



ACO STORMBRIXX®

Site Installation Manual

Stormwater Detention

Stormwater Infiltration

Stormwater Retention



Preparing for Installation

Important considerations

ACO StormBrixx® units should be installed in accordance with the installation instructions and relevant legislation. Special attention should be paid to temporary work requirements in excavations. ACO can give guidance with respect to the most suitable methods of installation for the ACO StormBrixx® system.

Detailed installation methodologies will vary for all sites as each will have different aspects deserving particular consideration. Consequently, the relevant approvals should be sought from the consulting engineer and/or the installer.

Full technical data can be found in the ACO StormBrixx® brochure or online at www.ACOStormBrixx.us.

Important site considerations

ACO StormBrixx® is designed to withstand loadings from landscaped areas, car parks and service yards (subject to design criteria) **AFTER INSTALLATION AND BACKFILLING**. During construction it is recommended that the tank area be fenced off with high visibility fencing and any vehicular traffic is prohibited from using the footprint area of the tank.

ACO StormBrixx® is **NOT** designed to provide a load platform for construction traffic and should be treated accordingly.

This action will protect the long term loading performance of the tank's structure.

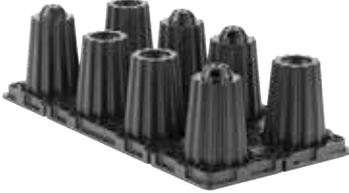
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To ensure long term stability of the system, it is recommended to provide sign posts indicating maximum loads allowable over the tank footprint.

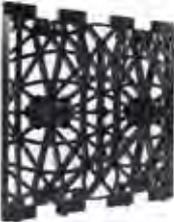
Components

StormBrixx® tank body - 314061

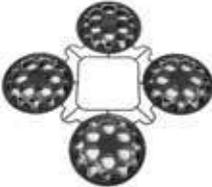


Side wall - 314062

Has 4" & 6" cut out guides



Top cover (set of 4) - 314022



Layer connectors - 314023



Pipe connectors with flange - 4"- 93145/6"- 93146/8"- 93147/12"- 93148



Access chamber - 27034

Has 4", 6", 9", 12", 15" dia cut out guides



18" dia access chamber extension shaft - 314038



18" dia access chamber ductile iron cover (40 ton load rating) - 314056



9" dia inspection point shaft with flange - 27018



9" dia inspection point ductile iron cover (40 ton load rating) - 314045



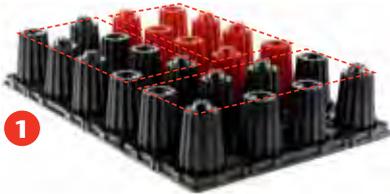
Preparing for Installation

ACO StormBrixx® System Assembly

ACO StormBrixx® offers a patented cell brick and cross bonding feature for unparalleled tank stability. This allows creation of a single layer of interlocked units. Multiple layers can then be stacked using layer connectors to join - **see page 5**.

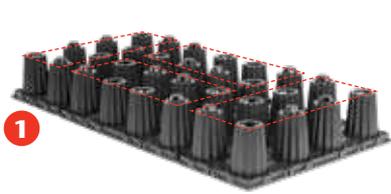
Creating a triple unit:

71" x 48" x 24"
(1800 x 1200 x 610mm)



Creating a quadruple unit:

95" x 48" x 24"
(2400 x 1200 x 610mm)



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■■■

Depending on design & installation requirements, a variety of configurations & tank sizes can be achieved.

Vertical and lateral layer connectors

The ACO StormBrixx® connector provides three different connections:



Lateral unit to unit connection

Align ACO StormBrixx® units next to each other so that clip holes align. Push layer connector into hole until clip is properly seated.



Single vertical connection

Snap layer connector in half and push two ends together. Place this into lower unit and align top unit and lower into position.



Double vertical & lateral connection

To simultaneously connect units both laterally and vertically, join two layer connectors together.



Preparing for Installation

Cutting the unit

If required, ACO StormBrixx® can be cut in half along the central rib. A handsaw or jigsaw should be used. Both halves of the unit can be connected to the rest of the system using the 3-way connector. Ensure the cut face is orientated towards the inside of the tank system, to prevent damage to the geomembrane/geotextile.



Fitting the pipe connectors

Using a hole saw or jigsaw, cut appropriate size diameter hole in side panel of ACO StormBrixx®. Side panel has pre-set cut outs for 4" and 6" (100 and 150mm) pipe, and pre-marked concentric cut outs marked on inside of panel to ensure lowest invert to the tank can be cut. Ensure that flange of pipe connector does not protrude below invert of the tank.



Fit connector to the side panel through holes at corners of the flange. Ensure that pipe connector is fitted so that there is adequate spigot for the joining pipe work to connect to 3" minimum (75mm).

