

# Calculations

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10:26 AM

Your **roof catchment area** is equal to the total square feet of your house plus the extension of your eaves. You don't need to consider the angle of your roof, like you would if you were buying roofing material, because rain falls evenly on every part of the roof.

To calculate the square feet of your house's catchment area, measure the area of the outside walls and then include the overhang of any eaves. For example, let's say you have an oblong house with outside dimensions of **36 feet** by **46 feet**. You've calculated the overhang of your eaves as **2 feet**. So, add the **4 feet** of the eaves to each wall length (2 eaves of 2 feet equals an additional 4 feet for each wall) to get the total length of the walls plus the eaves (**40 by 50 feet**).

Now multiply **40 times 50** (length times width) to get your **total roof catchment area**.

$$(36 + 4) \times (46 + 4) = \mathbf{2,000 \text{ sq ft}}$$

Your roof catchment area is thus **2,000 square feet**.

Since one inch of rainfall provides approximately 600 gallons of water for a 1,000 square foot catchment area, and our theoretical house has a 2,000 square foot catchment area (twice the area), you will multiply 600 gallons by 2.

$$600 \text{ gal} \times 2 = \mathbf{1,200 \text{ gallons}}$$

If you have an average rainfall of say 20 inches per year, you have the potential to collect 24,000 gallons of water in one year. (You can use the following website to get a good idea of the [average rainfall](http://countrystudies.us/average-rainfall/) in your area: <http://countrystudies.us/average-rainfall/>)

$$1,200 \text{ gal} \times 20 \text{ inches of rain} = \mathbf{24,000 \text{ gal}}$$

Pasted from <<http://www.rainbarrelguide.com/>>

Our house catchment  $\approx 3,500 \text{ sq ft}$

Atlanta  $\approx 4.5 \text{ in}/\text{mo} = 52 \text{ in}/\text{yr} = 182 \text{ kg}/\text{yr}$

vs usage  $\approx 72 \text{ kg}/\text{yr}$

ie: we s/b able to be water self sufficient for house use. If we use grey water for toilet flush & x irrigate much might be totally independent

