ACO StormBrixx®

Configurator User Guide

Introduction

ACO recommends using this guide alongside the ACO StormBrixx® Configurator online.

www.acosbconfigurator.com

The purpose of this guide is to help you configure an optimal functioning ACO StormBrixx® system for your application, including inlets, outlets, access, inspection, and more.

To save a project, you will be required to fill in all the relevant project details listed below. The outputted results of the Structural Calculator will be sent to the entered email address.

Project Information

Project Name

Project Location

Project Location

City | State | Zip Code

Date Designer *All fields mandatory **Submit**

Contents

TOGGLE SWITCH

- Change units between Imperial and Metric via a toggle on the top-left of the page.

Imperial | Metric

1. Function & Performance

1.1 Choose the Function of the Tank

The StormBrixx detention/retention/infiltration system is an underground structure designed to manage excess stormwater runoff on a developed site, often in an urban setting. This type of best management practice may be selected when there is insufficient space on the site to facilitate an above ground solution.

Detention allows the peak flow of a storm event to be spread over a period of time, releasing water slowly.

Retention is the holding of water.

Infiltration allows the collected stormwater to enter subsurface soil. Infiltration tanks store water which gradually releases through geotextile fabrics into surrounding soil.

1.2 Choose StormBrixx Product

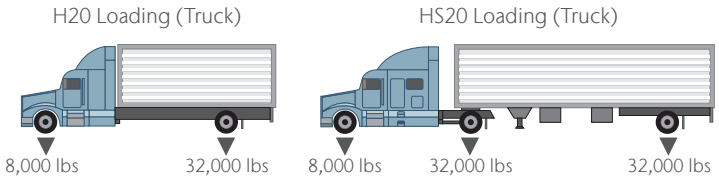
StormBrixx is designed to exceed the American Association of State Highway and Transportation Officials (AASHTO) LRFD recommended design factors for Earth loads and Vehicular live loads.

The two classifications are: a **H** series truck (two-axles) and a **HS** series truck (multiple loaded axles, i.e. a semi-trailer vehicle). The number following the H or HS is the gross tonnage of the vehicle. To determine the total tonnage of the HS series truck, add one additional trailer axle load. The images below illustrate the axle load and spacing breakdown for both H and HS trucks.

Note: H series equivalent of these loads removes the back axle.

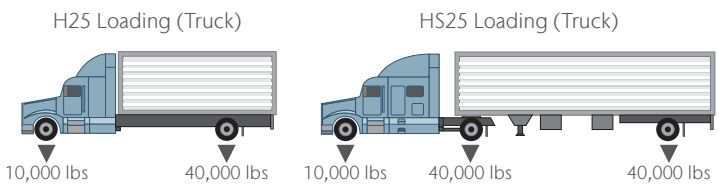
1.2.1 StormBrixx SD

Both **H20** and **HS20** series trucks have an 8,000 lb axle load for the drive axle and a 32,000 lb axle load for the axle(s) under the trailer. The difference between the two vehicles is that a H20 series truck has one axle under the trailer and a total load of 40,000 lbs, and a HS20 series truck has an additional 32,000 lb-load axle located under the trailer, which is separated by a min. distance of 14' for a total load of 72,000 lbs.



1.2.2 StormBrixx HD

H25 and **HS25** trucks are almost identical to H20/HS20, except the drive axle supports 10,000 lbs and the axle(s) under the trailer support 40,000 lbs each.



1. Function & Performance

1.3 American Truck Load Description

Multiple axle trucks fall into the same category as the AASHTO standards documented above. This is due to maximum gross vehicle weight limits set at 80,000 lbs by the US Department of Transportation – Federal Highway Administration.