Ensure the geomembrane or geotextile is fixed to flange ensuring a firm seal.



Adding side panels

Side panels are used only around the outside perimeter of the tank.

Push fit the side panel into the slots provided in the bottom and top tank bodies, ensuring all clips are engaged.

Two side panels are required on each length and one side panel on each width of a single cell configuration.



Top covers

ACO StormBrixx® top covers are only required on the top surfaces of an installation. The top covers ensure the integrity of the geotextile / geomembrane and the final surface finish of the installation. Top covers are supplied as a 4-piece unit on a lightweight frame. They locate easily on top of the boxes and need only be lightly pushed in to ensure an exact fit.

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Preparing for Installation

Creating an access chamber

The access chamber is designed to provide complete 3D access to enable inspection of all levels and areas of the system by either tracked or push rod CCTV inspection equipment.

Cut unit at guides for required pipe connection. Push up to 2.5" (65mm) of pipe into access chamber module.

Access chamber walls that will face the inside of the tank should also be removed.

If using more than one access chamber module in a stack, it will be necessary to remove base from all modules except bottom base unit. Cut along the recessed cutting line provided and remove base. Once the main access chamber has been constructed it will be necessary to add an 18" (450mm) internal diameter raising piece cut to length and placed over the top of the access chamber unit.

Once the bases of the upper module(s) have been removed, simply stack units on top of each other ensuring that each module is clipped to the main structure using the StormBrixx® layer connectors.



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Layer connectors should be used to hold access chamber in place before the next module is added to the access chamber stack. **See page 5.**

Creating an inspection point

An inspection point permits remote access and inspection and, if necessary, jetting of the system. Following these instructions provides access to all layers within the system.

Cut a circular hole in top tank body with a jigsaw. A cutting guide is provided - centered between the four columns. Holes should be cut in same location on all intermediate top and bottom panels to allow access to all layers of the tank.



Place an inspection point connector over center of hole, ensuring flange covers all four columns. Using plastic rivets, fix flange to StormBrixx® unit. If an extension piece is required, use 9" (225mm) dual wall pipe cut to length and attach with proprietary coupling.



Use StormBrixx® 9" dia (225mm) ductile iron inspection point cover to complete installation.



Installation

StormBrixx® - Excavation

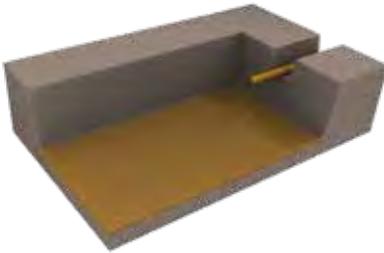
General advice

If the ACO StormBrixx® system is to be located in areas of high groundwater table, contaminated land, close proximity to buildings, or where the risk of contamination from surface water is high, ACO recommends that the lining system be installed by an accredited lining contractor. Please contact ACO at (800) 543-4764 for further advice.

Installation guidance

ACO can give guidance on the most suitable methods of installation. ACO StormBrixx® should be installed in accordance to local codes and requirements. Installation can vary depending upon individual site topography and conditions and local engineering advice is recommended.

Excavate



Excavate pipe trench and lay inlet pipe to required fall and invert level. Install silt traps in appropriate locations in pipe run if not using ACO StormBrixx® access chamber, sediment tunnel or forebay.

Excavate hole or trench to required dimensions to receive ACO StormBrixx® tanks, and any external inspection chamber(s) and/or silt trap(s).

Note: Ensure that base plan dimensions of excavation allow 12" (300mm) working space on all sides for site operatives to maneuver the ACO StormBrixx® units, geotextile and geomembrane into position. Ideally, mark out plan area with spray paint or chalk line.

Ground preparation

Ensure base of excavation is smooth and level and capable of withstanding required design loads. Angle sides of excavation to prevent collapse and ensure safe access/conditions for site workers.

Note: Remove any soft spots from excavation - replace with compacted granular material.

Dentention/Retention installation steps - see Pg 11-15

Infiltration installation steps - see Pg 16-19

(800) 543-4764

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Installing a StormBrixx® system - Detention/Retention

Step 1 - Bedding layer

Lay minimum 4" (100mm) compacted bedding layer.

Note: It is essential that the bedding layer is correctly leveled and smoothed.

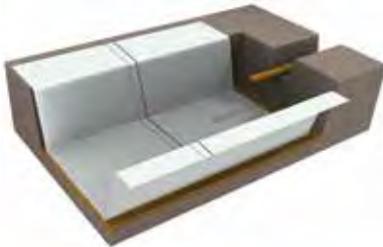


Step 2 - Geotextile

Lay geotextile to base sides of the excavation with minimum 12" (300mm) overlap at joints. Inspect geotextile for damage.

