



█ cistern sizing is a balance between what you can catch and what you need. Typically you will need more than you can catch and that is so in your case.

This is usually due to lack of catchment space. Almost anything you can do to increase catchment is good (i.e. catching of porches, garages, etc.).

In the first case below you note that your catchment is only 871 square feet which translates into ~8600 gallons you can capture a year.

You note that you have an additional 500 square feet that you can capture off of and note that this additional space generates almost 5,000 gallons of rainwater a year.

Typically you want to capture all winter runoff (i.e. Dec, Jan, Feb and March), so your tank size based on supply would be:

871 square roof catchment area ~ 1,000 gallon tank

1,371 square roof catchment area ~ 1,700 gallons

However as mention above demand usually far outstrips supply. In your case, your irrigation needs will be greater than your catchment.

One of the main problems of irrigation is to know the amount of water that has to be applied to the field to meet the water needs; in other words the irrigation requirement needs to be determined. Too much water means a waste of water. Too little water during the growing season causes the plants to wilt.

Plants can be watered through rainfall or irrigation or both. The below calculations assume rainfall is available over the space to be watered and that a RAIN DECECTOR is installed to prevent irrigation when it has rained.

**Front Yard:**

This portion of the yard is 50% lawn and 50% xeriscape.

Month	Months to Water	Evapotranspiration rate for your area ET (0)	Landscape Coefficient (KL)	ET (L)	Plant Water Needs in Gallons/Sq Ft.	Total Square Foot Landscaped	Total Outdoor Landscape Water Demand	Total Outdoor Rainfall	Total Monthly Watering Required
Jan	OFF	0	80%	0.00	0.00	500	-	93	-
Feb	OFF	0	80%	0.00	0.00	500	-	125	-
Mar	OFF	0	80%	0.00	0.00	500	-	249	-
Apr	ON	2.55	80%	2.04	1.27	500	635	530	106
May	ON	4.99	80%	3.99	2.49	500	1,244	810	434
Jun	ON	8.15	80%	6.52	4.06	500	2,031	685	1346
Jul	ON	4.06	80%	3.25	2.02	500	1,012	779	233
Aug	ON	1.45	80%	1.16	0.72	500	361	685	-324
Sept	ON	1.3	80%	1.04	0.65	500	324	405	-81
Oct	OFF	1.26	80%	1.01	0.63	500	-	280	-
Nov	OFF	0.53	80%	0.42	0.26	500	-	156	-
Dec	OFF	0	80%	0.00	0.00	500	-	156	-
<b>Total</b>		<b>24.3</b>	<b>80%</b>	<b>19.43</b>	<b>12.1</b>		<b>5,607</b>	<b>4,953</b>	<b>1,713</b>

It is assumed that the xeric plants would need little to no water once established.

#### Side Yard:

This portion of the yard is 100% lawn.

Month	Months to Water	Evapotranspiration rate for your area ET (0)	Landscape Coefficient (KL)	ET (L)	Plant Water Needs in Gallons/Sq Ft.	Total Square Foot Landscaped	Total Outdoor Landscape Water Demand	Total Outdoor Rainfall	Total Monthly Watering Required
Jan	OFF	0	80%	0.00	0.00	500	-	93	-
Feb	OFF	0	80%	0.00	0.00	500	-	125	-
Mar	OFF	0	80%	0.00	0.00	500	-	249	-
Apr	ON	2.55	80%	2.04	1.27	500	635	530	106
May	ON	4.99	80%	3.99	2.49	500	1,244	810	434
Jun	ON	8.15	80%	6.52	4.06	500	2,031	685	1346
Jul	ON	4.06	80%	3.25	2.02	500	1,012	779	233
Aug	ON	1.45	80%	1.16	0.72	500	361	685	-324
Sept	ON	1.3	80%	1.04	0.65	500	324	405	-81
Oct	OFF	1.26	80%	1.01	0.63	500	-	280	-
Nov	OFF	0.53	80%	0.42	0.26	500	-	156	-
Dec	OFF	0	80%	0.00	0.00	500	-	156	-
<b>Total</b>		<b>24.3</b>	<b>80%</b>	<b>19.43</b>	<b>12.1</b>		<b>5,607</b>	<b>4,953</b>	<b>1,713</b>

#### Back Yard:



This portion of the yard is 50% lawn, 25% garden (high water use) and 25% xeriscape. The microclimate is hotter in this area due to more sun.

Evapotranspiration rate for your area ET (O)	Landscape Coefficient (KL)	ET (L)	Plant Water Needs in Gallons/Sq Ft.	Total Square Foot Landscaped	Total Outdoor Landscape Water Demand	Total Outdoor Rainfall	Total Monthly Watering Required
0	72%	0.00	0.00	275	-	51	-
0	72%	0.00	0.00	275	-	69	-
0	72%	0.00	0.00	275	-	137	-
2.55	72%	1.84	1.14	275	315	291	23
4.99	72%	3.59	2.24	275	616	445	170
8.15	72%	5.87	3.66	275	1,005	377	628
4.06	72%	2.92	1.82	275	501	428	73
1.45	72%	1.04	0.65	275	179	377	-198
1.3	72%	0.94	0.58	275	160	223	-62
1.26	72%	0.91	0.57	275	-	154	-
0.53	72%	0.38	0.24	275	-	86	-
0	72%	0.00	0.00	275	-	86	-
<b>24.3</b>			<b>10.9</b>		<b>2,775</b>	<b>2,724</b>	<b>634</b>

The garden is the big water user in the back yard.

**Summary:**

As with most analysis the assumptions are key. Assumptions made:

- Xeric landscape will require no water after the first year
- Lawn is a medium use lawn. If native grass than this would lower the water requires by about 40%. If a xeric grass than the water requirements would be even less.
- Garden is a high water use, high density garden. It is the largest water user.
- Rainfall is normal

Based on landscaping assumptions and input your total watering monthly requirements should be: