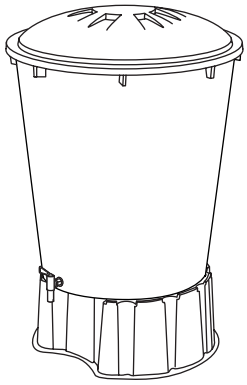
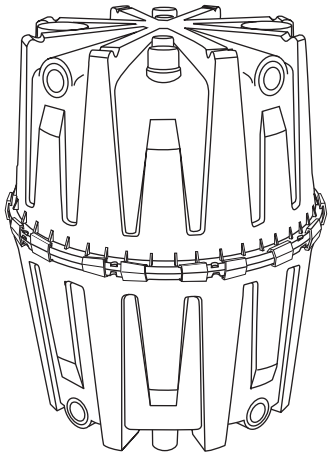
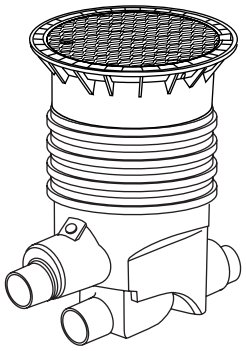
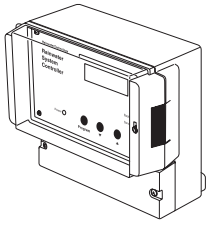
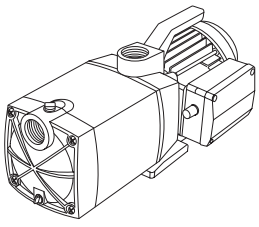
Rainwater Handbook











GENERAL INFORMATION

ABOUT OUR COMPANY: Resource Conservation Technology has been a supplier of state-of-the-art technology for water containment, waterproofing, vapor sealing, and air sealing since 1984. Principal products include rubber sheeting, coatings, gaskets, and weatherseals, pumps and filters. Our *PondTechnology* division is a major supplier to the aquatic gardening industry and offers an extensive selection of pumps, filters, and plumbing for water quality management. Our new *RainwaterTechnology* division is developing the most comprehensive selection of rainwater catchment products available in North America. This preliminary catalog represents a sampling of our initial offerings.

CONTENTS OF THIS HANDBOOK:

PRICING AND DISCOUNTS: End-user pricing follows. Please note that all prices and product specifications are subject to change without notice. Discounted pricing is offered to contractors based annual purchases, as well as to resellers such as plumbing product suppliers, building products suppliers, and garden centers. Please call for more information about discounts.

130 Gallon Rainbarrel	148.00	Single-Stage Submersible Pump	120.00
350 Gallon Above-ground tank	396.00	Multi-Stage Submersible Pump	284.00
425 Gallon Underground tank	596.00	Multi-Stage Surface Pump	224.00
Small Basket Filter	336.00	Automatic Pump Controller	96.00
Large Basket Filter	896.00	Digital Water Level Indicator	248.00
Small Self-Cleaning Filter	396.00	Rainwater System Controller	496.00
Large Self-Cleaning Filter	796.00		

NEW PRODUCTS: We will be introducing a wide range of new products in the second half of 2005 including a high-strength 2500 underground tank, a modular “rainbarrel” system, three types of backup water supply systems, a series of reliable above-ground filters, and a new generation of submersible rainwater pumps, and a post-filtration/sterilization package. Contact us for more information.

TECHNICAL ASSISTANCE: We have tried to convey some basic design information in this short handbook, some of which is fairly technical. For help in designing a rainwater system, call for assistance or fax a simple sketch of what you have in mind.

PAYMENT: Our minimum order is $25. We accept Mastercard, VISA, Discover, American Express, checks, bank drafts, money orders, or wire transfers. Many UPS shippable items can also be sent COD. If you wish to send payment by mail or wire, please call or write to obtain an exact total including shipping charges. Credit terms are available for dealers and active contractors.

HOURS OF OPERATION: We're open Monday through Friday from 8:30 AM until 5:30 PM Eastern time, and often later. If you call during our busier months you may need to leave a message, but we try to return all calls the same day.

PICKUPS: You are welcome to visit our Baltimore warehouse at 2233 Huntingdon Avenue to pick up merchandise, but please place your order by telephone before you visit since we do not currently have a showroom or retail store.

SHIPPING: We try to stock everything we sell, so we usually ship the next business day. Pumps, small filters, and most accessories can ship by UPS. Large tanks and filters must ship by motor freight, but our substantial discounts permit us to offer very reasonable rates to almost any point in North America. Please note that someone must be available to unload and inspect truck merchandise.

INSPECTING TRUCK SHIPMENTS: Although we rarely have shipping damage, it is essential that you inspect all truck shipments thoroughly *before* signing the freight bill, note any damage on the freight bill, and call us within one business day to report the damage. If you follow this procedure, we will guarantee free repair materials in the event of minor damage, and free replacement in the event of major damage. If you fail to note damage before accepting a truck shipment, you may be denied this protection, so insist on taking the time for a thorough inspection.

RESOURCE CONSERVATION TECHNOLOGY INC.

2633 N Calvert St Baltimore MD 21218 Tel: (800) 477-7724 Fax: (410) 366-1202

www.conservationtechnology.com

INTRODUCTION

Collecting and using rainwater makes sense for a variety of economic, environmental, and practical reasons:

- Rainwater is an economical alternative to public water, especially for exterior water uses such as landscape irrigation that require minimal filtration. Although initial equipment installation can be significant, long-term costs are minimal.
- Rainwater can supplement limited ground water resources. With reduced extraction rates, low-yield ground water wells and springs can last indefinitely. Rainwater can also supplement surface water resources threatened by rapidly growing municipal water use. Rainwater collection could significantly reduce water extraction rates from rivers during critical summer months, ensuring adequate water remains to support native ecosystems.
- Rainwater is often the only viable water source for those dwelling in desert regions or on islands where other water sources may be too high in salt, too limited in availability, or too expensive.
- Rainwater is low in minerals, so it is ideal for laundry, dishwashing, hair washing, and car washing. Since it contains no chlorine, rainwater is also ideal for filling garden ponds and irrigating sensitive plants.
- Rainwater is not regulated by municipal water restrictions. During periods of drought, rainwater can protect investments in landscaping, garden ponds, and swimming pools.
- Rainwater can cause leaky basements, eroded foundations, overflowing sewers, soil erosion, and water pollution. Collecting rainwater can eliminate these problems while eliminating the need for expensive stormwater controls.

RAINFALL AVAILABILITY: The quantity of rainwater that can be collect from a roof or other collection surface can be estimated with the following formula (includes allowance for losses due to evaporation, leakage, and filtration):

rainwater collected (gallons) = 0.5 x rainfall (inches) x collection area (square feet)

In the continental United States, yearly rainfall averages 10 to 30 inches in the western states, 20 to 40 inches in the central states, and 30 to 50 inches in the eastern states, with significantly higher amounts in some mountain and coastal areas. Consequently, for every 1000 square feet of roof area, the available annual rainfall would be 5,000 to 15,000 gallons in the western states, 10,000 to 20,000 gallons in the central states, and 15,000 to 25,000 gallons in the eastern states.

Monthly and yearly rainfall data for 300 weather regions of the United States, Puerto Rico, and the US Virgin Islands can be found in the table *AVERAGE RAINFALL* at the end of this publication. As an example, the Black Hills of South Dakota (SD) receive an average of 22.5 inches of rainfall annually, so the available rainfall from a 3000 square foot roof would be approximately 0.5 x 22.5 inches x 3000 square feet = 38,000 gallons/year. For critical applications where rainwater is to be the primary water source, more localized weather data should be obtained for the nearest weather monitoring station.

INTERIOR WATER REQUIREMENTS: On average, Americans use 70 gallons per person per day to operate toilets, showers, clotheswashers, sinks, and other water-using fixtures and appliances. By replacing fixtures and appliances with modern water-efficient versions and repairing leaks, water usage can be reduced to less than 50 gallons per person per day. Since these simple conservation measures require no behavioral changes and are less expensive than providing additional rainwater storage capacity, any rainwater utilization system should presume water conservation:

toilets (gallons) = 10 x occupants x time (days)
clotheswasher (gallons) = 10 x occupants x time (days)
showers (gallons) = 10 x occupants x time (days)
sinks (gallons) = 10 x occupants x time (days)
other (gallons) = 10 x occupants x time (days)
TOTAL (gallons) = 50 x occupants x time (days)

For example, a family of four will require 50 x 4 persons x 30 days = 6000 gallons per month for all interior water consumption, or (10+10) x 4 persons x 30 days = 2400 gallons per month solely to flush toilets and wash clothes.

EXTERIOR WATER REQUIREMENTS: Water used to irrigate landscaping often equals or exceeds interior water use. Irrigation water requirements can be greatly reduced by selecting native plants, or plants that thrive in regions with similar climates, so that irrigation is only needed to compensate for natural variations in rainfall. In general, dry-climate plants thrive with one-half inch of rainfall per week, temperate-climate plants with one-inch of rainfall per week, and wet-climate plants with one and one-half inches of rainfall per week. Converting this to gallons:

irrigation of dry-climate plants (gallons) = 0.3 x surface area (square feet) x time (weeks)
irrigation of temperate-climate plants (gallons) = 0.6 x surface area (square feet) x time (weeks)
irrigation of wet-climate plants (gallons) = 0.9 x surface area (square feet) x time (weeks)

For example, one-quarter acre (10,000 square feet) of a typical temperate-climate lawn grass (a mixture of rye, fescue, and Kentucky Bluegrass) requires 0.6 x 10,000 square feet x 4 weeks = 24,000 gallons of water per month. For more detailed information about irrigation water requirements, consult a local irrigation specialist or government agricultural agency.

Filling and topping swimming pools is another significant exterior water use. The volume of a swimming pool (or garden pond) can be estimated from the following formula:

swimming pool volume (gallons) = 7.5 x average length (feet) x average width (feet) x average depth (feet)

For example, a swimming pool measuring 20 ft x 40 ft with a bottom that slopes from 2 feet to 8 feet (average 5 feet) holds approximately 7 x 20 x 40 x 5 = 30,000 gallons. Once filled, swimming pools can lose an additional half-inch to two inches each week from evaporation and filter cleaning, depending on climate, water turbulence, and filtration. Assuming an average of one-inch per week and converting this to gallons:

evaporation and filter loss (gallons) = 0.6 x surface area (square feet) x time (weeks)

In the example above, a 20 ft x 40 ft swimming pool might lose 0.6 x 800 sq ft x 4 weeks = 1900 gallons per month, so in the course of a season, as much water will be lost by evaporation and backwashing as was originally used to fill the pool.

SIZING RAINWATER STORAGE: To determine the volume of rainwater storage required, it is necessary to perform a month-by-month analysis of rainfall and water consumption. Following are several examples of the procedure. Begin by listing the monthly rainfall from the AVERAGE RAINFALL table in inches. Convert this to gallons by multiplying the rainfall in inches times 0.5 times the collection area. Then estimate the combined interior and exterior water usage for each month and subtract it from the monthly rainfall for each month. This yields the net water surplus (+) or deficit (-) at the end of each month. Identify the beginning of the deficit period and add the net for each month until the maximum deficit is reached (shown in bold). Similarly, identify the beginning of the surplus period and add the net for each month until the maximum surplus is reached (see bold print). If the maximum deficit is smaller than the maximum deficit, size the rainwater storage to the maximum deficit plus at least a 25% allowance for normal variations in rainfall. If the maximum deficit is larger than the maximum deficit, there will not be sufficient rainwater for the intended use. In such case, the water usage must be reduced through additional conservation or the rainwater collection surface must be increased.

