



## Everything You've Always

### Wanted to Know About Installing HydroBlox

- ***HydroBlox is innovative because it moves water through pressure, not by gravity. It is imperative that the boards are all covered by at least 3" of soil. In other words, if a board is not covered with soil, the path of least resistance is to the surface and not to travel through the pathways of the HydroBlox plank.***
- HydroBlox will not stop water running (often called sheeting) on a slope. HydroBlox will move the residual water after the rainstorm subsides.
- Water must be able to reach the HydroBlox panel or ponding will occur. An example would be if clay surrounds the entire panel, water flow to the HydroBlox panel is restricted. ***If there is any doubt regarding the water permeability of the fill, we suggest using unscreened fill.***
- HydroBlox is NOT an instantaneous product, ponding may still occur while it is raining.
- Yard dry time depends on the volume of rain that has fallen. Appropriate amount of time must be given for the earth to absorb the water and the HydroBlox to move the water.
- HydroBlox must be sized properly to be able to move the appropriate volume of water. One panel may not be enough. If there is any doubt regarding the number of planks, a percolation test is a best practice.
- When using HydroBlox, you must discharge the water into an area that is capable of accepting the stormwater.

### Installation Guidelines

- As indicated above, if there is any doubt regarding the number of planks, a percolation test is a best practice. If the soil is very slow to accept water and the runoff is significant, a double panel installation may be required.
- HydroBlox must be backfilled and top filled with GOOD yard soil. Top soil is too lightweight and will wash away.
- Do NOT backfill with:
  - o Clay soil
  - o Gravel (unless using HydroBlox in a gravity fed system)
  - o Gravelly soil (unless using in a gravity fed system)
  - o Red Dog
  - o Brick
  - o Block
  - o Stones

- Do NOT use fabric.
- Do Not leave panels exposed, unless using in a gravity fed system.
- Panels MUST be touching. You can overlap or screw together with stainless steel screws.
- Soil MUST be nicely compacted around panels when using HydroBlox for a pressure fed system. Take care to tamp the soil and note that additional soil may be needed.
- Daylighting the end of a system is recommended for a faster flow rate.
- Do NOT dead-end into clay soil. Restriction of flow and system backup may occur.
- 4 feet to 6 feet is the recommended distance for installation next to a house.
- HydroBlox can be installed closer to a house or directly next to a house with a newly waterproofed foundation.
- Use a transition box when transitioning to any type of pipe. Please see the attached drawing for orientation. Water should flow from the plank to the solid pipe.
- When using HydroBlox at base of a newly waterproofed foundation, it is highly recommended to do a double panel system. Backfill with 50/50 (clay to topsoil).

## Transition Boxes

*Overview: A square foot of roof will generate .6 gallons of water in a 1" rainfall event. Most storms are 1" and less. In other words, a 1,000 square foot roof will drop 600 gallons of water into the downspouts.*

The key factor for a successful installation is having a grasp of the percolation rate of the soil. If you are unsure about the drainage characteristics of the soil, please see the section below on how to preform a Percolation Test.

Typically, you'll run into the following three types of soil:

- Sandy soils which have very high percolation rates, generally in the range of 1 to 8 inches or more per hour.
- Silty soils, including loam, have average percolation speeds, ranging from 0.1 to 1 inch per hour.
- Clay soils have slow percolation speeds of 0.1 inch or less per hour.

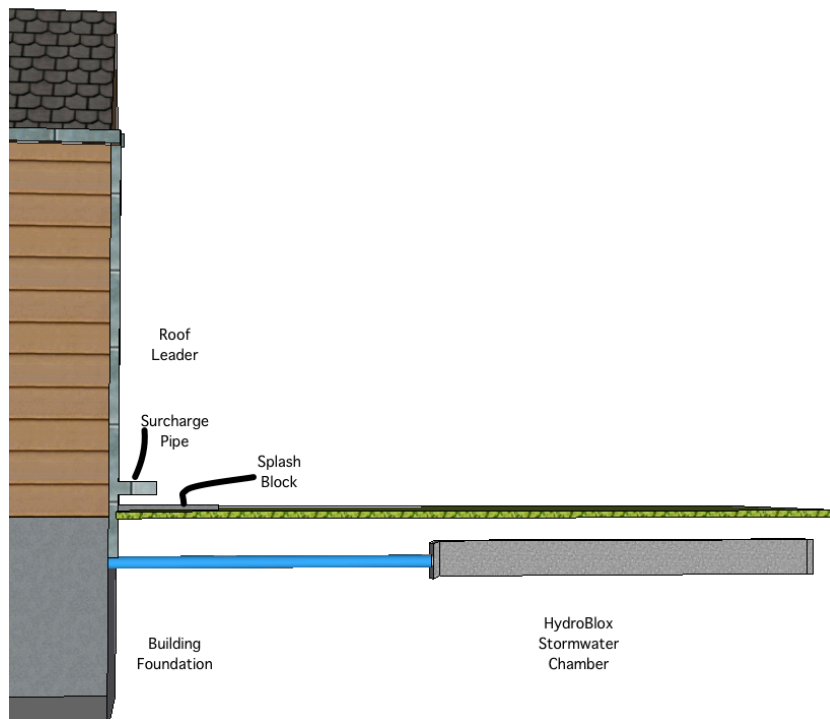
HydroBlox Transition boxes are used to transition **from a plank to solid pipe**. If there is a suitable location, it is a best practice to daylight any contained water. An example of contained water is water in a downspout. If daylighting is not an option, a properly sized Stormwater Box should be attached to a downspout (note: not a transition box). Page three of this document follows the federal guidelines to determine the volume of stormwater that is required to be abated for a rain event. Please note: a surcharge pipe is also required.



## Stormwater Boxes

- Run 20' of hard pipe from house to stormwater box when connecting to downspouts.
- When connecting with downspouts, the proper quantity of stormwater boxes will depend on the surface area of the roof and volume of water. Please see attached guidelines for proper sizing.
- As an alternative to daylighting, HydroBlox may be terminated into either a gravel pit or a stormwater box. This installation method does require the standard amount of fall.
- Use of a surcharge valve on a stormwater box is required.

## TYPICAL CONFIGURATION



Step 1: Determine Total Impervious Surfaces  
House Roof area, etc.

Step 2: Determine Required Infiltration Volume using equation  
$$\frac{.46 \text{ in} \times \text{Total Impervious Surfaces}}{12} = X \text{ cu. ft.}$$

\*\*Example: House with 24' x 40' roof = 960 square feet.

.46 x 960 = 36.8 cubic feet = 4.9 stormwater boxes. (Or one at each of the 4 corners)



## How to Perform a Percolation Test

### **Step 1 Dig the Test Hole**

Dig a hole in the desired soil percolation rate testing area. The hole should be 18 to 24 inches deep by 12 inches wide. If the testing area is large, dig several holes, spacing them throughout the area.

### **Step 2 Saturate the Test Hole**

Fill the test hole, or holes, with water, and wait for the water to drain into the soil. The water may drain relatively rapidly, in less than one hour, or it may take a number of hours to drain.

### **Step 3 Refill the Hole**

Ensure the water has drained completely, and refill each hole with water up to within 1 inch of its top.

### **Step 4 Measure the Initial Water Level**

Lay a wood board that is several feet long across the top of each hole. The board is the measuring baseline. Insert a yardstick or tape measure to the hole's bottom. Measure the distance from the measuring baseline -- the board -- to the water level. Write down this initial distance in a notebook along with the current time. Leave the board in position for subsequent measurements. Remove the yardstick or tape measure.

### **Step 5 Measure the Water Level Change**

Return to the test hole in 30 minutes, and insert the yardstick or tape measure to the hole's bottom. Measure the new distance from the board to the water level. Write down that measurement along with the current time.

### **Step 6 Repeat Measurements**

Continue to measure the distance between the water level and the board every 30 minutes for at least three additional measurements. Write down each new measurement and the time it was taken. After taking several measurements, determine how much the water level dropped between each measurement. The amount of change per hour is the soil's percolation rate. If, for instance, the water level dropped an average of 1 inch every 30 minutes, then the percolation rate would be 2 inches per hour.