



# How to build a RAIN BARREL

## Why use a rain barrel?

***Did you know a small 8' x 10' area of roof can generate 50 gallons of water during a 1-inch rain event?***

Rain barrels are a simple and cost-effective way you can recycle stormwater generated from your house and put it to good use. By reducing stormwater runoff from your house, you help to reduce local water pollution and erosion issues, and help to make our community more sustainable!

### How you can use collected rainwater

- Water plants, gardens, and lawns
- Rinse out recyclables before placing them in the recycle bin
- Wash exterior fixtures like windows, mailboxes, & dog houses

### Where to use rain barrels

Connect rain barrels to downspouts on your house, garage, or shed. Rain barrels typically capture 50 to 60 gallons, but can come in all different sizes and designs. Rain barrels can be a good tool to help slow down water causing problems near your downspouts and overflow can be directed to a rain garden!

### How to calculate rainwater collection potential

$$\begin{array}{l} \text{Harvested water (gallons)} = \\ \text{Rooftop Surface Area (square feet)} \\ \times \\ \text{Average rain fall event (inches)} \\ \times \\ 0.623 \end{array}$$

## Rain Barrel Rebates

Rain Barrels are one of the simplest and least expensive conservation practices you can implement.

Across the Des Moines Metro and other communities across Iowa, cities and watershed projects have rebates available to help cover the cost of installing rain barrels at your home.

More information about available funding programs for rain barrels and other conservation practices can be found at our website.



**[www.RainCampaign.org](http://www.RainCampaign.org)**



**WWW.RAINCAMPAIGN.ORG**

# Materials & Supplies

## Rain Barrel Components

Rain barrels can be many different sizes and take on variety of styles. No matter your rain barrel size or style, each rain barrel is made of four key components:

- A barrel for water storage
- Inlet
- Outlet/spigot
- Overflow

A sturdy stand will also be needed to elevate the rain barrel enough to be able to fill a watering can or to connect a garden hose.

### 1 Barrel for water storage

To collect and store water consider using a plastic barrel, old wine barrel, or other large storage container. Make sure your barrel did not previously hold any toxic chemicals. Food grade barrels are ideal.



Reaching out to businesses (car wash or landscaping company) can be a good way to find cheap or free barrels.



Check out the Iowa DNR's Iowa Waste Exchange database to find barrels available near you.  
<https://programs.iowadnr.gov/iwe/searchmaterials.aspx>

### 2 Inlet

Water will flow from downspouts into the top of the rain barrel. To protect debris from entering your barrel, use screen door or window mesh, either metal or plastic over the opening. Use glue or small nails to attach the mesh.

### 3 Outlet/Spigot

Use a 1/2 inch male spigot at the base of the barrel. To make the seal water tight, use PTFE tread tape and/or caulking.

### 4 Overflow

Near the top of the side of the barrel, a small opening connected to a hose will allow for excess water to exit the barrel during a large rain if the barrel reaches capacity. For this opening a 1 1/4 inch adapter, hose clamp, and drainage tube can be used. A garden hose and appropriate connector can also work.

## Upcycle your rain barrel!

Rain barrels can easily be made in a cost-effective way using many upcycled materials. As you prepare to build your rain barrel, consider how you can upcycle materials to keep them out of local landfills.



Watch for this symbol in the supply and material list to find resources for recycled materials you can use for your barrel!



## Supply Tips

Many of these supplies can be found at any hardware store. A 1 1/4" sump pump drainage kit contains all you need for an overflow including an adapter, hose clamp, and drainage tube.

If you do not have tools to construct your barrel, many communities have local tool lending libraries or tools can be rented from hardware stores.



Check out local community stores for recycled materials like Habitat for Humanity's ReStore or other similar places.



Cinder blocks, a sturdy wood stand, or pavers can work for a rain barrel stand. These materials can easily be found second hand online, at the Iowa Waste Exchange database or a ReStore, or similar resource.