EXAMPLE A *Location:* St Thomas VI *Surface:* *4000 sq ft roof* *Use:* all interior water for 4 occupants

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (in)	2.5	1.9	1.8	2.8	3.8	2.5	2.9	4.0	5.8	5.4	6.1	3.5
Rainfall (gal)	5000	3800	3600	5600	7600	5000	5800	8000	11600	10800	12200	7000
Usage (gal)	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Net (gal)	-1000	-2200	-2400	-400	+1600	-1000	-200	+2000	+5600	+4800	+6200	+1000
Deficit (gal)	-1000	-3200	-5600	**-6000**								
Surplus (gal)					1600	600	400	2400	8000	12800	19000	**20000**

Example A: The maximum deficit is 6000 gallons and the maximum surplus is 20,000 gallons, so there should be ample rainfall even in drier years. The rainwater tank should be at least 25% larger than the maximum deficit, or 7500 gallons. However, if rainwater is to be the primary water source, it would make sense to significantly increase storage capacity to take advantage of the large surplus and insure against periods of drought.

EXAMPLE B *Location:* Black Hills ND *Surface:* 2000 sq ft roof *Use:* toilet flushing, clotheswashing for 3 occupants

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (in)	0.7	0.8	1.4	2.5	3.7	3.6	2.8	2.1	1.5	1.8	0.9	0.7
Rainfall (gal)	700	800	1400	2500	3700	3600	2800	2100	1500	1800	900	700
Usage (gal)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Net (gal)	-1100	-1000	-400	+700	+1900	+1800	+1000	+300	-300	0	-900	-1100
Deficit (gal)	-3400	-4400	**-4800**						-300	-300	-1200	-2300
Surplus (gal)				+700	+2600	+4400	+5400	**+5700**				

Example B: The maximum deficit is 4800 gallons and the maximum surplus is 5700 gallons, so there may not be sufficient rainfall during the wetter summer months to meet the winter water demand. The rainwater tank should be at least 25% more than the maximum deficit, or 6000 gallons. A larger capacity is difficult to justify with a surplus of only 5700 gallons.

EXAMPLE C *Location:* Philadelphia PA *Surface:* 3000 sq ft roof *Use:* 10,000 sq ft (1/4 acre) lawn

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (in)	3.7	2.8	3.8	3.7	4.5	4.0	4.5	3.8	4.3	3.4	3.6	3.4
Rainfall (gal)	5600	4200	5700	5600	6800	6000	6800	5700	6500	5100	5400	5100
Usage (gal)	0	0	0	0	6000	12000	12000	12000	6000	0	0	0
Net (gal)	+5600	+4200	+5700	+5600	+800	-6000	-5200	-5300	+500	+5100	+5400	+5100
Deficit (gal)						6000	-11200	**-16500**				
Surplus (gal)	+21700	+25900	+31600	+37200	**+38000**				+500	+5600	+11000	+16100

Example C: The maximum deficit is 16,500 gallons and the maximum surplus is 38,000 gallons, so there should be ample rainfall, even in drier years. Since lawn watering is not a critical water use, a storage capacity of 16,000 gallons would be generous. A less expensive alternative would be to reduce the storage capacity and save rainwater for emergency watering.

EXAMPLE D *Location:* Chicago IL *Surface:* 300 sq ft roof *Use:* 200 sq ft vegetable garden

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (in)	1.8	1.5	2.6	3.7	3.9	4.2	3.9	4.2	3.4	2.7	3.0	2.4
Rainfall (gal)	400	300	500	700	800	800	800	800	700	500	600	500
Usage (gal)	0	0	0	0	300	500	500	500	300	0	0	0
Net (gal)	+400	+300	+500	+700	+500	+300	+300	+300	+400	+500	+600	+500
Deficit (gal)												
Surplus (gal)	+400	+700	+1200	+1900	+2400	+2700	+3000	+3300	+3700	+4200	+4800	**+5300**

Example D: There are no months with deficits, and the maximum surplus is 5300 gallons, so there should be ample rainfall even in drier years. The rainwater tank should be sized to hold at least a month's maximum usage, or 500 gallons, to assure water will be available during dry months.

EXAMPLE E *Location:* Los Angeles CA *Surface:* 5000 sq ft roof and patio *Use:* 20 x 40 swimming pool

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (in)	3.5	3.8	3.4	1.0	0.4	0.1	0.1	0.2	0.4	0.6	1.4	2.1
Rainfall (gal)	8800	9500	8500	2500	1000	300	300	500	1000	1500	3500	5300
Usage (gal)	1900	1900	1900	30000	1900	1900	1900	1900	1900	1900	1900	1900
Net (gal)	+6900	+7600	+6600	-27500	-900	-1600	-1600	-1400	-900	-400	+1600	+3400
Deficit (gal)				-27500	-28300	-29900	-31500	-32900	-33800	**-34200**		
Surplus (gal)	+11900	19500	**+26100**								+1600	+5000

Example E: The maximum deficit is 34,200 gallons and the maximum surplus is 26,100 gallons, so there is insufficient rainfall to fill the pool and replace water lost to evaporation and filtering. The rainwater tank should be at least 26,000 gallons to hold the maximum surplus.

RAINWATER STORAGE TANKS: Above-ground rainbarrels and storage tanks offer a simple and inexpensive way to collect rainwater from a single downspout for landscape watering. Underground tanks are more suited to whole-house rainwater collection systems, but are considerably more expensive to purchase and install. In contrast to above-ground tanks, underground tanks are invisible, are unaffected by freezing weather, and can last indefinitely. Since underground tanks provide a cool, dark environment inhospitable to algae and microbial growth, they are always preferred when rainwater is to be reused inside buildings.

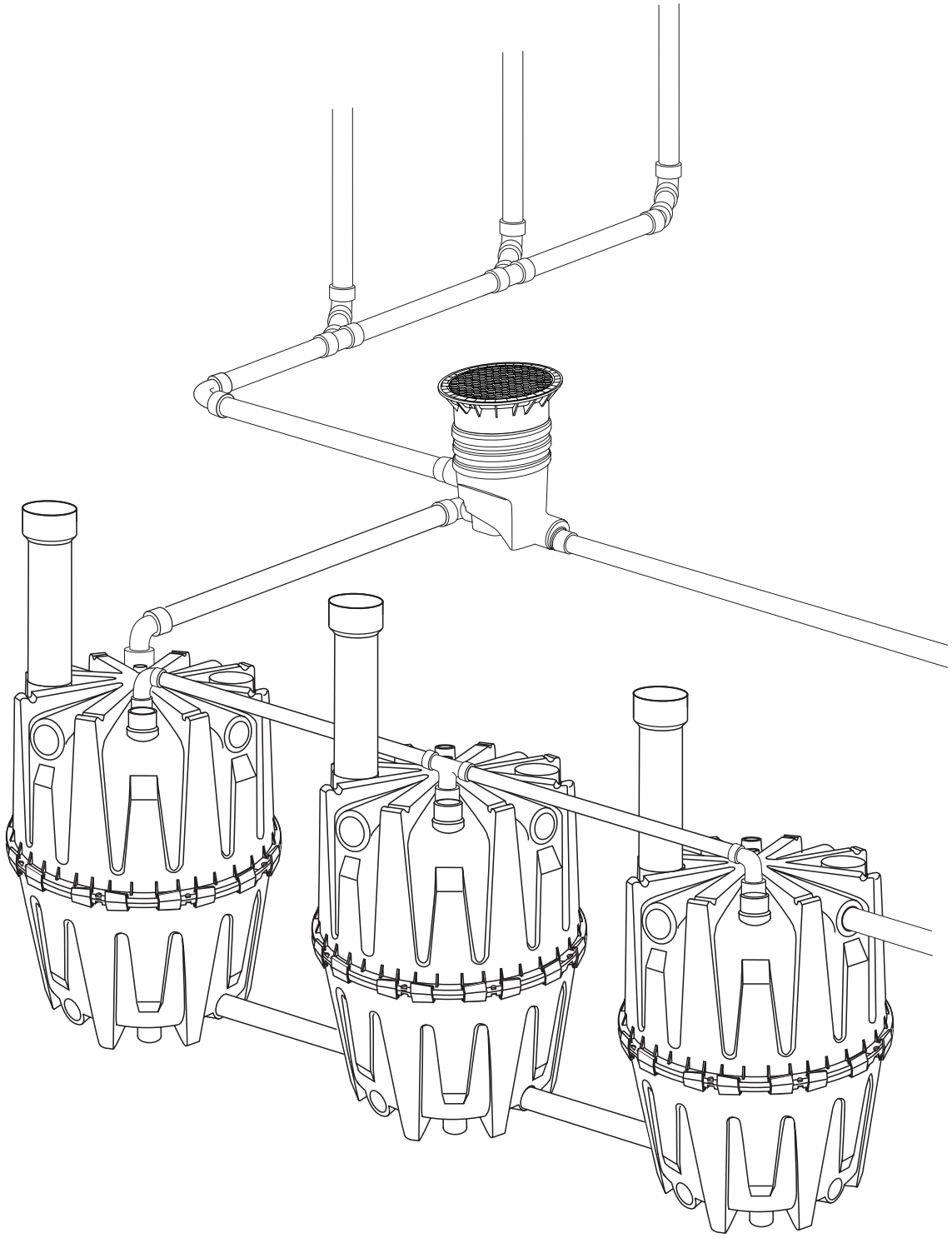
RAINWATER FILTERS: Rainwater collected from rooftops contains significant quantities of plant debris, dirt, eroded roof materials, and other solids that can clog pumps, valves, and pipes. Mineral solids collect as sediment at the bottom of storage tanks, reducing tank storage capacity; organic solids decompose, depleting oxygen and generating hydrogen sulfide and other noxious by-products. One way to improve the quality of rainwater is to install a "roof washer", a device that discards the initial runoff from a roof before it reaches the storage tank. However, roof washers fail to capture the solids dislodged after the first few minutes of rainfall and often have small-diameter openings that can become clogged by the same solid matter they divert. A more effective solution is provided by a new generation of low-maintenance rainwater filters that capture all solids larger than 500 microns (1/50"). This level of filtration is sufficient for exterior water use such as watering lawns or gardens and filling pools or ponds.

For interior water use, supplemental filtration and disinfection is essential. A sediment filter followed by a high-intensity ultraviolet sterilizer will eliminate suspended solid matter and microorganisms, yielding water suitable for toilet flushing, clotheswashing, dishwashing, and showering without further filtration. A carbon-block filter will remove dissolved organic matter and improve taste, yielding water suitable for cooking and drinking. Filtration and disinfection components should be oversized in order to maximize performance and minimize maintenance.

PUMPS AND CONTROLS: When water stored in above-ground tanks is to be used for low-pressure irrigation, a simple gravity-flow system may suffice to distribute the water. In all other cases, an oil-free submersible or external pump is required. If the rainwater will simply flow through an open-ended pipe, an inexpensive, low-pressure utility pump will suffice; if the rainwater is to be used to operate garden hoses, irrigation systems, toilets, clotheswashers, or faucets, a multistage pump capable of delivering water at higher pressures is essential. Rainwater delivery systems also require pressure switches, float switches, floating extractors, electrically operated valves, municipal-water backup tanks, water level indicators, electronic controls, and a variety of other plumbing components. Where rainwater is to be the primary water source, rainwater system design must assure a reliable and safe water supply.