Below are the federally mandated maximum weights for the National System of Interstate and Defense Highways and reasonable access thereto (23 CFR Part 658.17):

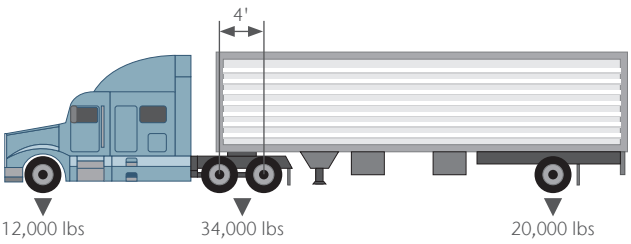
1. 80,000 lbs gross vehicle weight
2. 20,000 lbs single axle weight
3. 34,000 lbs tandem axle weight

Axle capacities are limited either by the axle strength or legal weight limits, whichever is lower. Trucks shown have a front-drive axle rated at 12,000 lbs, limiting the weight on those axles. The legal weight limit of a rear axle on a **single-drive** truck is 20,000 lbs. The legal weight limit of the two rear axles on the **tandem-drive** truck is 17,000 lbs for each axle, or 34,000 lbs combined if the overall distance between the first and last axle is 36’ or more.

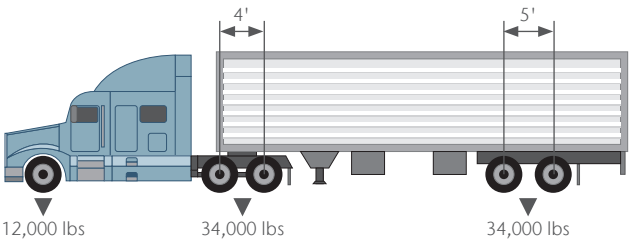
Axle load is applicable to trucks that may have more than two wheels per axle. In this case, the axle load remains the same, but the load applied by the individual wheels is reduced by having more contact area due to more wheels to distribute the load. The primary factor is distance between axle centerlines.

Vehicles exceeding AASHTO HS25, see AASHTO Modified Advanced Military Loading (AML) or contact local officials.

Single-Drive Truck



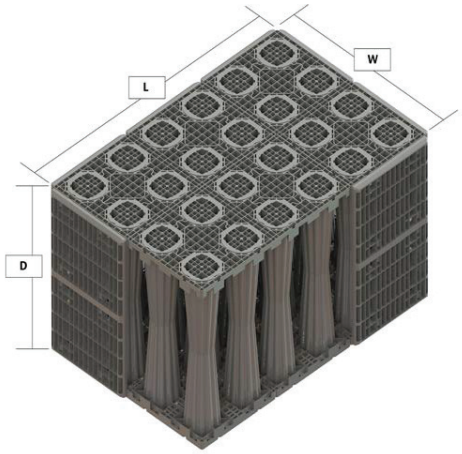
Tandem-Drive Truck



2. Configuring the Tank

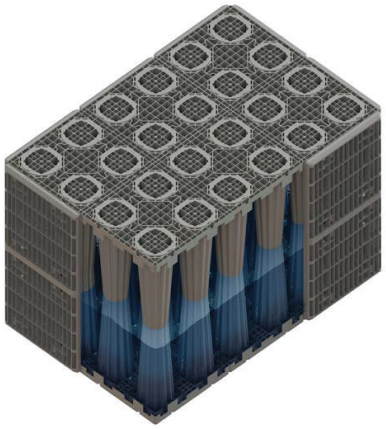
2.1 Specifying by Tank Dimensions

This function allows you to configure your StormBrixx system to site specific dimensions giving you the ability to manipulate the length width and depth. This function is best suited if you have a specific area in which you wish to position your StormBrixx system. The Stormbrixx has depth limitations on how many layers each system can be assembled to. The HD system is limited to 4 layers totaling 8’ in height, the SD system is limited to 3 layers totaling 9’ in height.



2.2 Specifying by Volume

This function will allow you to configure your StormBrixx system to the required volumes that are needed for your project. As there are NO specified dimensions for your system the program will optimize the most cost effective solution based of off your volume requirements. If you wish to alter the optimized dimensions of your StormBrixx system you will need to select the **Specifying by Tank Dimensions** function to have the ability to modify the length, width or depth to suit.



3. Cavity Excavation

The Cavity Excavation function will allow you to accurately calculate the excavation portion of your StormBrixx installation. It will take into account a 6" sub base layer and a 24" offset around the perimeter of your specified StormBrixx system dimensions to allow for sufficient side fill. You will need to enter the amount of top cover that will be placed above your StormBrixx system, this function does not specify the individual elements of the final fill or the pavement design and will default automatically to 24". If heavy duty applications are required you must ensure that you provide enough top cover to accommodate the load, please refer to local, federal or state standards for more guidance.