Step 3 - Geomembrane liner

Install geomembrane liner to comply with local standards and requirements, if required.



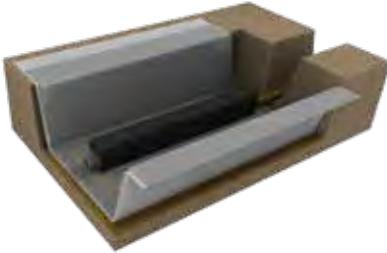
Step 4 - ACO StormBrixx® placement

Assemble ACO StormBrixx® modular units to plan size and unit configuration required and place on geomembrane. Ensure any loose complete units are fixed together using ACO StormBrixx® layer connector. **See Pg 4-5.**

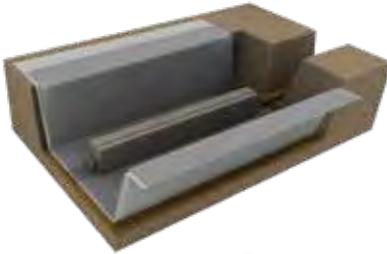
Installing a StormBrixx® system - Detention/Retention (cont.)

Step 5 - Sediment tunnel (optional)

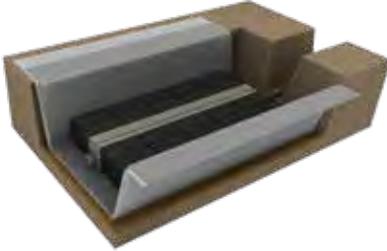
A sediment tunnel contains any sediment inflow within that segment of the tank.



Create a linear construction of ACO StormBrixx® units with side panels on both sides



Encapsulate in geotextile.



Place the remainder of the ACO StormBrixx® units on either side of the sediment tunnel.

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Where necessary, insert ACO StormBrixx® connectors between the layers of the ACO StormBrixx® units. At the perimeter of the tank construction use side panels on all external boxes to create a rigid sidewall.

If a low flow drain down facility has been specified, it will be necessary to install a row of ACO StormBrixx® units in a trench below the main attenuation volume in line with the inlet & outlet connections.

This row needs to have side panels on all outer edges and to be enveloped with a protective fleece and geomembrane on three sides.



Step 6 - Pipe connector flanges

Form hole(s) in the side panel of the ACO StormBrixx® unit using a hole saw and jigsaw to receive the inlet pipe (outlet/inspection/vent pipe if required). Insert tank connector together with geomembrane top hat if required. Ensure top covers are installed on the top layer of the system. **See Pg 7.**

Step 7 - Fit geomembrane liner

Cut geomembrane around pipe protrusions and weld top hat to geomembrane tank liner. Then seal geomembrane top hat to pipe or tank connector. Test joints for leaks.

Continue with geomembrane encapsulation using welded or taped joints as appropriate. If protrusions exist for venting, repeat above.

Check for leaks and test seals.



Continue with outer protection encapsulation of the geomembrane and ACO StormBrixx® system. Fold the corners of the protection fleece over-run at each end of the attenuation tank.



Complete encapsulation by wrapping protective fleece horizontally around tank and tape into position.

Step 8 - Inlet/outlet/vent pipe

Connect inlet/outlet/vent pipe and access chamber using appropriate adaptors. One 4" vent pipe is required per 80,730 sq ft of the area to be drained.

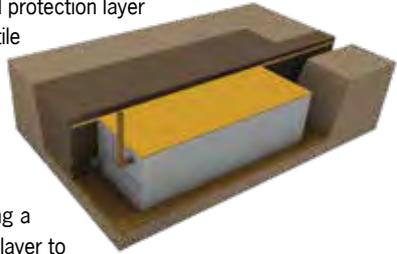
Installing a StormBrixx® system - Detention/Retention (cont.)

Step 9 - Backfill

Sides - Backfill evenly around excavation using sub base or selected granular material in layers of 6-12" (150-300mm) and compact. The first 20" (500mm) should be compacted by hand.



Top - Use a minimum 4" (100mm) coarse sand protection layer over top of ACO StormBrixx® units and geotextile then backfill. A minimum 16" (400mm) backfill cover is required before compaction equipment is used. Area should be compacted using suitable compaction equipment.



Note: For hard landscaped areas consider using a minimum 6" (150mm) coarse sand protection layer to maximize protection of liner.

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Step 10 - Compaction

Landscaped and non-trafficked areas: selected as-dug material with size of particles less than 1.6" (40mm) within 12" (300mm) of top of units. Above this level selected as-dug material may be used. Place backfill and compact in layers no greater than 12" (300mm). Compaction plant over top of system must not exceed 5,000 lbs per 36" width.