RAINWATER SYSTEM

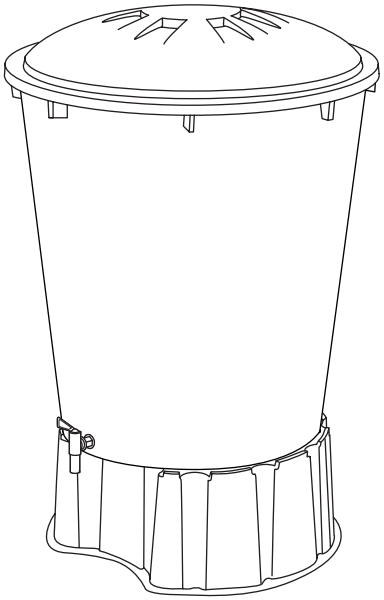
The illustration shows a complete rainwater system consisting of a self-cleaning filter connected to three 430 gallon underground tanks. Specifications for the tanks, filters, and accessories can be found on the following pages. Call for information about larger tanks.

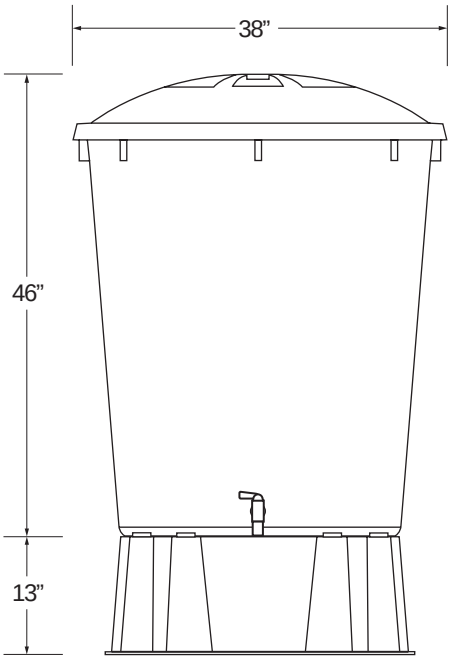


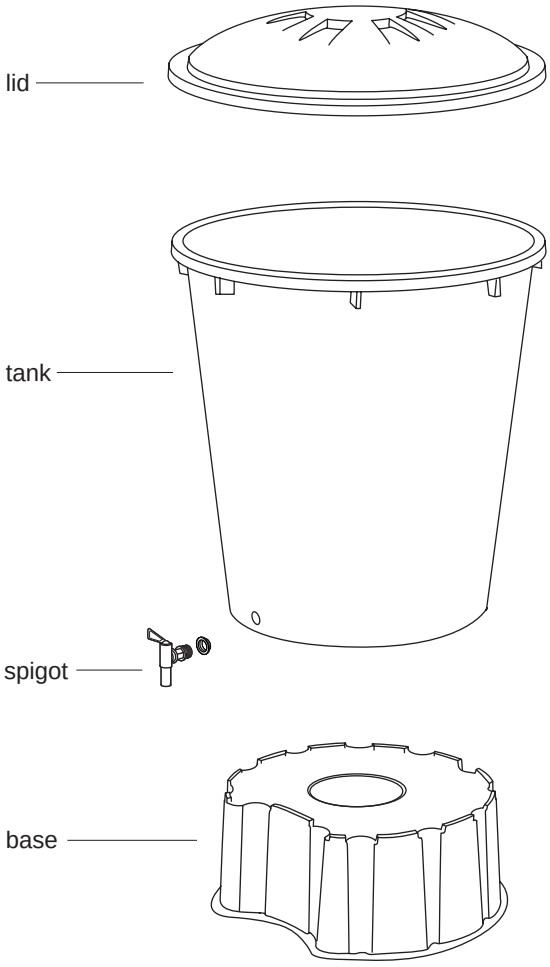
RAINBARREL

500 LITER - 130 GALLONS

Green tank for above-ground use only. Optional stand facilitates easy filling of watering containers. Tanks and stands nest for efficient shipping and storage. Made of 100% post-consumer recycled plastic.







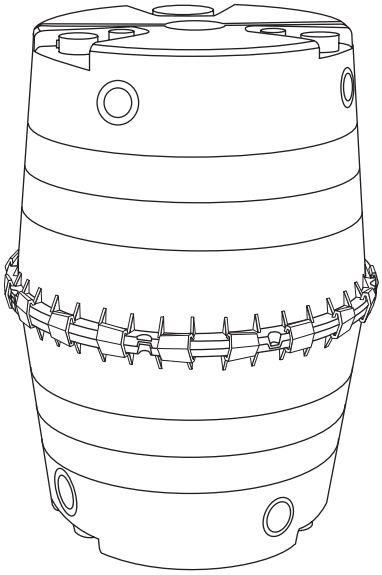
RESOURCE CONSERVATION TECHNOLOGY INC

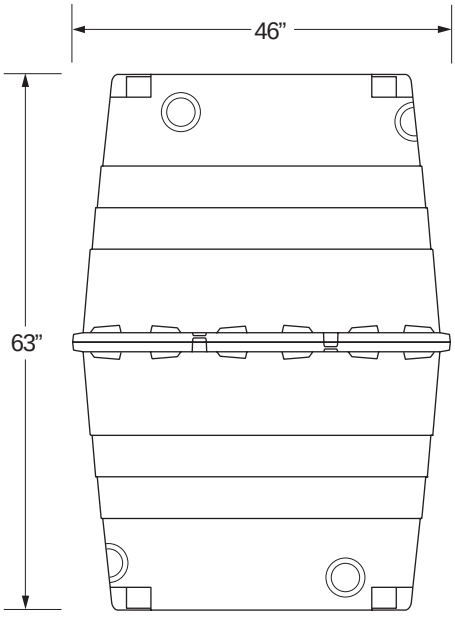
2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

ABOVE-GROUND TANK

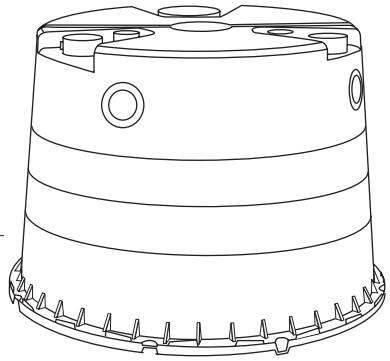
1300 LITER - 350 GALLON

Green tank for above-ground use only. Assembled from two identical halves that nest for efficient shipping and storage. Gasket system assures a permanently watertight connection.

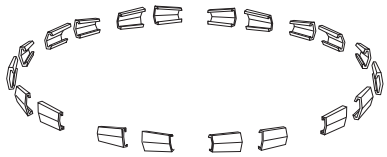




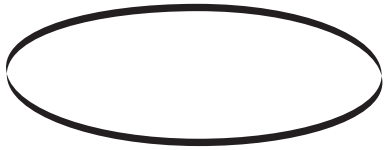
top half



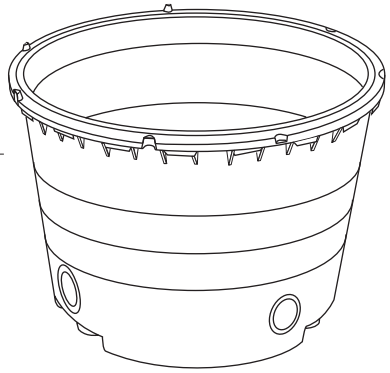
clamps



gasket



bottom half



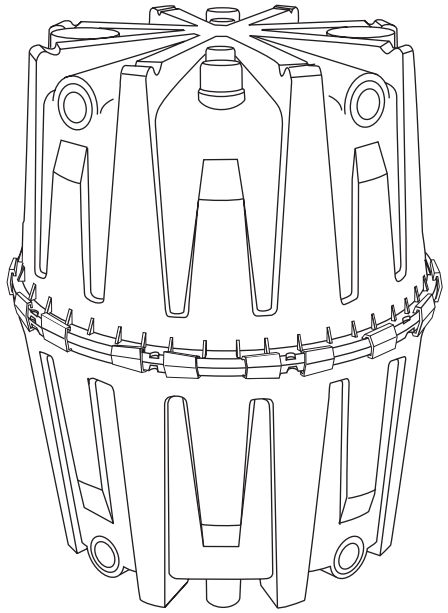
RESOURCE CONSERVATION TECHNOLOGY INC

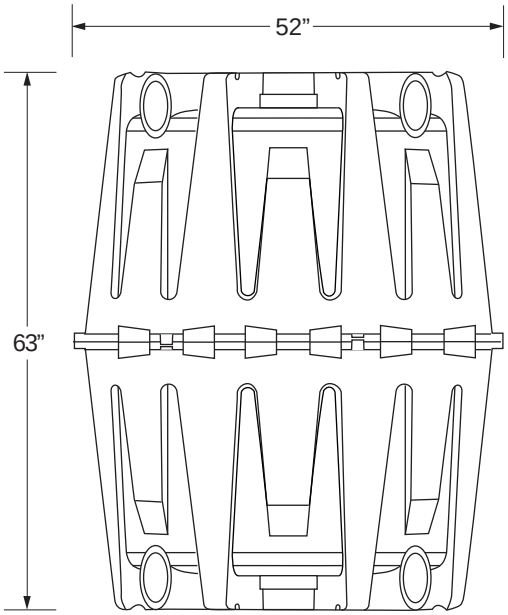
2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

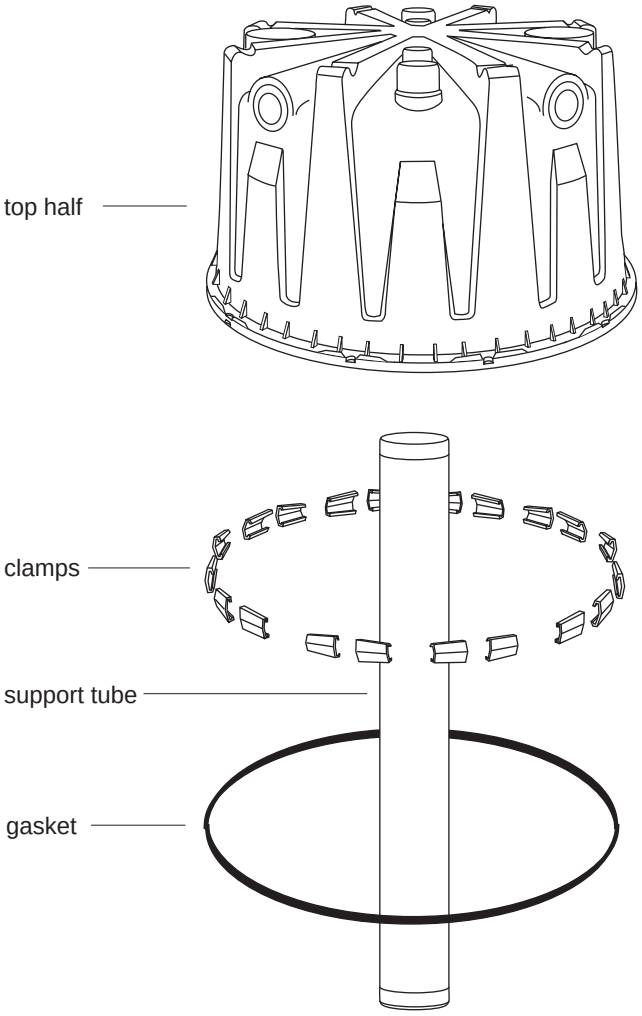
UNDERGROUND TANK

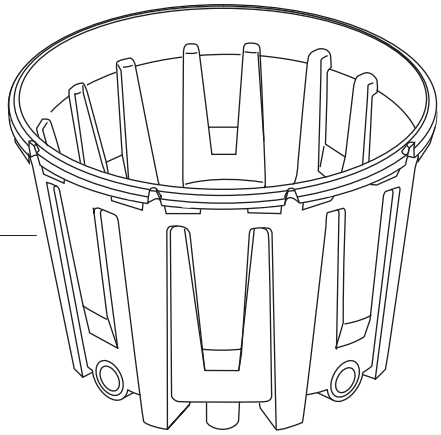
1600 LITER - 430 GALLON

Heavy-duty black tank for underground use; can also be used above ground. Assembled from two identical halves that nest for efficient shipping and storage. Gasket system assures a permanently watertight connection.