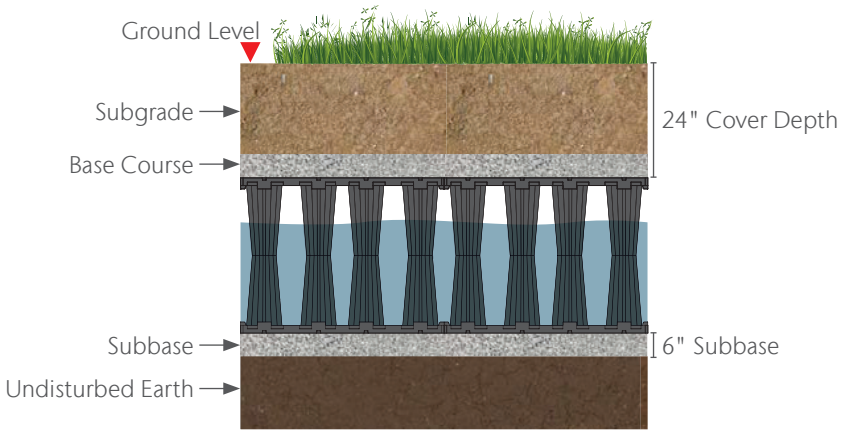
ACO recommends the following as a minimum:

1. Landscape – 12" min
2. H10 – 16" min
3. HS20 – 24" min
4. HS25 - 24" min

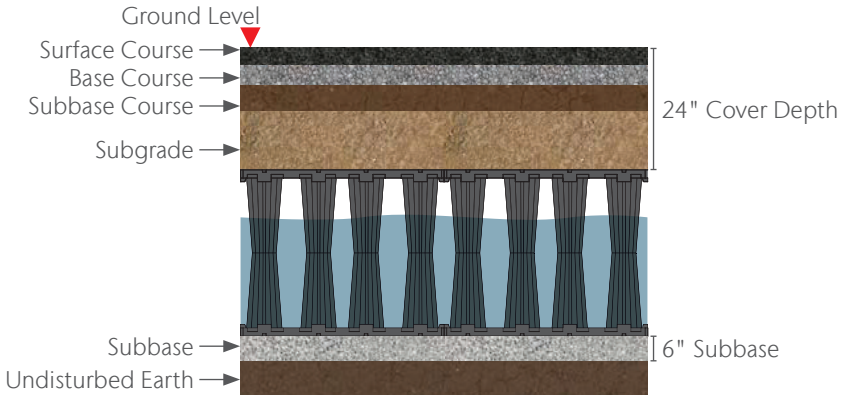
The program will then calculate the amount of earth that will need to be excavated to accommodate your designed StormBrixx system. Once your Stormbrixx is assembled in place this function will also calculate the amount of backfill material that is needed to finish the installation accounting for the correct amount of side fill and top fill. For more information about the correct type of materials for backfill please refer to acoswm.com/downloads/installation/aco-stormbrixx and review our typical installation details. The amount of top cover placed over the top of the StormBrixx system will be dependent of the application and traffic type.

Typical types of cover and pavement design include:

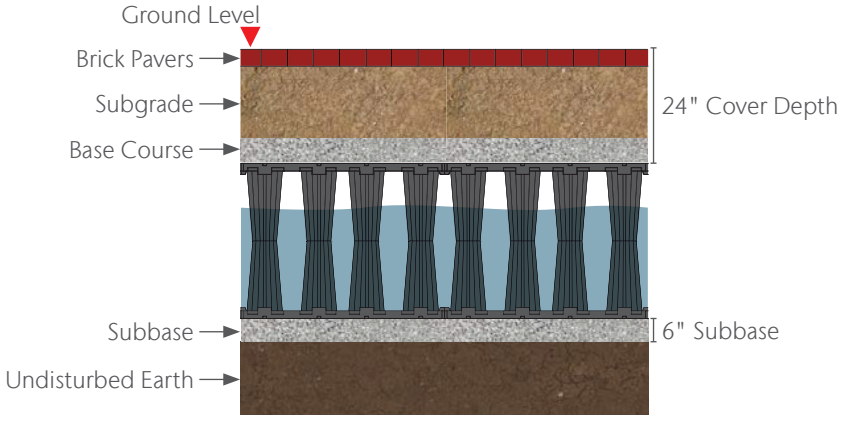
Landscape



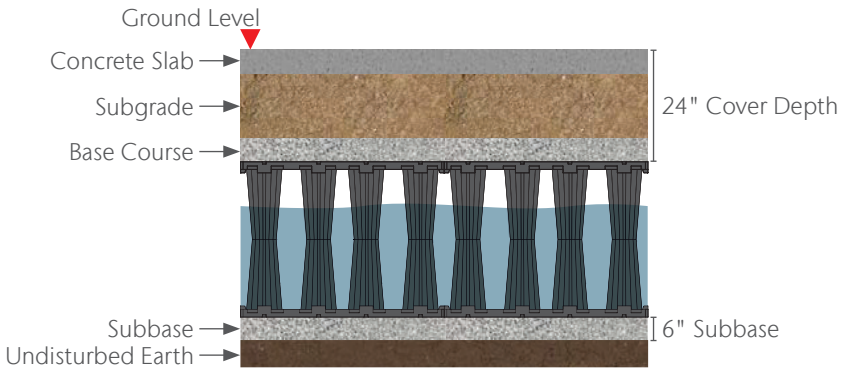
Road



Walkway



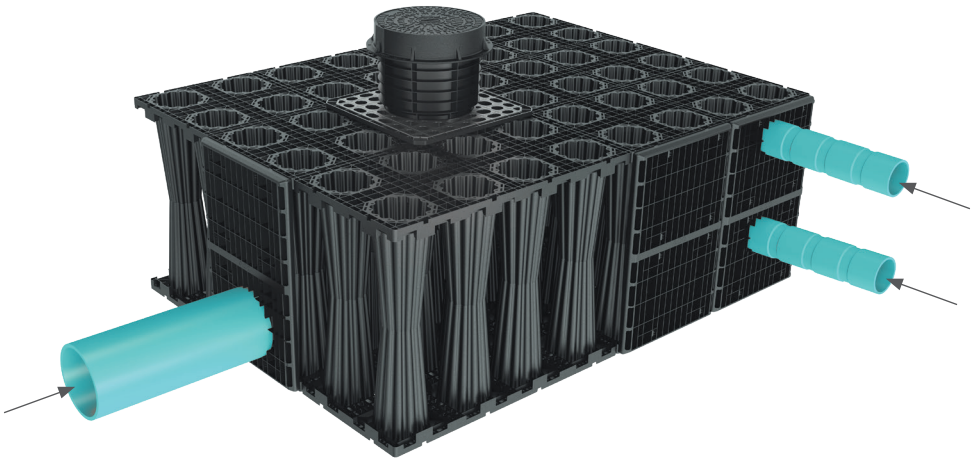
Concrete Slab



4. Tank Inlet Connections

This section of the configurator will allow to place your pipe inlets into the StormBrixx system. **A maximum of 3 inlets** can be selected utilizing 3 methods of connection via our remote access unit, side panel or the horizontal pipe connector. Each inlet method will accept either an SDR35 of SCH40 and is limited to an 18" connection for both the side panel & remote access unit. If a larger pipe connection than 18" is required please contact ACO for further advice.

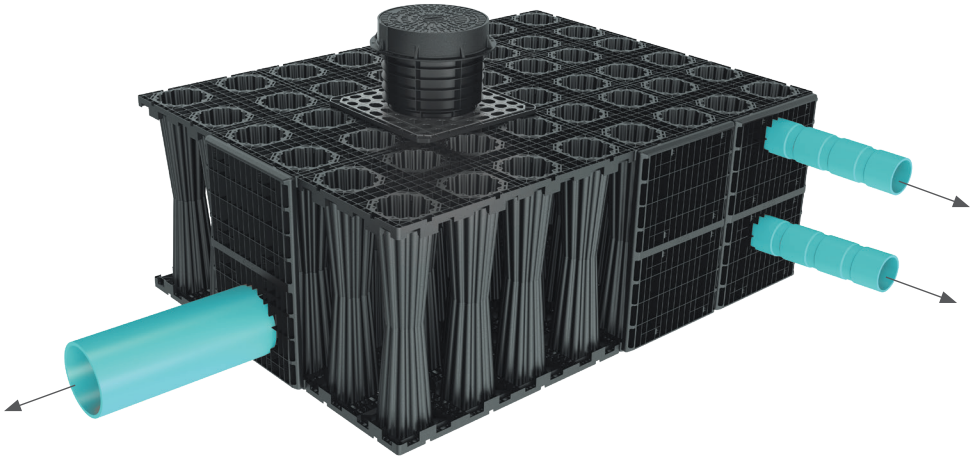
If you have selected the remote access unit as your preference you will be required to position the remote access units in the desired location within the representative grid of your StormBrixx system.



5. Tank Outlet Connection

This section of the configurator will allow to place your pipe inlets into the StormBrixx system. **A maximum of 1 outlet** can be selected utilizing 3 methods of connection via our remote access unit, side panel or the horizontal pipe connector. Each inlet method will accept either an SDR35 of SCH40 and is limited to an 18" connection for both the side panel & remote access unit. If a larger pipe connection than 18" is required or more than 1 outlet please contact ACO for further advice.

If you have selected the remote access unit as your preference you will be required to position the remote access units in the desired location within the representative grid of your StormBrixx system.

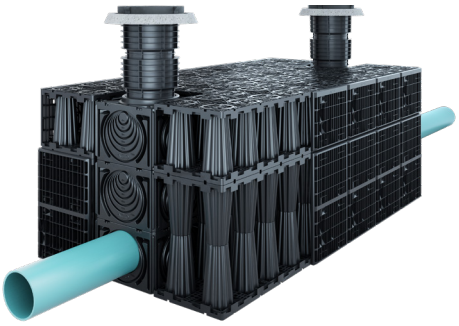


6. Tank Access Locations

This function will allow you to place and position the required access points into the StormBrixx system for inspection cleaning & maintenance purposes to maintain your systems optimum performance. This can be achieved using either the remote access unit or the remote access plate, which both offer a 24" diameter opening to allow jetting and camera equipment as well as an industrial vacuum truck hose to remove any sediment build up within the StormBrixx.

Access Using Remote Access Units

Access can be gained to the StormBrixx system using the remote access unit. These units can be installed both within the structure and on the outer edges even placed next to each other if needed. They replace the StormBrixx modules within the system and a module may need to be cut in half to accommodate the remote access unit and when all four walls are removed, full access to the system can be achieved. Both the StormBrixx HD & SD system have their own remote access unit available which will differ in height to match the characteristics of each system.



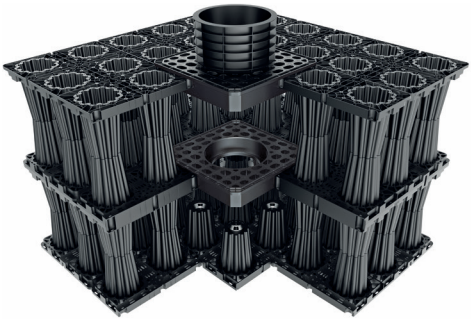
The SD remote access unit measures 24"L x 24"W x 18"H so you will need to install 2 remote access units to accommodate a single layer StormBrixx SD system which is 36" tall.

The HD remote access unit measures 24"L x 24"W x 24"H so you will only need to install 1 remote access unit to accommodate a single layer StormBrixx HD system which is 24" tall.