# Rain Barrel Construction

## 1 Inlet

At the top of your barrel, cut a hole big enough to allow water to enter the barrel from your downspout. A jigsaw or Sawzall will work well for plastic barrels. Attach a piece of screen mesh with nails or glue to protect debris from entering the barrel.



## Safety First!

Rain barrels do not involve an intense construction process. Be sure to wear proper protective equipment such as protective eye wear and close toed shoes when needed.

A second person to help brace and hold your rain barrel while you make cuts a good way to avoid injuries.

## 2 Outlet/Spigot

A spigot should be placed as close to the bottom of the barrel as possible for maximum storage. Placing a rain barrel on a stand allows for a lower spigot location and makes it easier to fill a watering can.

For a 1/2 inch spigot, drill a hole at the desired location using a 3/4 inch hole saw drill bit. Using PTFE thread tape thread the spigot and screw the spigot into place. Calk can be used as an additional sealant.



## 3 Overflow

On the side of barrel, locate your overflow. The overflow should be as close to the top as possible to allow for maximum storage. When you choose your overflow location think about where you want to direct the excess water such as a nearby garden. Be sure to direct the overflow away from house foundations.

For a 1 1/4 adaptor, drill a hole at the desired location using a 1 1/2 inch hole saw drill bit. Using PTFE thread tape, thread the adaptor and insert. Attach drainage tube to the adaptor and tighten with a hose clamp.



Hole Saw Drill Bits



1/2" Male Spigot



PTFE Thread Tape



Hose Clamp



Adaptor

# Rain Barrel Installation

## Rain Barrel Placement

An 8' x 10' area of roof can generate 50 gallons of water during a 1-inch rain event. A typical rain barrel is about 50-60 gallons. When choosing a downspout location for your rain barrel, consider how much roof area will be contributing water. If you are only planning on using one 55-gallon barrel, choose a location with a smaller roof area. For more water collection potential, choose a larger rain barrel size or connect multiple barrels together. To connect multiple smaller rain barrels together, direct the overflow tube to another barrel. The last barrel of a series of connected barrels should have an overflow drainage tube in the case max capacity is reached.

**Harvested Water (gallons) = Rooftop Area (square feet) x Average Rainfall (inches) x 0.623**



## Rain Barrel Stands

In order to more easily empty your rain barrel into a watering can or to use a hose, a sturdy stand is recommended. One gallon of water weighs about 8 pounds. A 55-gallon rain barrel can weigh about 450 pounds. Stands must be able to support this weight. Consider using a sturdy wooden stand, cinderblocks, or pavers for your stand. To avoid tipping, always make sure rain barrels are located on a level surface.

### How much water pressure do rain barrels have?

Typical 55-gallon rain barrels will have little water pressure. You can increase water pressure by increasing storage capacity and by increasing the height of your rain barrel placement. Sometimes a small water pump can be used to increase water pressure. Usually it's best to use a watering can or to connect garden hose directed to a garden downhill as a rain barrel is a gravity fed system.



## Downspout Adjustment

To adjust your downspout to direct water into your rain barrel, first place the rain barrel on the stand in your desired location. Next, mark the downspout a couple inches above the height of the rain barrel. Use tin snips or a hack saw to cut the downspout. Attach a flexible elbow or downspout diverter to the downspout and you are finished!

During winter, empty and store your rain barrel to avoid damage or cracking. Reattach the section of downspout you cut for the rain barrel during winter months. A diverter shown in the picture on the right has a switch that allows you to direct water to the rain barrel or to a regular downspout avoiding the need to detach and reattach downspouts in different seasons.

## Rain Barrel Maintenance

Rain barrels require little maintenance. Throughout the season check the inlet for debris and make sure your overflow drainage tube is pointed away from foundations. At the end of the warm season, empty your barrel and rinse it out if needed. Store your rain barrel in a garage or shed to avoid cracking or damage to the barrel the over winter. Be sure to inspect stands for damage and make sure you are always installing your rain barrel on a level surface.