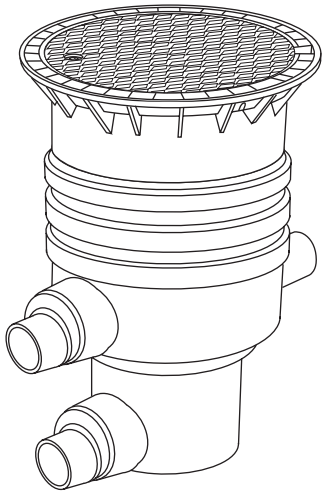


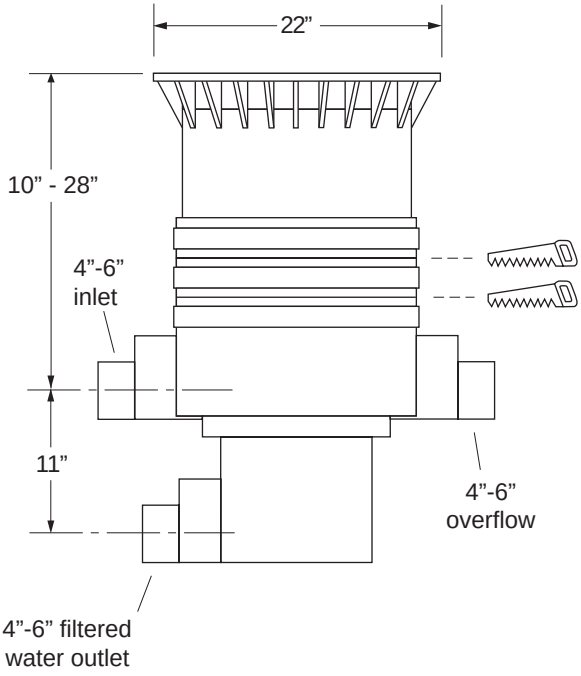
RESOURCE CONSERVATION TECHNOLOGY INC

2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

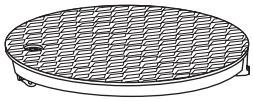
SMALL BASKET FILTER

For underground installation. Provides 100% recovery of rainwater from roofs up to 5000 square feet. Easily accessible basket retains solids larger than 350 microns. Plastic lid and sleeve available in dark green or black.

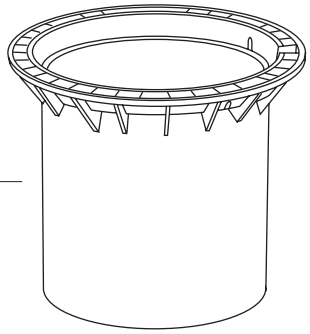




plastic or
cast-iron lid

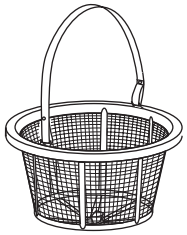


telescoping
access sleeve

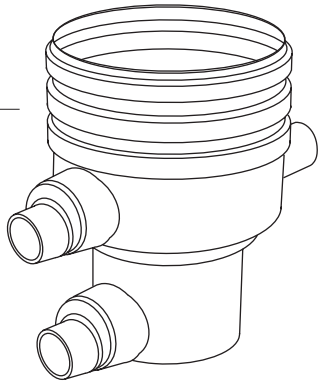


gasket

removeable
filter basket



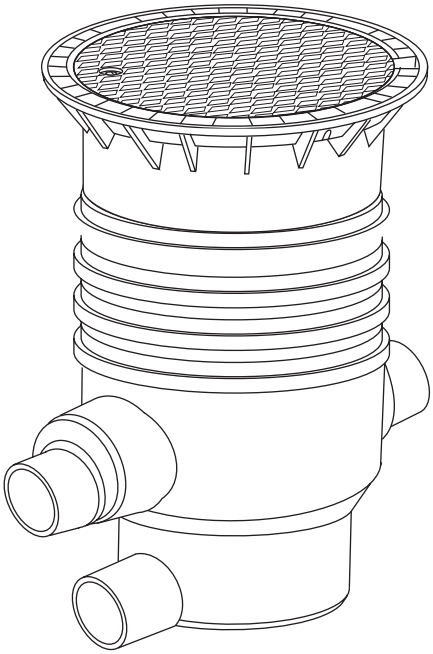
filter body

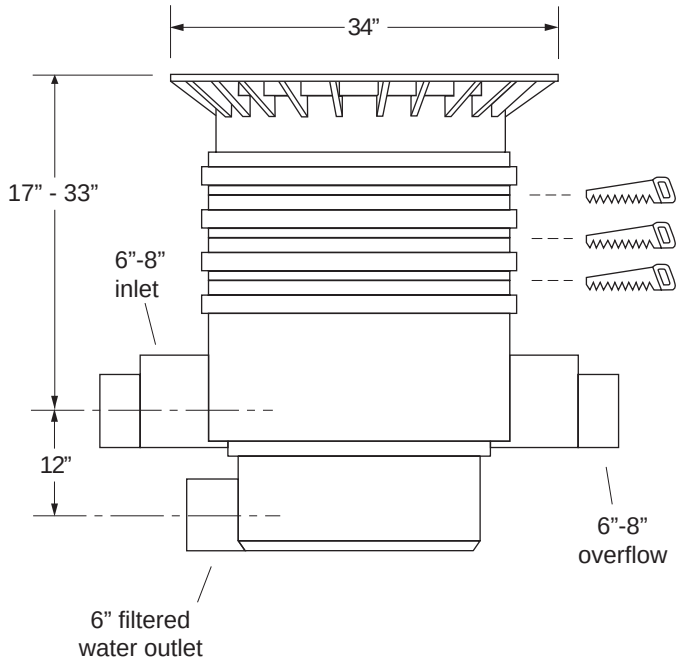


RESOURCE CONSERVATION TECHNOLOGY INC
2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

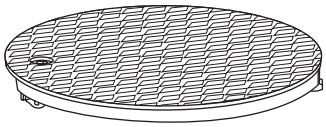
LARGE BASKET FILTER

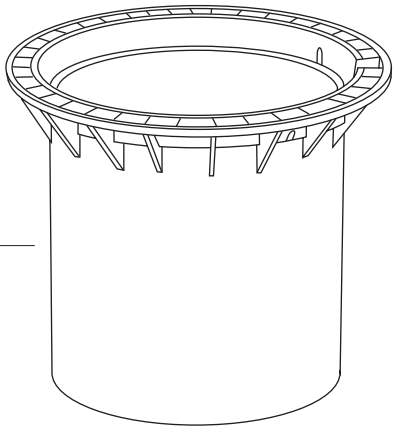
For underground installation. Provides 100% recovery of rainwater from roofs up to 12,000 square feet. Easily accessible basket retains solids larger than 500 microns. Plastic lid and sleeve available in dark green or black.





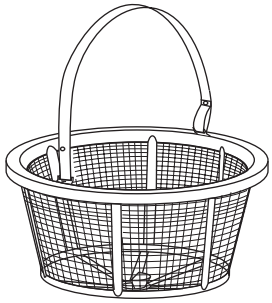
plastic or
cast-iron lid



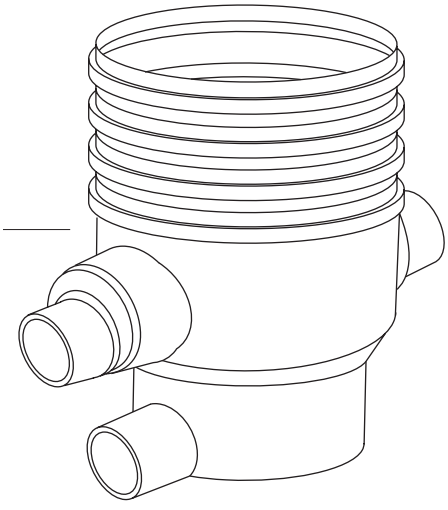


telescoping
access sleeve

gasket



removeable
filter basket

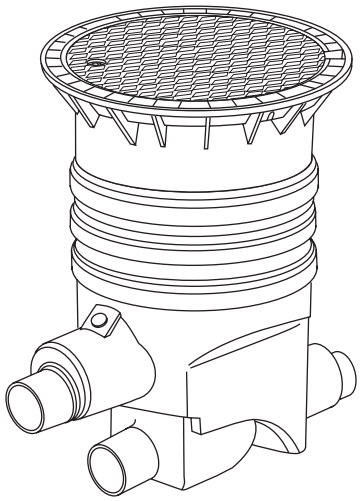


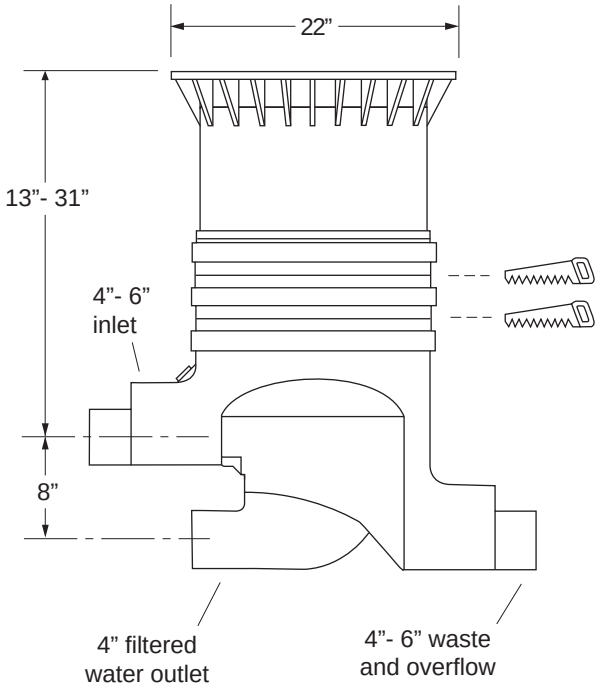
filter body

RESOURCE CONSERVATION TECHNOLOGY INC
2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

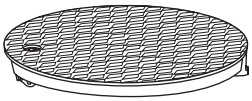
SMALL SELF-CLEANING FILTER

For underground installation. Provides 95% recovery of rainwater from roofs up to 5000 square feet. Self-cleaning filter element separates solids larger than 350 microns. Plastic lid and sleeve available in dark green or black. Accepts optional internal spray-head.