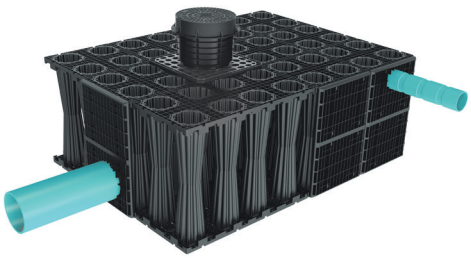
Each remote access unit can be cut out as required by local conditions to accommodate various sizes of pipe 4", 6", 8", 12", 15", 18" (use a drill to get the saw blade inserted when creating the openings in the lower section). The access units are extended to the surface using the extension shafts to allow access from the surface.

Access Using Remote Access Plates

The remote access plate can also be used to gain access into both the StormBrixx HD & SD systems. This plate is compatible with both systems and offers the same access options as the remote access unit except for accepting pipe connections. The remote access plate is secured into the StormBrixx system by removing layered modules underneath the access plate to create allow free movement within the structure. The plate will rest on the top of each module within the top layer of your system and will hold in place via the protruding lip around the top edge of each plate which will overlap each top module. The remote access plate measures 25.6"W x 25.6"L x 4.7"H and 1 access plate will be required for each StormBrixx layer within your system.



Please ensure the access plate is not used on the edge of your system! The remote access plate must be used at least one module inside from the perimeter of you system. Also the remote access plates cannot be placed next to each other as the protruding lip around the top edge will prevent this, again please ensure at least one StormBrixx module is placed between them.

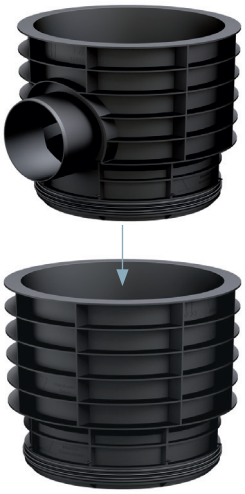


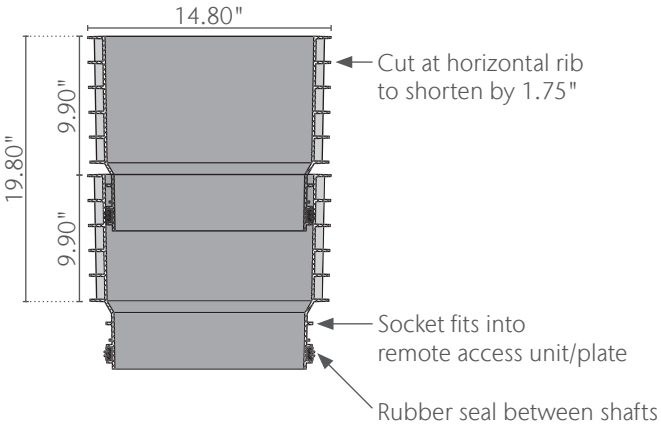
7. Tank Access Options

This section of the configurator will automatically provide the correct amount of extension shafts based on your earlier input for the cover layer over the top of the StormBrixx within the cavity excavation page. Each individual extension shaft is 13.78" in total height and is used to provide a connection between the Remote Access Unit/Plate and the finished pavement. The extension shafts can be cut/trimmed down to suit required lengths you may need to extend from your system to you finished pavement design. You will then be prompted to select your desired ductile iron cover ACO offers either a vented or non-vented option that is load rated to 40 ton (80,000lbs or HS20) with the use of a reinforced concrete grade/support ring. If a heavy duty option is needed you will need to consider using a reinforced concrete grade/support ring that meets AASHTO HS25 load requirements, please refer to local, federal or state standards for guidance.

