CONTECH®
ENGINEERED SOLUTIONS

High Capacity (HC) Kraken® Filter Installation Manual

THE KRAKEN®

OVERVIEW

This installation guide is for the vaults/manholes containing the High Capacity (HC) Kraken internals. Please read all warning and safety instructions prior to rigging and installing the vault/manhole. The Contractor is responsible for supplying all cranes and rigging equipment required for installation. The Contractor is also responsible for all pipe grouting and system activation requirements.

WARNING

Fall protection may be required. Watch your step when standing on the HC Kraken false floor at any time. Great care and safety must be taken while walking or maneuvering on the HC Kraken false floor to prevent stepping into or through a cartridge coupler hole or slipping. HC Kraken false floor can be slippery when wet. If the top slab, covers, or hatches have not yet been installed or are removed for any reason, great care must be taken to not drop anything onto the HC Kraken false floor. The HC Kraken false floor may be damaged under high impact loads. This type of activity voids all warranties.

SAFETY NOTICE AND PERSONAL SAFETY EQUIPMENT

Jobsite safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s), and Contractor(s). OSHA and Canadian OSH, Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Fall Protection Equipment

Safety Boots

Gloves

Hard Hat

Eye Protection

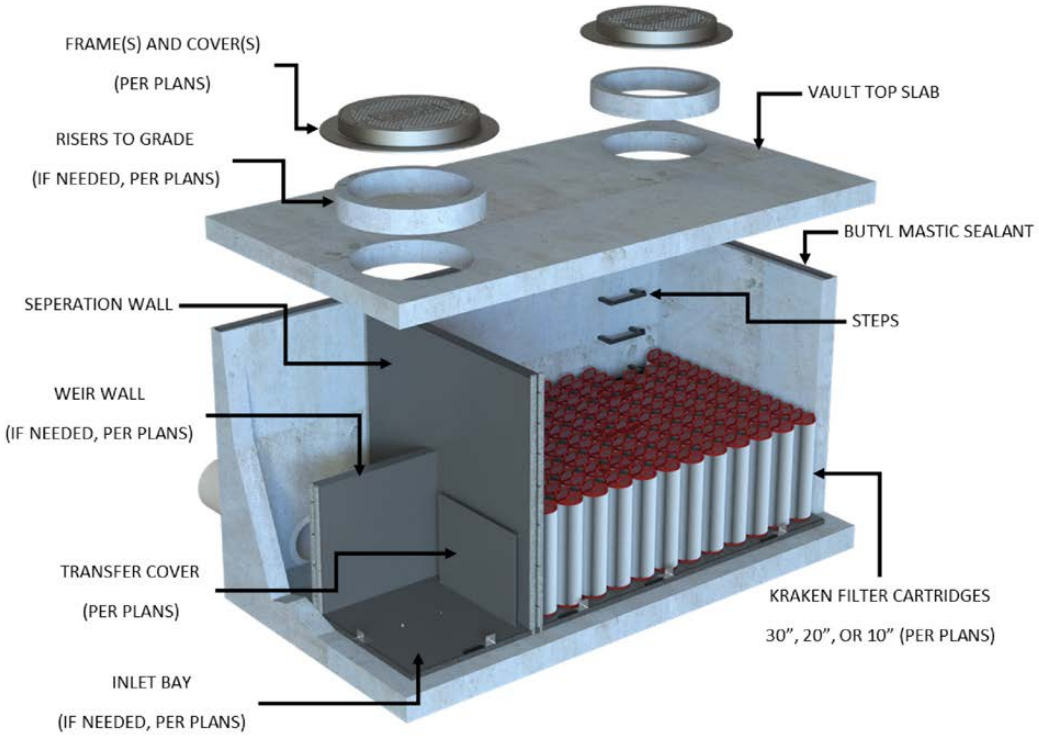
Ear Protection

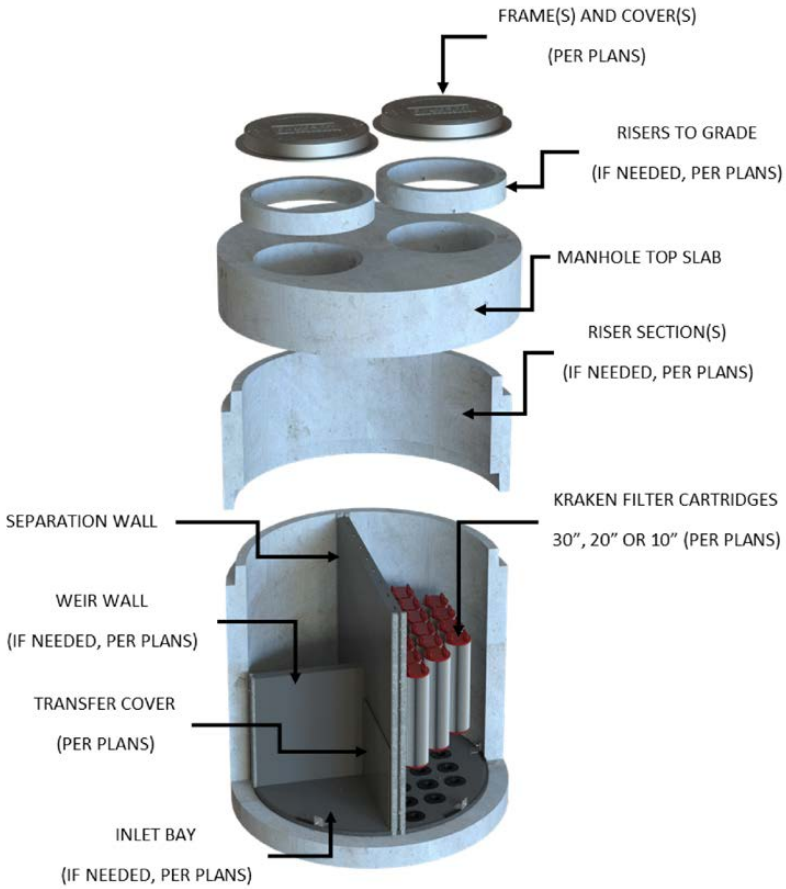
Ventilation and Respiratory Protection

Maintenance and Protection of Traffic Plan

HIGH CAPACITY KRAKEN FILTER COMPONENTS LIST

The HC Kraken filter system will arrive on-site with the internals pre-installed, secured, and sealed to a precast structure. The components per the shop drawings (plans) typically include:





CONFINED SPACE ENTRY

Obtain all equipment and training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to always proceed safely.

UNLOADING AND HANDLING