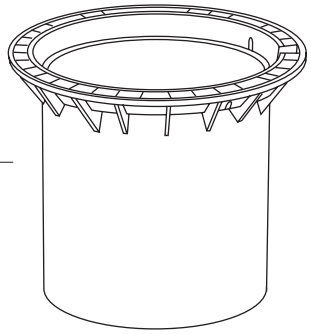




plastic or
cast-iron lid

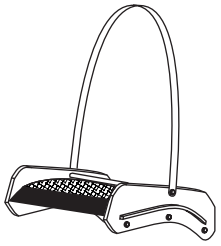


telescoping
access sleeve

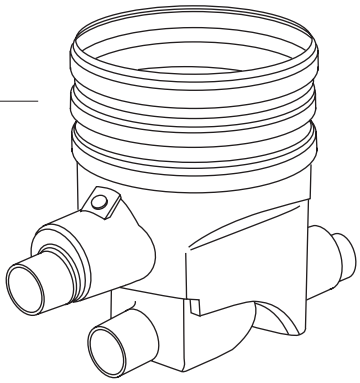


gasket

removeable
filter assemblly



filter body

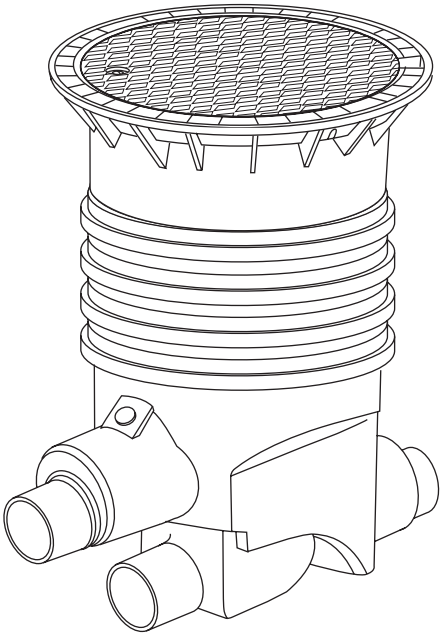


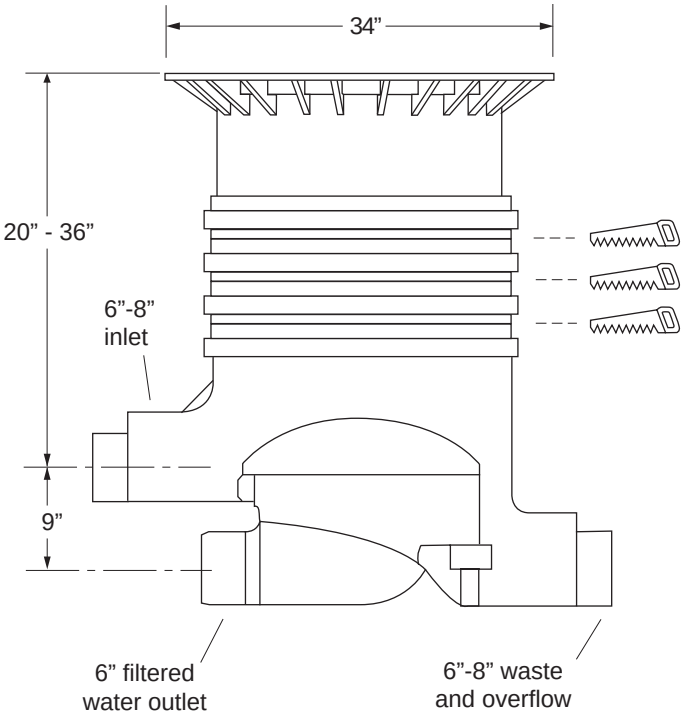
RESOURCE CONSERVATION TECHNOLOGY INC

2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

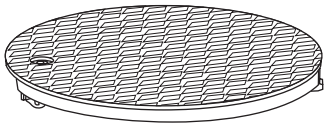
LARGE SELF-CLEANING FILTER

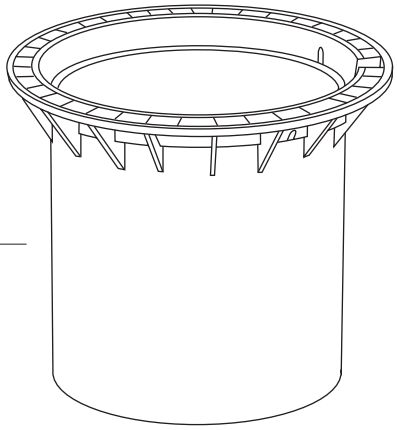
For underground installation. Provides 95% recovery of rainwater from roofs up to 16,000 square feet. Self-cleaning filter element separates solids larger than 500 microns. Plastic lid and sleeve available in dark green or black. Accepts optional internal spray-head.





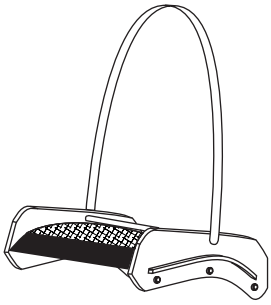
plastic or
cast-iron lid



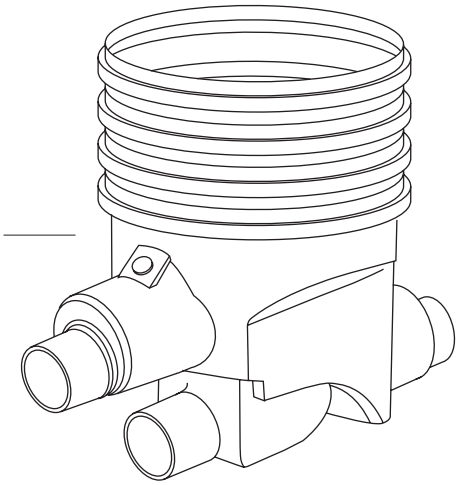


telescoping
access sleeve

gasket



removeable
filter assemblly



filter body

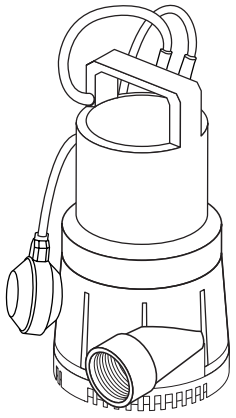
RESOURCE CONSERVATION TECHNOLOGY INC

2633 N Calvert Street Baltimore MD 21218 (800) 477-7724 www.conservationtechnology.com

PUMPS

We offer three reliable pumps with optimal features for rainwater systems: a single-stage submersible for non-pressurized exterior water use, a multi-stage submersible for pressurized exterior water use, and a multi-stage surface pump for pressurized interior and exterior water use:

SINGLE-STAGE SUBMERSIBLE PUMP: This inexpensive single-stage submersible pump features a rust-proof plastic housing, a reliable 1/3 HP oil-free motor, and a stainless-steel shaft with ceramic seals. It is designed to operate even while partially submerged and includes an integral shutoff float, features that make it ideally suited for use in rainwater tanks. Although this pump delivers a maximum flow of 37 GPM, its maximum pressure is only 10 PSI, so it must be used with open-ended tubing or piping having a minimum diameter of 1-1/4".

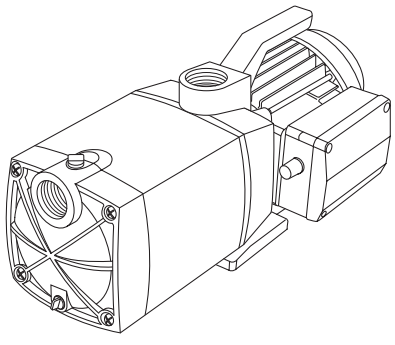


PSI	0	1	2	3	4	5	6	7	8	9	10
GPM	37	35	34	33	32	28	24	20	14	8	0

MULTI-STAGE SUBMERSIBLE PUMP: This multi-stage submersible pump features a heavy-duty rust-proof plastic housing, a stainless-steel intake screen, a reliable 3/4 HP oil-free motor, and a stainless-steel shaft with ceramic seals. It is designed to operate even while partially submerged and includes an integral shutoff float, features that make it ideally suited for use in rainwater tanks. Since it delivers a maximum flow of 25 GPM and a maximum pressure of 52 PSI, it can be used to directly supply garden hoses and irrigation systems.

PSI	0	5	10	15	20	25	30	35	40	45	50	55
GPM	25	24	22	19	17	14	12	10	8	5	2	0

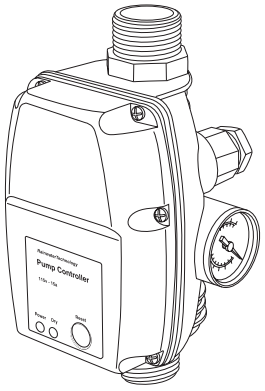
MULTI-STAGE SURFACE PUMP: This multi-stage surface pump features a heavy-duty rust-proof plastic housing, a reliable 3/4 HP totally-enclosed motor with both thermal and high-current overload protection, and a stainless-steel shaft. With a maximum flow of 27 GPM and a maximum pressure of 68 PSI, it is suitable for almost any interior and exterior water use. Since it is extremely quiet and will self-prime to a maximum suction lift of 10 PSI, it can be installed within a building and draw water from exterior underground rainwater tanks.



PSI	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
GPM	27	26	25	24	22	20	19	18	16	14	12	10	8	3	0

CONTROLS

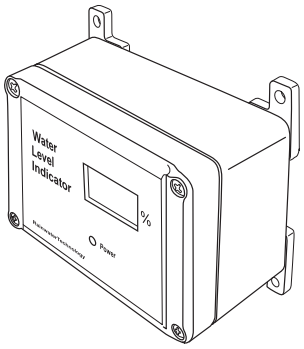
AUTOMATIC PUMP CONTROLLER: The *RainwaterTechnology* Automatic Pump Controller makes it possible to operate a rainwater system without a pressure tank, pressure switch, or dry-run controls. The bottom inlet connects to the pump, the top outlet connects to the plumbing system, and the pump is plugged into the controller which is in turn plugged into an electrical receptacle. When a faucet is opened, the controller senses the drop in line pressure and instantly turns on the pump to re-pressurize the line. If no water is available, the controller will shut down the pump to prevent dry-run damage. A pressure gauge on the side indicates the line pressure and is helpful in identifying water leaks.



automatic pump controller

WATER LEVEL INDICATOR: The *RainwaterTechnology* Water Level Indicator reliably displays the water level in a rainwater storage tank from 0 to 100%. A weighted sensor hangs from a plastic junction box that is mounted inside the tank just above the water level: the standard sensor is designed for tanks up to 10 feet, and a longer version is available for tanks up to 20 feet. A control wire connects to a wall-mounted digital display that can be located up to 150 feet from the tank. The digital display is attractive enough to be installed in a living space, but is also splashproof for installation in a utility or mechanical room. The entire system is powered by a 24 volt transformer which permits safe and easy installation without an electrician.

RAINWATER SYSTEM CONTROLLER: The *RainwaterTechnology* Rainwater System Controller uses the same reliable depth-sensing technology employed by the Water Level Indicator, but utilizes a sophisticated microprocessor and five control relays to manage all common functions in a rainwater collection system:



water level indicator

• It continuously monitors and displays the water level in the rainwater tank, both as a numeric percentage and as a bar-graph.

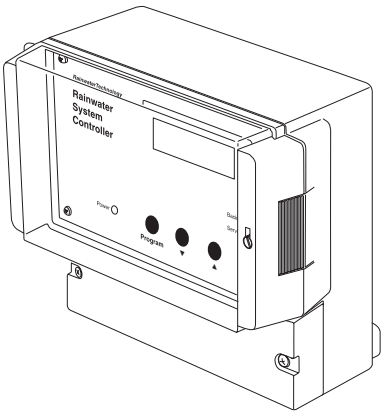
• When there is insufficient rainwater to meet demand, it activates a backup water source. Two backup schemes are supported: water can be delivered directly to the rainwater storage tank, or water can be drawn from a secondary float tank. While the backup system is activated, a backup indicator is lit on the control panel.

• When the tank is full, it activates a pump or valve to transfer water from the rainwater tank, providing an alternative to a simple gravity overflow system. This function can be used to pump water to a secondary storage site, or to disperse excess water. Manual transfer is also supported.

