Appendix A. Water Budget.

Maximum Allowed Landscape Water Budget.

Reference evapotranspiration (ETo) = 49.8 inches/season (Mar – Oct)[1]

Effective precipitation (EP) = 1.7 gal/sf/season (Mar – Oct)[2]

Irrigated area = hydrozone area in sq. ft.

Water Use Category	Plant Factor[3]
High (including Cool Season Turf and Water Features)	0.8
Medium	0.5
Low	0.2
Very Low/Nonirrigated[4]	0.0

Irrigation Method	Default Efficiency
Overhead	70%
Drip	90%
Water Feature	75%

Special Features to Incentivize Healthy Landscapes (% of irrigated landscape)	Maximum Applied Water Budget (gal/sf/season)
At least 15%	+3 gal / sf / season
At least 10%	+2 gal / sf / season

Special features include:

1. Ecological restoration projects;
2. Bioretention areas;
3. Nonirrigated pervious areas;

4. Storm water conveyance infrastructure (vegetated swales);

5. Graywater applied to the landscape (percent special features based on percentage of living plant material primarily watered with graywater in the overall landscape area);

6. Native vegetation areas;

7. Secondary water irrigation.

1 Moller, Alan L., Robert R. Gillies, Utah Climate 2nd Edition, 2008, Utah Climate Center at Utah State University. Note data timeframe is 1889 – 2007.

2 Utah Climate 2nd Edition. Precipitation during irrigation season = 6.87 in (Mar – Oct); effective precipitation is equal to 25% of total precipitation during irrigation season.

3 Figures based on EPA WaterSense Water Budget tool designations, plus an additional VL/Non-Irrigated category to incentivize VL hydrozone plants

4 VL/Non-Irrigated refers to plants that require very little if any supplemental irrigation once the plant has been established (within 2-3 years of planting).

Active Rainwater Catchment

Amount of Rainwater Catchment Capacity	Reduction in Calculated Irrigation Water Need (gallons)
1 x 50-gallon rain barrel	100
2 x 50-gallon rain barrel (100 gal)	200
101 – 500-gallon cistern	1,000
501 – 1,000-gallon cistern	2,000
1,001 – 1,500-gallon cistern	3,000
1,501 – 2,000-gallon cistern	3,750
2,001 – 2,500-gallon cistern	4,500

Sample Hydrozone Tables

Irrigation Water Budget = [(ETo × Plant Factor) – EP] × Irrigated Area ÷ Irrigation Efficiency

Example 1: 1/3 of H, M, L Hydrozones

Hydrozone	ETo	Plant Water Use Category	Plant Factor	EP (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq ft)	Irrigation Water Need (gal/season)
Zone 1	49.8	H	0.8	1.7	Overhead	0.7	1,000	33,945
Zone 2	49.8	M	0.5	1.7	Drip	0.9	1,000	16,059
Zone 3	49.8	L	0.2	1.7	Drip	0.9	1,000	5,718
TOTAL							(c) 3,000	(d) 55,722

Avg. irrigation water need all zones = (d / c) = **18.6 gal/sf/season**

Example 2: 1/4 H and M, 1/2 Low Water Hydrozones

Hydrozone	ETo	Plant Water Use Category	Plant Factor	EP (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq ft)	Irrigation Water Need (gal/season)
Zone 1	49.8	H	0.8	1.7	Overhead	0.7	1,500	50,917
Zone 2	49.8	M	0.5	1.7	Drip	0.9	1,500	24,089
Zone 3	49.8	L	0.2	1.7	Drip	0.9	3,000	17,153
TOTAL							(c) 6,000	(d) 92,168

Average irrigation water needs = **15.4 gal/sf/season**

Example 3: 1/4 H, M, L, VL/Nonirrigated

Hydrozone	ETo	Plant Water Use Category	Plant Factor	EP (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq ft)	Irrigation Water Need (gal/season)
Zone 1	49.8	H	0.8	1.7	Overhead	0.7	1,000	33,945
Zone 2	49.8	M	0.5	1.7	Drip	0.9	1,000	16,060
Zone 3	49.8	L	0.2	1.7	Drip	0.9	1,000	5,718
Zone 4		VL	0				1,000	0
TOTAL							(c) 4,000	(d) 55,722

Average irrigation water needs = **13.9 gal/sf/season**

Example 4: 10% H and 1/4 M, 1/2 L, 15% VL w/ a 2,500-Gallon Cistern

Hydrozone	ETo	Plant Water Use Category	Plant Factor	EP (in/season)	Irrigation Method	Irrigation Efficiency	Hydrozone Area (sq ft)	Irrigation Water Need (gal/season)	
Zone 1	49.8	H	0.8	1.7	Overhead	0.7	600	20,367	
Zone 2	49.8	M	0.5	1.7	Drip	0.9	1,500	24,089	
Zone 3	49.8	L	0.2	1.7	Drip	0.9	3,000	17,153	
Zone 4	49.8	VL	0	1.7			900	0	
Subtotal							(c) 6,000	(d) 61,609	
Rainwater Capture								-	4,500
TOTAL							6,000	57,109	

Average irrigation water needs w/out cistern = **10.3 gal/sf/season** Average

Irrigation water needs w/ cistern = **9.5 gal/sf/season Special Features**

Special Feature	Special Feature Response
Total area of Special Features (sq. ft.)	600
Total percent of Special Features	10%
Maximum Applied Water Budget (gal/sf/season)	+ 2 gal/sf/season

(Ord. 23-08 § 3, 2023)

The Moab Municipal Code is current through Ordinance 23-13, passed September 26, 2023.

Disclaimer: The City Recorder's Office has the official version of the Moab Municipal Code. Users should contact the City Recorder's Office for ordinances passed subsequent to the ordinance cited above.

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