Any unloading/handling guidance of the HC Kraken Filter precast structure is beyond the scope of work of Contech but can be obtained from the precaster. Contact Contech to obtain contact information from precaster. Handle HC Kraken Filter components with care. Special lift gear and rigging may be necessary to unload and handle any precast components, which is the responsibility of the site Contractor.

DO NOT DAMAGE the parts in handling or unloading, and if parts are damaged prior to off-loading, immediately call Contech.

The Contractor is responsible for the inspection of all HC Kraken components shipped, and all components shall be inspected at time of delivery by the site Engineer/Inspector and the Contractor. Any nonconformance to approved drawings or damage to any part of the system shall be documented on the shipping ticket. Contech should be contacted immediately. Damage to the unit during and after unloading shall be corrected at the expense of the Contractor. Any necessary repairs shall be made at the acceptance of the Engineer/Inspector.

CRANE SELECTION

The Contractor is responsible for selecting the appropriate equipment to safely rig, lift, unload, and set-in-place the HC Kraken Filter system, as well as provide a safe environment at the jobsite for the offloading and installation/assembly of the structure. Contech or the precast producer will provide the Contractor with the maximum pick weight of the heaviest precast component. Safety considerations of crane size, placement, ground support, stability, distance to excavation, swing and lifting radius, overhead conflicts, permits, or traffic control and other items must be carefully addressed but are outside the responsibility of Contech.

EXCAVATION SAFETY

Any site excavation and shoring are beyond the scope of work of Contech. **This is the responsibility of the Contractor, and all OSHA, Canadian OSH, Federal, State/Provincial, and Local Jurisdiction Safety Standards shall apply on all sites.**

BASE PREPARATION

Compact undisturbed sub-grade materials to 95% of maximum density at +/- 2% of optimum moisture content prior to placement of crushed rock. Crushed rock base material shall be six-inch minimum layer of ¾-inch minus rock. Unsuitable material below sub-grade shall be replaced per site engineer's approval. The allowable amount of variation from corner to corner is 0.5%.

SETTING THE HIGH CAPACITY KRAKEN FILTER VAULT/MANHOLE

1. SETTING BASE SECTION

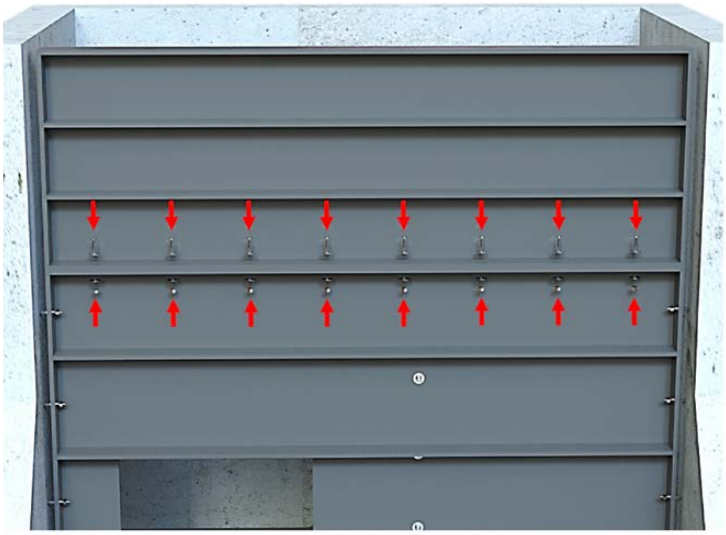
Before offloading, obtain a copy of the final approved shop drawings and site plan to verify all components are correctly placed and at the proper elevation. The Contractor is responsible for safely rigging and offloading the structure and associated components. Set the base section of the HC Kraken vault/manhole on solid, level sub-grade. Ensure the inlet(s) and outlet are properly oriented. The system floor shall slope ¼" maximum across the width and slope downstream 1 inch per 12 foot of length. For manhole systems, "length" is defined by a line running from the invert of the outlet through the center of the manhole and "width" is perpendicular

2. SEAL PRECAST SECTIONS

Place butyl mastic tape between each precast section to seal each precast section. Verify level and elevation of the base section before adding any additional precast riser sections.

3. RISER SECTIONS

Set riser section(s), if needed, on the base section per approved shop drawings. If riser sections are not required, proceed to **Step 7.**

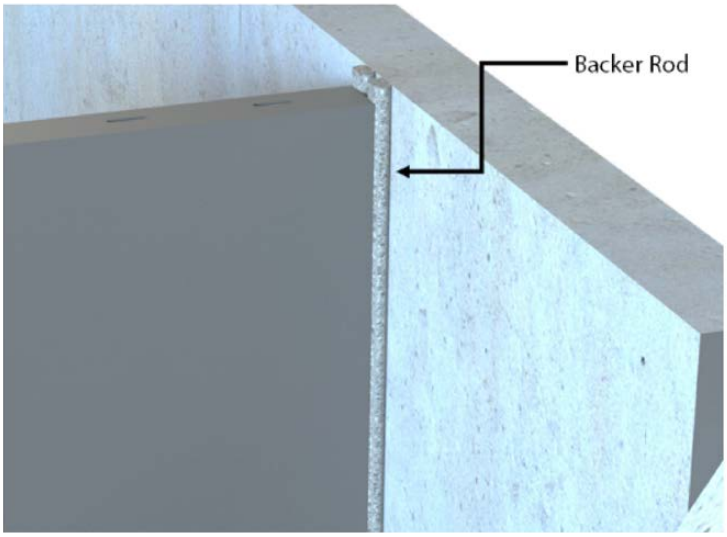


4. SEPARATOR WALL – TOP SECTION EXTENSION

In the event that the unit requires a separator wall that extends into multiple riser section(s), a separator wall extension piece will need to be installed in the field prior to the top slab being placed. To do so, carefully place the top section(s) of the separator wall onto the existing section, ensuring the stiffeners are facing the same way. Line up the extension to be centered on the existing wall using the slots in the bottom flange, and secure using a 3/8"-16 x 2-1/2" long hex head bolt, two 3/8" washers, and a 3/8" nylon insert locknut. If the unit does not require separator wall extension(s),

5. ANCHORING EXTENSION(S)

Once the extension(s) is bolted into the existing separator wall, anchor this section into the vault/manhole using 3/8" x 3" long wedge anchors, alternating sides to ensure the extension(s) stays centered.



6. BACKER RODS

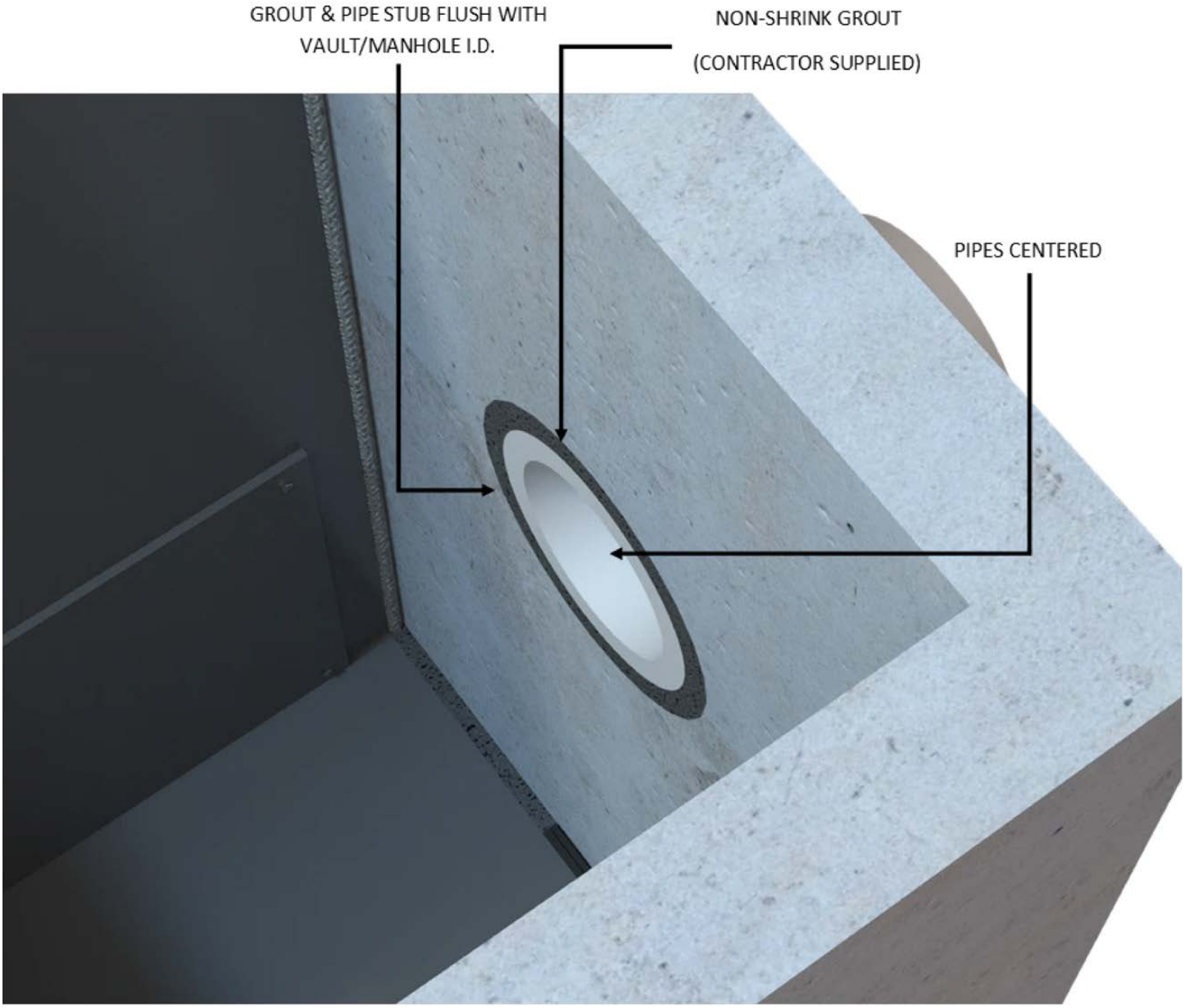
With everything nicely secured, fill the gaps between the vault/manhole and the separator wall using backer rods and Sikaflex 1A sealant. Cut backer rod to length and use a blunt instrument or roller to uniformly install the backer rod so that the sealant depth will be ½ of the joint width. Do not puncture, stretch, or overly compress.

7. TOP SLAB

Set the Top Slab according to the approved shop drawings. Prior to setting the top slab, ensure butyl mastic tape has been applied to all joints, including the top of the separator wall (extensions included) of the internals.

PIPE CONNECTIONS

Inlet pipe(s) and outlet pipe shall be stubbed in and connected to the system according to Engineer's requirements and specifications. Contractor to grout all inlet and outlet pipes flush with or protruding up to 2 inches interior of vault per plan and specifications. Contractor to supply non-shrink grout and center all inlet pipe(s) and outlet pipe in the core holes provided in the vault/manhole.