• It periodically rinses rainwater filters at intervals determined by the volume of water filtered, thereby reducing filter maintenance. (This function is only applicable for filters that have provision for a rinse nozzle.)

• It automates “first-flush” systems that collect the initial runoff from a roof in a small holding tank This function will operate a drain valve or pump relay to evacuate the first-flush tank a preset number of days after the last rainfall. When rainwater is stored solely for runoff control, this function can dump the primary rainwater tank several days after the last rainfall.

• It warns of the need for routine maintenance of filters, ultraviolet sterilizers, or other system components by illuminating a service indicator and operating a control relay after a preset time interval. System malfunctions also activate the service indicator and relay. For critical installations, the relay can be used to trigger an alarm, operate an autodialer to call for service, or operate a solenoid valve to prevent water use.



rainwater system controller

Programming and system operation is simple and intuitive, and all information can be displayed in English, Spanish, or French. The entire system is powered by a 24 volt transformer which permits safe and easy installation without an electrician.

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
AK	Southeastern	8.6	7.1	6.4	5.4	4.9	3.9	4.2	6.4	10.5	14.3	10.3	9.8	91.8
AK	South Coast	8.9	7.1	6.1	6.4	6.2	4.4	4.7	7.7	12.1	12.0	8.8	10.3	94.5
AK	Southwestern Islands	3.5	3.0	3.0	2.5	2.3	2.5	2.7	3.8	4.7	4.7	4.8	4.3	41.7
AK	Copper River	0.7	0.7	0.5	0.4	0.7	1.9	2.4	2.0	1.7	1.4	1.0	1.1	14.5
AK	Cook Inlet	1.8	1.5	1.3	1.1	1.3	1.6	2.2	3.0	3.8	2.9	2.1	2.3	24.8
AK	Bristol Bay	1.5	1.1	1.2	1.2	1.4	1.7	2.3	3.5	3.4	2.6	2.1	1.9	23.8
AK	West Central	0.8	0.7	0.7	0.6	0.8	1.3	2.1	3.0	2.3	1.5	1.4	1.2	16.1
AK	Interior Basin	0.6	0.5	0.4	0.3	0.7	1.8	2.2	2.2	1.5	1.0	0.8	0.7	12.7
AK	Arctic Drainage Basin	0.4	0.3	0.2	0.3	0.2	0.6	1.2	1.7	1.2	0.7	0.4	0.4	7.6
AL	Northern Valley	5.6	4.8	6.4	4.7	5.2	4.5	4.4	3.3	4.2	3.6	5.1	5.6	57.4
AL	Appalachian Mountains	5.8	5.1	6.4	4.9	4.8	4.3	4.9	3.4	4.5	3.4	4.8	5.2	57.4
AL	Upper Plains	6.1	5.2	6.7	5.3	5.0	4.4	5.1	3.5	4.1	3.5	5.0	5.4	59.3
AL	Eastern Valley	5.9	5.1	6.7	5.1	4.3	4.3	4.8	3.6	3.9	3.1	4.5	4.7	55.9
AL	Piedmont Plateau	5.8	5.4	6.6	4.8	4.1	4.4	5.3	3.7	3.9	3.0	4.6	5.0	56.4
AL	Prairie	5.7	5.0	6.6	4.8	4.2	4.3	4.9	3.5	3.9	3.0	4.5	4.8	55.2
AL	Coastal Plain	6.1	5.3	6.8	4.5	4.7	5.0	6.0	4.4	4.3	2.9	4.8	4.8	59.7
AL	Gulf	6.0	5.2	6.8	4.6	5.5	5.3	7.8	6.4	5.8	3.6	5.1	4.5	66.6
AR	Northwest	2.4	2.7	4.4	4.4	5.2	4.8	3.2	3.2	4.5	3.7	5.0	3.7	47.3
AR	North Central	2.9	3.1	4.6	4.4	4.9	3.9	3.0	2.9	4.0	3.7	5.3	4.1	46.7
AR	Northeast	3.5	3.5	4.8	4.8	5.0	3.7	3.2	2.9	3.5	3.8	5.3	4.6	48.6
AR	West Central	2.9	3.1	4.5	4.4	5.6	4.5	3.5	2.7	4.0	4.3	5.3	4.2	48.8
AR	Central	3.6	3.6	5.0	5.1	5.4	4.4	3.7	2.9	3.8	4.4	5.8	5.0	52.7
AR	East Central	4.0	3.9	5.2	5.3	5.2	4.1	3.4	2.5	3.2	3.8	5.2	5.0	50.8
AR	Southwest	3.8	3.8	5.1	4.8	5.3	4.8	4.0	2.9	4.2	4.8	5.8	5.2	54.4
AR	South Central	4.6	4.1	5.3	4.9	5.1	4.7	3.9	3.0	3.5	4.5	5.4	5.2	54.2
AR	Southeast	5.1	4.7	5.6	5.3	5.0	4.1	3.9	3.0	3.1	4.1	5.2	5.5	54.6
AZ	Northwest	1.1	1.1	1.2	0.4	0.3	0.2	0.8	1.1	0.7	0.7	0.7	0.6	8.9
AZ	Northeast	1.5	1.4	1.6	0.8	0.6	0.4	1.9	2.3	1.6	1.5	1.2	1.2	15.8
AZ	North Central	1.7	1.9	1.9	0.7	0.5	0.3	1.8	2.5	1.7	1.2	1.2	1.3	16.8
AZ	East Central	2.1	2.1	2.3	0.7	0.5	0.3	2.1	2.6	1.6	1.8	1.6	1.9	19.4
AZ	Southwest	0.6	0.6	0.5	0.2	0.1	0.0	0.4	0.8	0.6	0.4	0.3	0.5	5.1
AZ	South Central	1.2	1.2	1.4	0.4	0.2	0.1	1.1	1.5	0.9	1.0	0.9	1.2	11.1
AZ	Southeast	1.2	1.1	1.0	0.4	0.3	0.5	2.9	3.0	1.6	1.4	0.9	1.4	15.6
CA	North Coast	7.5	6.8	6.0	2.6	1.5	0.6	0.2	0.4	0.9	2.4	5.8	6.6	41.3
CA	Sacramento Basin	6.9	6.4	5.8	2.5	1.6	0.7	0.2	0.3	0.9	2.1	4.8	5.4	37.4
CA	Northeast Interior	3.6	3.6	3.2	1.3	1.2	0.7	0.5	0.5	0.8	1.4	2.8	3.0	22.6
CA	Central Coast	4.5	4.2	3.6	1.3	0.5	0.1	0.1	0.1	0.3	1.1	2.6	3.0	21.4
CA	San Joaquin	3.9	3.7	3.6	1.5	0.8	0.3	0.1	0.1	0.5	1.1	2.3	2.6	20.3
CA	South Coast	3.5	3.8	3.4	1.0	0.4	0.1	0.1	0.2	0.4	0.6	1.4	2.1	16.9
CA	Southeast Desert	1.3	1.4	1.2	0.3	0.2	0.1	0.3	0.5	0.4	0.3	0.5	0.9	7.3
CO	Arkansas Basin	0.5	0.5	1.1	1.4	2.0	1.6	2.4	2.3	1.2	0.9	0.8	0.5	15.2
CO	Colorado Basin	1.3	1.2	1.5	1.4	1.5	0.9	1.5	1.6	1.5	1.6	1.4	1.2	16.4
CO	Kansas Basin	0.4	0.4	1.1	1.6	3.1	2.6	2.9	2.2	1.1	0.9	0.7	0.4	17.3
CO	Platte Basin	0.5	0.5	1.3	1.9	2.4	1.9	2.1	1.9	1.4	1.0	0.9	0.6	16.4
CO	Rio Grande Basin	0.7	0.7	1.2	0.9	1.0	0.8	1.7	2.1	1.5	1.3	1.0	0.7	13.7
CT	Northwest	4.0	3.1	4.2	4.2	4.5	4.2	4.6	4.5	4.4	4.2	4.3	4.0	50.1
CT	Central	4.4	3.3	4.5	4.3	4.3	4.1	4.2	4.4	4.4	4.4	4.5	4.1	51.0
CT	Coastal	4.2	3.2	4.4	4.3	4.3	3.9	3.7	4.1	4.1	4.0	4.2	4.0	48.3
DE	Northern	3.7	2.8	4.1	3.6	4.4	3.9	4.5	3.7	4.3	3.4	3.4	3.6	45.5
DE	Southern	4.0	3.2	4.4	3.5	4.1	3.4	3.9	4.9	4.2	3.4	3.3	3.5	45.7
FL	Panhandle	5.7	4.7	6.3	3.8	4.3	6.1	8.0	6.7	5.7	3.5	4.2	4.1	63.1
FL	North	4.2	3.4	4.5	3.1	3.3	6.2	6.7	7.2	5.8	3.3	2.6	3.0	53.4
FL	North Central	3.2	2.9	4.0	2.6	3.6	6.9	6.9	7.1	6.2	3.0	2.6	2.6	51.6
FL	South Central	2.6	2.7	3.3	2.2	3.7	7.0	7.2	7.5	6.8	3.3	2.4	2.3	51.1
FL	Southwest, Everglades	2.2	2.0	2.6	2.3	4.3	8.3	7.3	7.7	7.1	3.5	2.3	1.7	51.3
FL	Lower East Coast	2.6	2.4	2.9	3.3	5.7	8.5	6.1	7.7	8.2	5.8	4.0	2.4	59.7
FL	Keys	2.4	1.7	2.1	2.0	3.5	5.6	3.4	5.3	6.1	4.9	2.7	2.1	41.7

