrains attempt to regulate backwash flow with variably sized orifices, but traditional hydraulic models have proven inadequate for accurate sizing in areas of higher header flow velocity. The Flexscour underdrain designers conducted exhaustive tests to gain a better understanding of the relation between crossflow velocity and turning resistance. These tests yielded a superior set of orifice sizing guidelines and an unequaled level of backwash uniformity.

Separate ducts eliminate air + water flow interference

The second aim of the Flexscour underdrain developers was to eliminate the surging wave action commonly responsible for media migraine in combined air + water backwash systems. By partitioning lateral ducts into separate channels for air and water, the tendency of uneven pneumatic pressures to create reciprocating waves in header / lateral underdrains has been eliminated. Air distribution is uninterrupted, allowing vigorous, uniform cleaning with no media displacement. Where simultaneous air + water backwashing can be used, effective media cleaning can be accomplished with a fraction of the water required in alternating flow arrangements.