BALLAST

When required, the Contractor shall place ballast to the dimensions specified by the Engineer and noted on the plans. Ballast shall not encase the inlet and/or outlet piping, and 12-inches of clearance should be provided between the ballast and the inlet/outlet pipes.

RISERS, COVERS, AND CLOSING THE SYSTEM

The HC Kraken Filter is delivered with the necessary risers and covers to bring the unit to grade. It is the contractor's responsibility to assemble the HC Kraken Filter per the plans and as directed by the Engineer.

- Place a layer of butyl mastic sealant between the top slab, riser sections, and riser rings
- The top slab should be oriented per the drawing with access openings positioned over steps (if provided)
- Place riser sections and riser rings with steps oriented as shown on plans
- Install frames and covers per plans

The contractor is responsible for sealing and making all joints, line entry, and exit points watertight.

BACKFILL

Backfill material and placement method should be performed in accordance with the construction plans and specifications and as directed by the Engineer.

SYSTEM ACTIVATION

Once construction is complete and the site has been fully stabilized (i.e., landscaping is in place, grass growing, and top course of pavement laid), the HC Kraken Filter system can be activated.

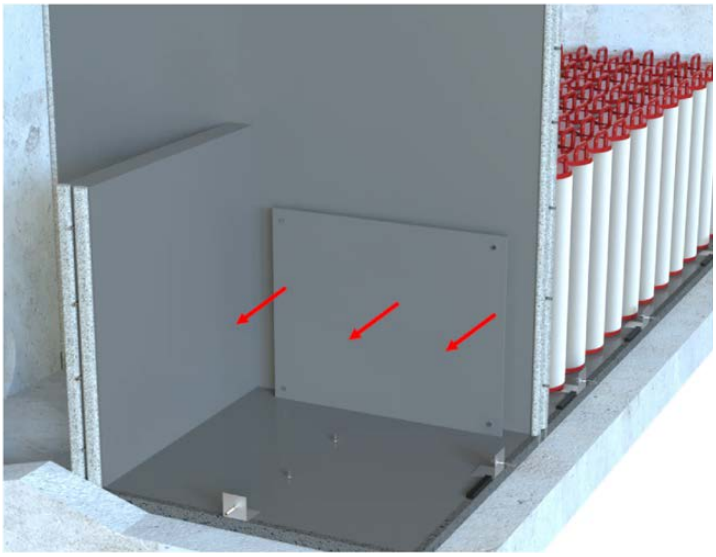
The contractor is responsible for keeping the HC Kraken system clean and free of construction debris and sediment prior to activation. This reduces the potential of a large rainfall/runoff event entering the filtration chamber and loading (and/or overloading) the filters prematurely shortening the cartridge service life for the owner. Practices to protect the cartridges include, but are not limited to, plugging the inlet pipe, diverting construction run off around the unit, and/or removing and storing the cartridges in a clean, dry space and reinstalling them at time of activation. One of these practices MUST be implemented for **offline** HC Kraken vault or manhole configurations. All debris MUST be cleaned from the HC Kraken Filter PRIOR to cartridge activation.

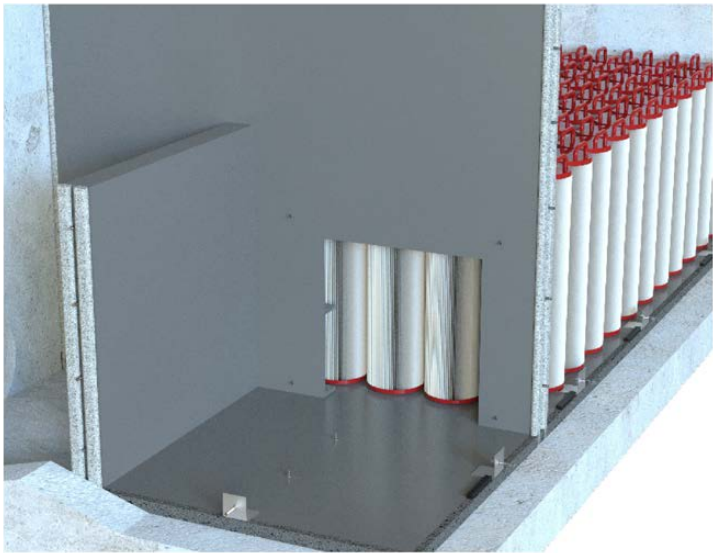
Offline Vault/Manhole Activation

Remove inlet plug, direct run off to the HC Kraken unit, and/or reinstall filter cartridges. Cartridges are properly installed if the handles of the cartridges face perpendicular to the separator wall. O-ring lubricant may be needed for cartridge reinstallation.