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
GA	Northwest	5.4	4.9	6.1	4.5	4.2	4.2	4.4	3.8	4.1	3.2	4.5	4.5	53.8
GA	North Central	5.8	5.0	6.1	4.2	4.6	4.2	4.6	4.3	4.2	3.8	4.5	4.5	55.7
GA	Northeast	6.0	5.2	6.0	4.1	4.9	4.4	4.7	4.8	4.2	4.1	4.5	4.8	57.4
GA	West Central	5.2	4.9	5.8	4.1	3.7	3.8	4.9	3.9	3.3	2.8	4.0	4.5	50.8
GA	Central	5.1	4.5	5.1	3.4	3.1	3.8	4.6	4.1	3.5	2.7	3.4	3.8	47.0
GA	East Central	4.8	4.1	4.7	3.1	3.1	4.4	4.7	5.0	3.7	3.0	2.9	3.5	47.1
GA	Southwest	5.7	4.9	5.7	3.7	3.7	4.8	5.9	4.2	3.7	2.6	3.7	4.0	52.5
GA	South Central	5.3	4.3	5.1	3.4	3.2	4.8	5.3	4.9	3.8	2.6	3.1	3.7	49.5
GA	Southeast	4.3	3.6	4.1	3.0	3.2	5.4	5.7	6.4	4.8	3.2	2.6	3.2	49.3
HI	Island of Kauai	6.4	5.0	5.5	5.8	4.4	3.3	4.2	3.6	3.6	5.3	7.1	6.6	60.7
HI	Island of Oahu	6.6	5.3	6.3	6.1	4.5	4.1	4.8	3.8	4.1	5.4	6.8	6.4	64.1
HI	Island of Molokai	5.2	4.8	4.1	4.2	3.0	1.5	1.5	1.4	1.3	2.2	4.0	4.8	37.9
HI	Island of Lania	4.0	3.2	2.4	1.7	1.4	1.0	0.8	0.8	1.2	1.8	2.4	3.2	24.1
HI	Island of Maui	7.4	5.3	7.5	6.7	4.0	3.1	4.2	3.7	3.2	4.2	5.9	5.8	61.0
HI	Island of Hawaii	6.7	5.1	7.8	6.7	4.5	3.9	5.4	4.9	4.7	5.0	7.6	5.8	68.1
IA	Northwest	0.7	0.6	2.0	3.0	3.6	4.5	3.8	4.0	2.8	2.1	1.7	0.8	29.4
IA	North Central	0.9	0.8	2.0	3.3	4.1	4.9	4.3	4.4	3.2	2.4	2.0	1.1	33.3
IA	Northeast	1.1	1.1	2.1	3.4	4.0	4.7	4.2	4.7	3.3	2.4	2.3	1.3	34.7
IA	West Central	0.8	0.8	2.2	3.2	4.2	4.4	4.1	3.7	3.2	2.4	1.7	1.0	31.6
IA	Central	1.0	1.0	2.2	3.3	4.3	5.0	4.3	4.4	3.2	2.6	2.1	1.2	34.6
IA	East Central	1.2	1.2	2.3	3.4	4.2	4.6	4.0	4.5	3.5	2.6	2.5	1.7	35.6
IA	Southwest	0.9	1.0	2.3	3.4	4.6	4.6	4.8	3.9	3.8	2.6	2.1	1.2	35.2
IA	South Central	1.0	1.2	2.3	3.6	4.7	4.5	4.7	4.1	4.0	2.9	2.4	1.3	36.5
IA	Southeast	1.2	1.3	2.6	3.5	4.7	4.3	4.5	4.0	3.9	2.8	2.7	1.8	37.2
ID	Panhandle	3.3	2.7	2.4	2.0	2.4	2.0	1.3	1.2	1.3	1.9	3.8	3.8	28.1
ID	North Central Prairies	2.1	1.8	2.2	2.5	3.0	2.1	1.4	1.2	1.4	1.7	2.5	2.2	24.2
ID	North Central Canyons	2.4	1.9	2.3	2.3	2.7	2.0	1.2	1.0	1.4	1.7	2.7	2.4	23.8
ID	Central Mountains	3.2	2.6	2.4	2.0	2.3	1.9	1.1	1.0	1.3	1.7	3.0	3.3	25.6
ID	Southwestern Valleys	1.6	1.3	1.4	1.2	1.2	0.8	0.4	0.3	0.7	0.8	1.6	1.6	13.0
ID	Southwestern Highlands	1.4	1.1	1.3	1.3	1.7	1.2	0.5	0.5	0.8	1.0	1.4	1.2	13.2
ID	Central Plains	1.3	1.0	1.1	0.9	1.2	0.8	0.3	0.4	0.6	0.7	1.2	1.2	10.6
ID	Northeastern Valleys	0.7	0.5	0.7	0.8	1.4	1.3	1.0	0.8	0.8	0.6	0.7	0.8	10.0
ID	Upper Snake River Plains	1.0	0.9	1.1	1.1	1.6	1.2	0.8	0.7	0.8	0.9	1.0	1.0	12.2
ID	Eastern Highlands	1.5	1.3	1.4	1.4	2.2	1.3	1.1	1.1	1.3	1.3	1.4	1.4	16.6
IL	Northwest	1.4	1.4	2.6	3.6	4.1	4.5	3.7	4.4	3.4	2.7	2.7	2.1	36.6
IL	Northeast	1.8	1.5	2.6	3.7	3.9	4.2	3.9	4.2	3.4	2.7	3.0	2.4	37.1
IL	West	1.4	1.7	2.9	3.7	4.6	3.9	4.2	3.6	3.7	2.9	3.0	2.3	37.9
IL	Central	1.7	1.7	3.0	3.5	4.3	4.0	4.0	3.6	3.2	2.8	3.1	2.6	37.4
IL	East	1.8	1.7	3.0	3.6	4.2	4.2	4.3	3.8	3.0	2.8	3.2	2.6	38.3
IL	West Southwest	1.8	2.0	3.3	3.8	4.3	3.9	3.6	3.2	3.1	2.8	3.5	2.8	38.0
IL	East Southwest	2.3	2.3	3.6	3.9	4.3	4.1	4.2	3.5	3.1	3.0	3.9	3.1	41.3
IL	Southwest	2.7	2.8	4.1	4.2	4.5	4.1	3.8	3.4	3.2	3.2	4.3	3.5	43.9
IL	Southeast	3.1	3.1	4.4	4.7	4.9	4.1	3.9	3.3	3.1	3.1	4.4	3.8	45.8
IN	Northwest	1.9	1.7	2.9	3.6	3.9	4.5	3.9	3.8	3.5	3.0	3.3	2.7	38.7
IN	North Central	2.1	1.8	2.7	3.5	3.9	4.2	3.9	3.9	3.4	2.9	3.2	2.8	38.5
IN	Northeast	2.0	1.8	2.7	3.5	3.8	4.2	3.7	3.8	3.3	2.7	3.1	2.7	37.3
IN	West Central	2.2	2.1	3.3	3.8	4.5	4.4	4.4	4.1	3.1	2.9	3.6	2.9	41.2
IN	Central	2.3	2.3	3.3	3.9	4.5	4.1	4.4	3.8	3.0	2.9	3.7	3.0	41.1
IN	East Central	2.2	2.1	3.0	3.8	4.3	4.4	4.3	3.6	2.8	2.7	3.3	2.8	39.4
IN	Southwest	3.0	3.0	4.2	4.5	5.2	4.1	4.4	3.8	3.2	3.1	4.3	3.6	46.3
IN	South Central	3.2	3.0	4.2	4.6	5.1	4.2	4.4	4.1	3.3	3.1	4.1	3.7	46.9
IN	Southeast	3.1	2.9	4.1	4.3	4.9	4.2	4.2	4.2	3.0	3.1	3.7	3.6	45.1
KS	Northwest	0.5	0.6	1.5	2.1	3.7	3.1	3.4	2.7	1.5	1.3	1.0	0.5	21.7
KS	North Central	0.7	0.7	2.2	2.5	4.2	3.5	3.9	3.3	2.5	1.9	1.5	0.8	27.5
KS	Northeast	0.9	1.0	2.5	3.2	5.0	4.8	4.4	3.8	4.2	2.9	2.3	1.3	36.3
KS	West Central	0.5	0.6	1.6	1.8	3.3	2.7	3.4	2.6	1.5	1.2	1.0	0.5	20.7
KS	Central	0.7	0.9	2.4	2.6	4.4	3.8	3.8	3.4	2.5	2.2	1.6	0.9	29.4
KS	East Central	1.1	1.2	2.8	3.4	5.1	5.1	3.9	3.7	4.0	3.1	2.6	1.5	37.5

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
KS	Southwest	0.5	0.5	1.5	1.7	3.1	2.9	2.9	2.5	1.6	1.3	0.9	0.5	19.8
KS	South Central	0.8	1.0	2.5	2.6	4.1	4.0	3.4	3.0	2.6	2.2	1.6	1.0	28.7
KS	Southeast	1.3	1.6	3.2	3.6	5.2	5.2	3.9	3.7	4.1	3.7	3.1	1.9	40.6
KY	Western	3.7	4.1	4.6	4.7	5.0	4.0	4.3	3.3	3.5	3.3	4.6	4.6	49.6
KY	Central	3.9	4.0	4.9	4.2	5.3	4.5	4.5	3.7	3.8	3.2	4.3	4.8	51.0
KY	Blue Grass	3.4	3.3	4.3	3.9	4.9	4.5	4.5	3.8	3.3	3.0	3.5	3.9	46.2
KY	Eastern	4.0	3.7	4.6	3.9	5.0	4.4	4.6	4.0	3.5	3.0	3.9	4.3	48.9
LA	Northwest	5.0	4.4	4.6	4.6	5.0	4.9	3.9	2.9	3.4	4.4	4.9	4.8	52.9
LA	North Central	5.8	4.8	5.6	5.1	5.5	4.8	3.9	3.1	3.7	4.2	4.9	5.5	56.8
LA	Northeast	6.0	5.0	6.2	5.7	5.6	4.4	3.8	3.0	3.1	4.0	5.1	5.8	57.6
LA	West Central	5.7	4.5	5.2	4.5	5.6	4.7	4.1	3.5	3.7	4.1	4.9	5.8	56.2
LA	Central	6.3	4.8	5.6	5.1	5.6	4.8	4.6	4.1	4.3	4.4	5.6	5.9	61.0
LA	East Central	6.3	5.3	6.0	5.6	5.6	5.1	6.0	5.5	4.8	3.6	5.0	5.2	64.1
LA	Southwest	6.0	4.0	4.4	4.2	5.7	5.9	5.9	5.2	5.5	4.3	5.2	5.4	61.6
LA	South Central	5.8	4.3	4.7	4.8	5.1	6.2	6.8	6.2	5.6	3.9	4.7	5.1	63.2
LA	Southeast	5.8	4.9	5.5	4.7	5.1	5.9	7.0	6.3	6.2	3.4	4.9	4.7	64.3
MA	Western	4.0	3.2	4.0	4.1	4.8	4.4	4.5	4.6	4.2	4.3	4.4	3.9	50.4
MA	Central	4.2	3.2	4.1	4.1	3.8	3.8	3.8	4.0	3.9	4.2	4.3	4.0	47.3
MA	Coastal	4.3	3.6	4.3	4.2	3.6	3.5	3.4	3.8	3.9	4.1	4.4	4.3	47.2
MD	Southern Eastern Shore	4.0	3.4	4.5	3.3	3.6	3.4	4.3	4.7	3.8	3.4	3.2	3.4	44.9
MD	Central Eastern Shore	4.0	3.3	4.3	3.4	3.9	3.6	4.2	4.3	3.8	3.2	3.3	3.5	44.7
MD	Lower Southern	3.7	3.0	4.3	3.2	4.1	3.8	4.2	4.1	4.2	3.5	3.3	3.3	44.8
MD	Upper Southern	3.6	2.9	4.0	3.3	4.4	3.7	4.1	4.0	4.2	3.5	3.4	3.4	44.5
MD	Northern Eastern Shore	3.7	3.0	4.1	3.4	4.2	3.9	4.1	3.9	4.3	3.4	3.3	3.6	44.7
MD	Northern Central	3.6	2.9	4.0	3.5	4.6	4.1	4.0	3.8	4.3	3.5	3.6	3.5	45.5
MD	Appalachian Mountain	3.1	2.6	3.4	3.4	4.2	3.5	3.6	3.5	3.5	3.1	3.3	2.9	40.1
MD	Allegheny Plateau	3.6	3.1	3.9	3.8	4.5	4.2	4.9	3.9	3.6	3.0	3.6	3.6	45.7
ME	Northern	3.1	2.1	2.8	3.0	3.4	3.8	3.9	3.8	3.6	3.4	3.4	3.1	39.4
ME	Southern Interior	3.7	2.7	3.8	3.8	3.8	3.8	3.6	3.5	3.7	3.9	4.1	3.8	44.3
ME	Coastal	4.4	3.4	4.5	4.4	4.1	3.6	3.4	3.1	4.0	4.4	4.9	4.5	48.6
MI	West Upper	2.2	1.4	2.2	2.2	3.0	3.4	3.5	3.5	3.6	3.0	2.7	2.2	32.9
MI	East Upper	2.2	1.3	2.0	2.2	2.6	3.0	3.2	3.3	3.6	3.1	2.8	2.3	31.7
MI	Northwest Lower	2.2	1.4	2.0	2.5	2.6	2.9	2.9	3.5	3.8	3.1	2.7	2.2	32.0
MI	Northeast Lower	1.9	1.3	2.0	2.4	2.7	2.8	3.1	3.6	3.4	2.7	2.3	2.0	30.2
MI	West Central Lower	2.1	1.5	2.4	3.0	2.9	3.1	2.7	4.1	3.7	3.3	3.2	2.4	34.1
MI	Central Lower	1.9	1.4	2.3	2.9	3.0	3.2	2.7	3.9	3.8	2.8	2.7	2.1	32.7
MI	East Central Lower	1.9	1.5	2.3	2.8	2.9	3.1	2.8	3.5	3.9	2.6	2.7	2.1	32.1
MI	Southwest Lower	2.3	1.7	2.5	3.4	3.4	3.6	3.6	3.7	4.1	3.0	3.4	2.9	37.6
MI	South Central Lower	1.8	1.5	2.4	3.2	3.2	3.5	3.3	3.7	3.7	2.7	2.8	2.3	34.0
MI	Southeast Lower	1.9	1.7	2.4	3.1	3.0	3.4	3.1	3.4	3.4	2.4	2.8	2.4	32.9
MN	Northwest	0.7	0.5	0.9	1.4	2.6	3.9	3.5	3.1	2.6	2.0	1.1	0.6	22.9
MN	North Central	0.8	0.6	1.1	1.6	2.8	4.1	4.1	3.6	3.0	2.4	1.4	0.7	26.2
MN	Northeast	1.0	0.7	1.3	1.8	2.8	4.1	4.2	3.8	3.6	2.6	1.8	0.9	28.6
MN	West Central	0.9	0.7	1.5	2.0	2.9	3.9	3.6	3.1	2.3	2.2	1.3	0.6	24.7
MN	Central	0.9	0.7	1.7	2.3	3.3	4.5	3.9	3.9	2.8	2.3	1.7	0.8	28.6
MN	East Central	1.0	0.7	1.6	2.2	3.3	4.4	4.4	4.1	3.2	2.5	1.9	0.9	30.2
MN	Southwest	0.7	0.6	1.9	2.6	3.3	4.1	3.5	3.3	2.6	2.0	1.6	0.7	26.9
MN	South Central	0.9	0.7	2.0	2.9	3.7	4.5	4.1	4.1	2.9	2.3	1.9	1.0	31.0
MN	Southeast	1.1	0.8	2.0	3.2	3.8	4.3	4.5	4.6	3.5	2.3	2.2	1.1	33.4
MO	Northwest Prairie	1.2	1.4	2.7	3.5	4.9	4.4	4.5	3.8	4.4	3.2	2.7	1.8	38.4
MO	Northeast Prairie	1.8	2.0	3.2	3.8	4.7	3.9	4.0	3.5	3.5	3.0	3.5	2.6	39.4
MO	West Central Plains	1.7	2.0	3.3	4.1	5.1	4.6	3.9	3.7	4.2	3.7	3.6	2.4	42.3
MO	West Ozarks	2.1	2.3	3.9	4.3	4.8	4.8	3.6	3.4	4.7	3.7	4.5	3.1	45.0
MO	East Ozarks	2.6	2.7	4.2	4.4	4.7	3.9	3.8	3.6	3.6	3.3	4.6	3.6	45.0
MO	Bootheel	3.3	3.6	4.7	4.8	4.8	4.1	3.9	3.0	3.2	3.5	4.8	4.4	48.1
MS	Upper Delta	4.9	4.5	5.7	5.5	5.5	5.0	4.1	2.6	3.0	3.3	5.5	5.6	55.1
MS	North Central	5.1	4.5	5.9	5.5	5.5	4.9	4.3	3.3	3.6	3.5	5.3	5.8	57.0