For Light Duty Applications

Concrete for Heavy Duty Applications



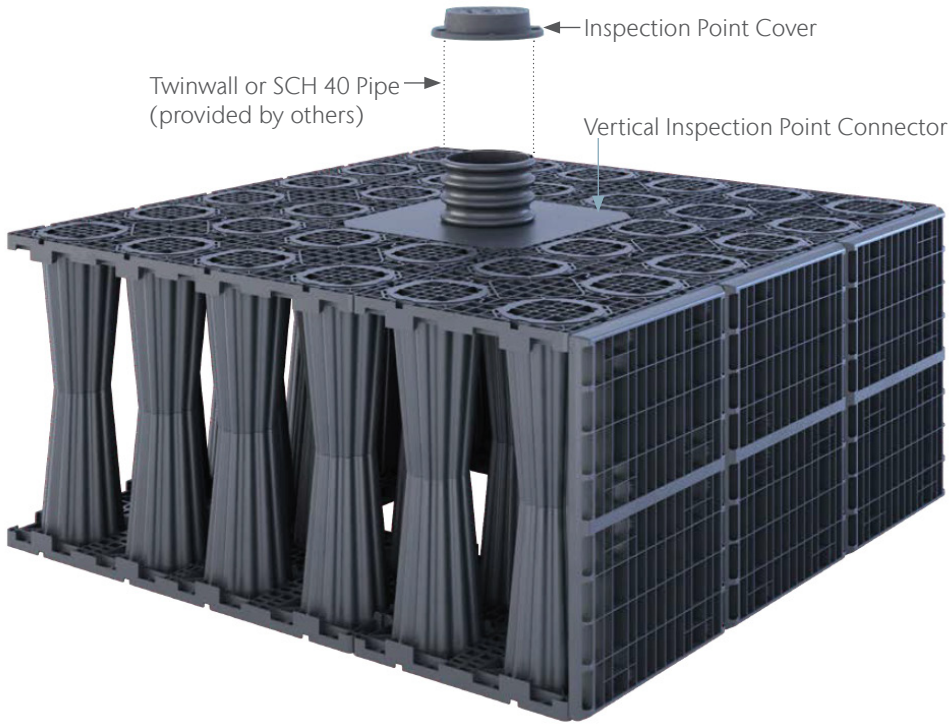


8. Inspection Options

This section of the configurator will give you the option to add inspection ports within your StormBrixx system. The inspection port consists of a vertical connector which is a 6" diameter twin wall pipe with a flange plate that connects & secures to the top of the StormBrixx module and a ductile iron 8.85" cover and frame that is traffic rated up to 40tons (80,000lbs or HS20). If a heavy duty option is needed you may consider using a reinforced concrete grade/support ring that meets AASHTO HS25 load requirements, please refer to local, federal or state standards for guidance.

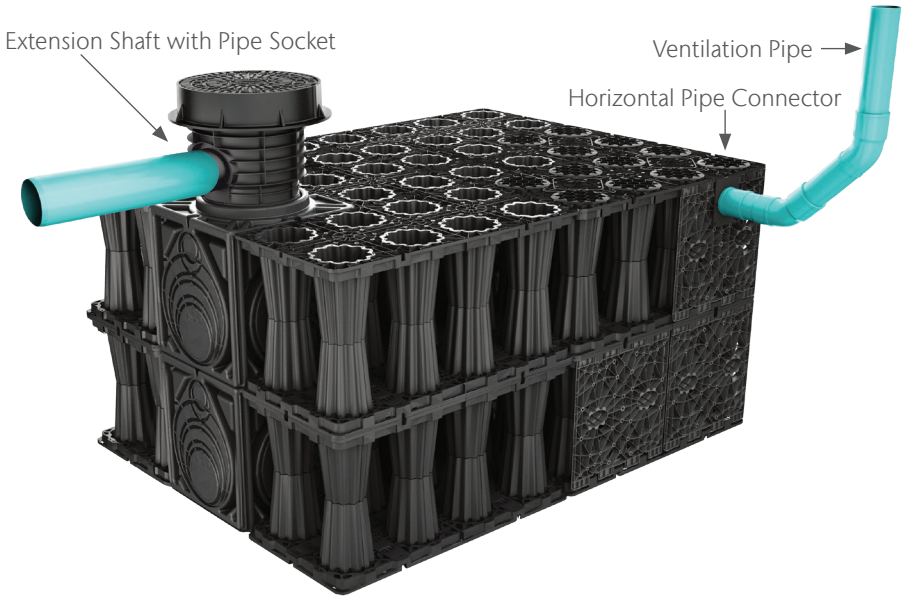
An 8"or 10" twin wall pipe or SCH40 that is supplied by others is used to extend up to inspection point ductile iron cover, the length of the twin wall pipe is determined by the amount of top cover above your StormBrixx system and will connect to the vertical spigot externally with either the 8" or 10" diameter pipe. The reinforced concrete grade/support ring will be placed before the ductile iron cover.