Trafficked areas: Use appropriate subbase material as backfill and compact in layers no greater than 12" (300mm). Compaction plant over top of system must not exceed 5,000 lbs per 36" width.

Note: Where units are installed beneath a paved area, pavement sub base may form part of backfill material. Minimum cover depth **MUST** be maintained (see installation detail).

Step 11 - Finished pavement

The pavement construction or landscaping is completed over the ACO StormBrixx® system. Please read post-installation protection of ACO StormBrixx® below.

Prior to final surfacing, ensure tank area is fenced off with high visibility fencing and traffic is prohibited from using footprint area of the tank. ACO StormBrixx® is not designed to provide a load platform for construction traffic.



Installation

Installing a StormBrixx® system - Infiltration

Step 1 - Bedding layer

Lay minimum 4" (100mm) coarse sand layer.

Note: It is essential that the coarse sand layer is correctly levelled and smoothed.

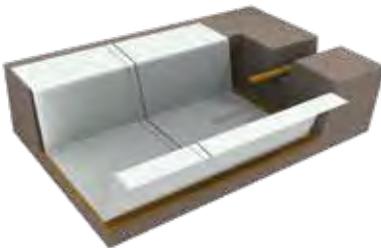


Step 2 - Geotextile

Lay geotextile to base sides of the excavation with minimum 12" (300mm) overlap at joints. Inspect geotextile for damage.

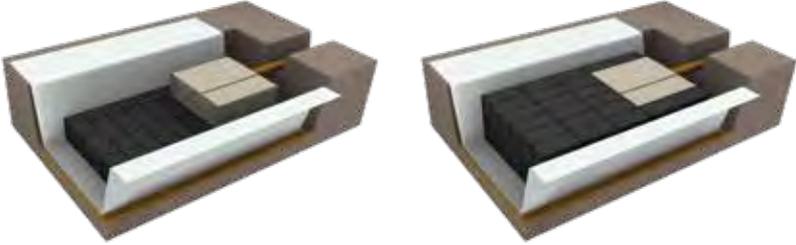
Step 3 - ACO StormBrixx® placement

Assemble ACO StormBrixx® modular units to plan size and unit configuration required and place on geotextile. Ensure any loose complete units are fixed together using ACO StormBrixx® layer connector. **See Pg 4-5.**



Step 6 - Sediment forebay (optional)

If a sediment forebay has been specified, form the forebay containment structure around pipe inlet using side panels on correct units to dimensions specified. Ensure top covers are installed to top layer of sediment forebay. Encapsulate using geotextile. Examples of system configurations can be found in the ACO StormBrixx® brochure.



Form remainder of ACO StormBrixx® units to complete overall dimensions specified.

Where necessary insert ACO StormBrixx® connectors between layers of ACO StormBrixx® units. At perimeter of tank use side panels on all external boxes to create a rigid sidewall. Ensure top covers are installed on top layer of system.

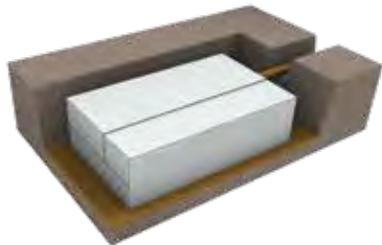
Step 7 - Pipe connections

Form hole(s) in the side panel of ACO StormBrixx® unit using a hole saw and jigsaw to receive inlet pipe (outlet/inspection/vent pipe if required). Insert tank connector and using geotextile form a wrap around apron of tank connector spigot and secure using tape or jubilee clip. Ensure a minimum 2" (50mm) of spigot remains exposed.

See Pg 6 & 9.

Step 8 - Fit geotextile wrap

Continue with the geotextile encapsulation of the ACO StormBrixx® system.



Step 9 - Inlet/outlet/vent pipe

Connect inlet/outlet/vent pipe and access chamber using appropriate adaptors. One 4" vent pipe is required per 80,730 sq ft of the area to be drained.

Installation

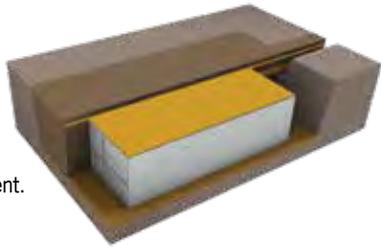
Installing a StormBrixx® system - Infiltration (cont.)

Step 10 - Backfill

Sides - Backfill evenly around excavation using sub base or selected granular material in layers of 6-12" (150-300mm) and compact. The first 20" (500mm) should be compacted by hand.



Top - Use a minimum 4" (100mm) coarse sand protection layer over top of ACO StormBrixx® units and geotextile then backfill. A minimum 16" (400mm) backfill cover is required before compaction equipment is used. Area should be compacted using suitable compaction equipment.



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