Peak Diversion Vault/Manhole Activation

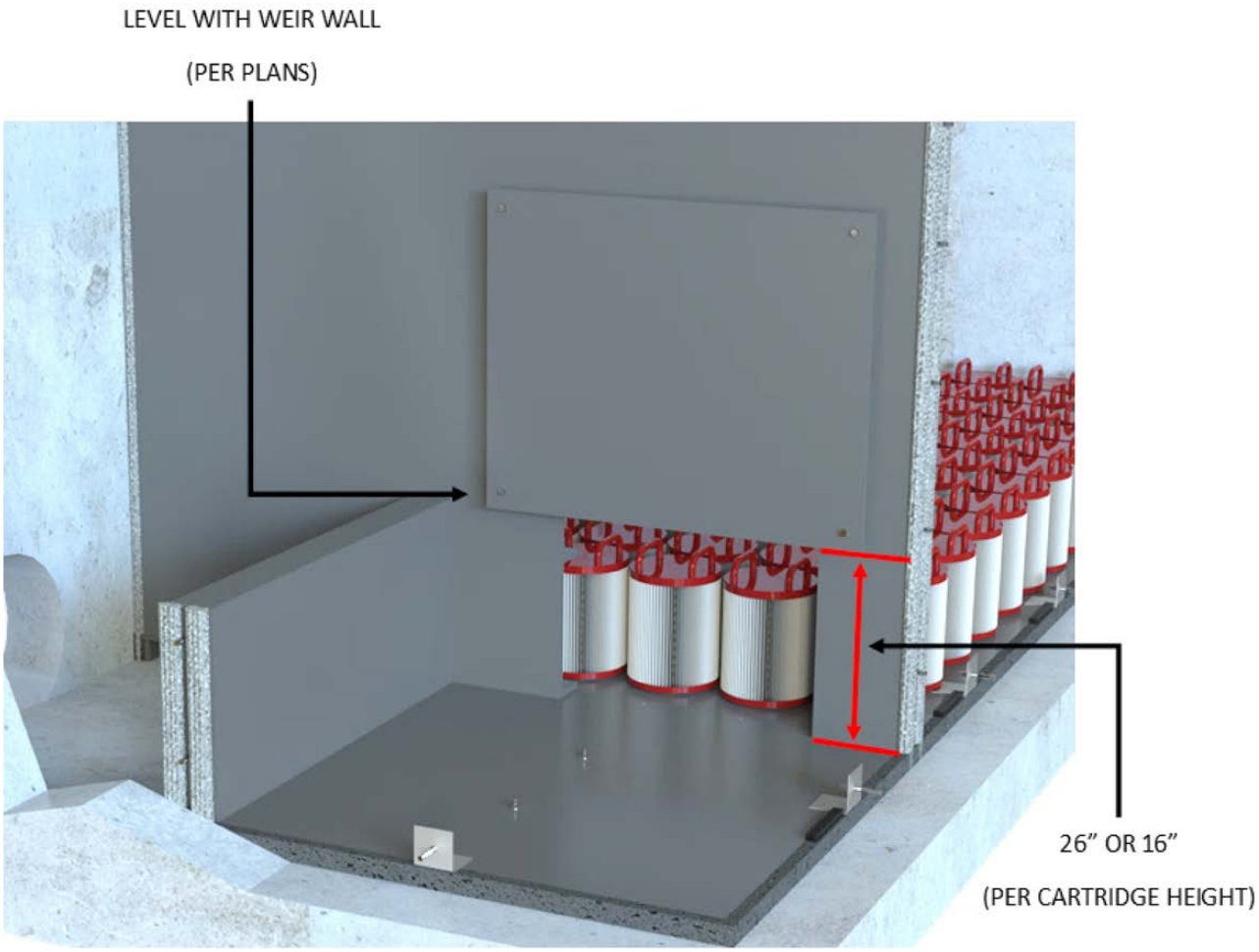
To activate systems with 30" tall cartridges, remove the transfer opening cover and properly dispose of it.





To activate systems with 20” tall cartridges, remove the transfer opening cover and reinstall it 26” above the inlet bay false floor such that the bottom of the transfer opening cover is equal to the height of the perpendicular weir wall.

To activate systems with 10” tall cartridges, remove the transfer opening cover and reinstall it 16” above the inlet bay false floor such that the bottom of the transfer opening cover is equal to the height of the perpendicular wall.



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