The inspection port is designed to allow visual access into the tank only to ensure the system is functioning correctly. These are not suitable for cleaning equipment as per the access options that are used for maintenance purposes.



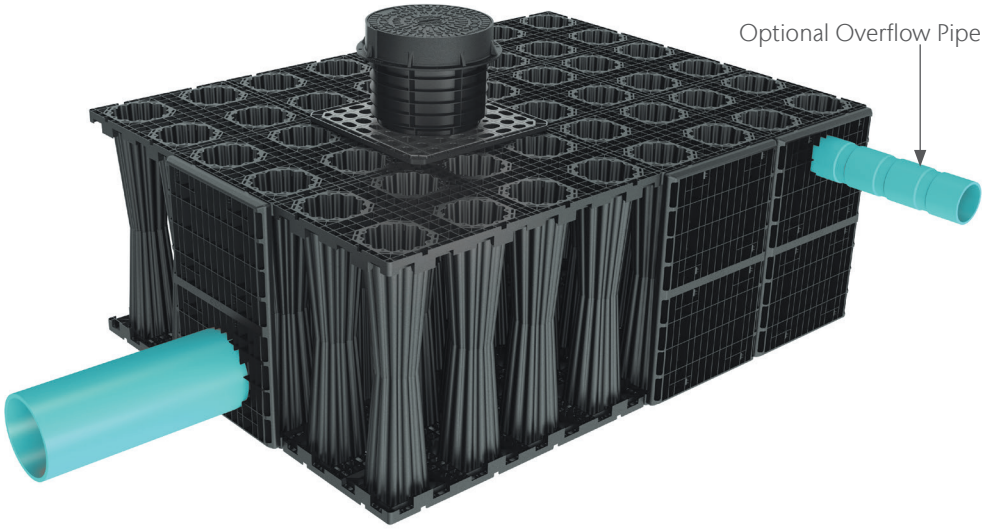
9. Ventilation Options

This section of the configurator will give you the option to select a method of ventilation within your StormBrixx system. Ventilation is required in some cases to prevent air locks within the tank and release the pressure that can build up within a sealed detention or infiltration system over time. Ventilation can also be achieved using a ventilated ductile iron cover, a ventilated cover should not be used if the surface run off contains any oils or pollutant's typically found in a parking lots and roadways.



10. Overflow Options

This section of the configurator will give you the option add an overflow pipe to your StormBrixx system. Overflows may be required to minimize the risk of the detention or infiltration system surcharging. Surcharge refers to the overloading of the of the detention or infiltration system beyond its design capacity due to inflow and infiltration of unaccounted surface run off.



11. Program Output

Once you have completed the necessary steps within the StormBrixx Online Configurator program, you will be asked to register for an account to view your Output results. Once you have an account, you will then have access to create more projects and view previous ones. We recommend signing in to your account at the beginning of each new project and you will see all previous projects.

- Full recap of your project details and your information entered.
- Full recap and summary of your StormBrixx SD or HD tank configuration highlighting product type, dimensions and volumes.
- Full breakdown of the of the cavity excavation documenting how much earth/material is to be excavated to accommodate your newly configured StormBrixx system as well as the amount of backfill needed to complete the installation. This will automatically take into account a 6" sub base layer and a 24" offset around the perimeter of your specified StormBrixx system dimensions to allow for sufficient side fill while the amount of top cover is dependent on your input.
- Full recap on the amount of inlet and outlets selected for your configured system as well as the specified locations within the footprint of your system shown in the inlet/outlet grid. The output will also specify the selected method chosen to accommodate the inlet and outlets of your system.
- Full recap of the number of access locations selected within your system configuration again as well as well as the specified locations within the footprint of your system shown in the access grid. The output will also specify the selected method chosen to accommodate your access needs for inspection and maintenance purposes.
- Full bill of materials including quantities, part numbers, and individual component weights and total weight for all parts for either the StormBrixx SD or HD system configured to the specific requirements entered by you.
- MSRP pricing for all StormBrixx components specified within your configuration for budget cost purposes.