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
MS	Northeast	5.3	4.7	6.3	5.3	5.8	4.5	4.3	3.2	3.9	3.4	5.4	6.2	58.4
MS	Lower Delta	5.7	4.7	6.2	5.7	5.6	4.3	4.4	2.7	3.1	3.7	5.3	5.9	57.2
MS	Central	5.9	5.0	6.3	5.8	5.2	4.0	4.6	3.4	3.5	3.6	5.3	5.8	58.3
MS	East Central	5.9	5.0	6.3	5.7	5.1	4.3	4.5	3.3	3.6	3.4	5.1	5.3	57.5
MS	Southwest	6.4	5.2	6.5	6.0	5.4	4.7	4.5	4.0	3.8	3.6	5.1	6.0	61.4
MS	South Central	6.5	5.3	6.5	5.9	5.6	4.6	5.3	4.5	4.1	3.5	5.0	5.7	62.5
MS	Southeast	6.4	5.0	6.6	5.4	4.9	4.1	5.4	3.9	4.1	3.3	5.0	5.1	59.1
MS	Coastal	6.3	5.6	6.5	5.1	5.7	4.9	6.9	5.7	5.7	3.2	5.0	5.0	65.7
MT	Western	1.9	1.4	1.3	1.4	2.2	2.2	1.4	1.3	1.3	1.3	2.0	2.0	19.6
MT	Southwestern	0.8	0.7	1.1	1.4	2.4	2.3	1.5	1.4	1.4	1.1	0.9	0.8	15.8
MT	North Central	0.5	0.4	0.7	1.0	2.3	2.5	1.6	1.5	1.3	0.7	0.6	0.5	13.5
MT	Central	0.7	0.5	0.9	1.3	2.6	2.4	1.8	1.6	1.3	0.9	0.6	0.7	15.1
MT	South Central	0.8	0.6	1.2	1.8	2.7	2.3	1.5	1.2	1.5	1.4	0.9	0.8	16.6
MT	Northeastern	0.4	0.3	0.5	1.0	2.0	2.6	2.1	1.3	1.3	0.8	0.4	0.4	13.1
MT	Southeastern	0.5	0.4	0.7	1.4	2.3	2.5	1.6	1.1	1.3	1.2	0.6	0.5	14.2
NC	Southern Mountains	5.1	4.6	5.7	4.3	5.0	4.7	4.5	4.6	4.2	3.6	4.4	4.3	54.8
NC	Northern Mountains	4.4	4.0	5.2	4.5	5.1	4.9	4.7	4.4	4.6	3.9	4.1	3.7	53.2
NC	Northern Piedmont	4.1	3.4	4.4	3.4	4.2	3.9	4.5	4.3	4.3	3.7	3.2	3.3	46.6
NC	Central Piedmont	4.2	3.6	4.5	3.3	4.1	4.1	4.2	3.9	4.2	3.6	3.3	3.3	46.2
NC	Southern Piedmont	4.5	3.7	4.7	3.2	3.9	4.1	4.7	4.1	4.2	3.9	3.4	3.4	47.8
NC	Southern Coastal Plains	4.5	3.6	4.4	3.1	4.0	4.8	6.3	6.1	5.7	3.3	3.1	3.5	52.4
NC	Central Coastal Plains	4.6	3.5	4.3	3.2	4.2	4.4	5.6	6.0	5.4	3.6	3.2	3.6	51.6
NC	Northern Central Plains	4.5	3.4	4.5	3.2	4.1	4.2	5.1	5.2	4.9	3.7	3.3	3.4	49.5
ND	Northwest	0.5	0.5	0.8	1.3	2.1	2.9	2.6	1.8	1.7	1.1	0.6	0.5	16.3
ND	North Central	0.5	0.5	0.8	1.3	2.2	3.2	2.9	2.2	1.8	1.4	0.7	0.5	17.8
ND	Northeast	0.6	0.5	0.8	1.1	2.2	3.3	3.1	2.6	1.9	1.5	0.9	0.5	19.0
ND	West Central	0.4	0.4	0.7	1.4	2.2	3.2	2.5	1.7	1.6	1.3	0.7	0.4	16.6
ND	Central	0.5	0.4	0.8	1.4	2.2	3.3	3.0	2.3	1.8	1.5	0.7	0.4	18.3
ND	East Central	0.6	0.5	1.0	1.4	2.5	3.4	3.1	2.6	2.1	1.8	1.0	0.5	20.6
ND	Southwest	0.4	0.4	0.7	1.5	2.4	3.1	2.1	1.5	1.5	1.3	0.6	0.4	15.8
ND	South Central	0.4	0.4	0.8	1.6	2.4	3.0	2.6	2.0	1.5	1.3	0.6	0.4	16.9
ND	Southeast	0.6	0.5	1.1	1.7	2.7	3.4	3.0	2.3	2.0	1.7	0.9	0.4	20.4
NE	Panhandle	0.4	0.4	1.1	1.9	3.1	2.7	2.4	1.7	1.4	1.1	0.6	0.4	17.2
NE	North Central	0.5	0.6	1.5	2.3	3.6	3.4	3.3	2.5	2.1	1.5	1.0	0.5	22.7
NE	Northeast	0.5	0.7	2.0	2.8	4.1	4.0	3.4	3.0	2.4	1.9	1.5	0.7	27.1
NE	Central	0.5	0.6	1.9	2.6	3.9	3.8	3.4	2.8	2.1	1.5	1.3	0.6	24.9
NE	East Central	0.7	0.7	2.2	2.9	4.5	4.1	3.6	3.4	2.9	2.1	1.7	0.9	29.6
NE	Southwest	0.5	0.5	1.3	2.0	3.3	3.2	3.0	2.4	1.4	1.3	0.9	0.4	20.2
NE	South Central	0.5	0.6	1.9	2.3	4.1	3.4	3.7	3.1	2.1	1.5	1.3	0.5	24.8
NE	Southeast	0.7	0.8	2.4	2.9	4.4	3.9	4.3	3.5	3.2	2.2	1.8	0.9	31.0
NH	Northern	3.1	2.2	2.9	3.2	3.7	4.2	4.1	4.3	3.8	3.8	3.7	3.1	42.2
NH	Southern	3.6	2.8	3.6	3.7	3.8	3.7	3.9	3.8	3.6	4.0	4.0	3.6	44.0
NJ	Northern	4.0	3.0	4.1	4.2	4.7	4.3	4.7	4.4	4.7	3.8	4.1	3.8	49.8
NJ	Southern	3.9	3.0	4.2	3.8	4.1	3.5	4.4	4.8	3.9	3.4	3.5	3.7	46.0
NJ	Coastal	3.8	3.0	4.0	3.6	3.8	3.0	3.9	4.3	3.4	3.3	3.3	3.5	43.0
NM	Northwest Plateau	0.9	0.8	1.0	0.7	0.7	0.5	1.4	1.8	1.2	1.2	1.0	0.8	11.9
NM	Northern Mountains	0.8	0.7	1.1	1.0	1.5	1.4	2.5	2.9	1.7	1.3	1.0	0.7	16.8
NM	Northern Plains	0.4	0.4	0.7	1.0	1.9	2.2	2.8	3.0	1.9	1.3	0.7	0.5	16.8
NM	Southwest Mountains	0.8	0.7	0.7	0.4	0.7	0.7	2.6	3.0	1.9	1.5	0.8	0.9	14.5
NM	Central Valley	0.5	0.4	0.5	0.4	0.6	0.7	1.7	2.1	1.5	1.2	0.7	0.6	10.8
NM	Central Highlands	1.0	0.9	0.9	0.7	1.2	1.4	2.9	3.4	2.2	1.6	1.0	1.2	18.4
NM	Southeast Plains	0.4	0.5	0.4	0.6	1.5	1.8	2.1	2.6	2.5	1.3	0.7	0.6	15.0
NM	Southern Desert	0.7	0.6	0.5	0.2	0.5	0.7	2.2	2.4	1.6	1.3	0.8	1.1	12.5
NV	Northwestern	1.1	1.0	1.1	0.7	0.9	0.7	0.3	0.4	0.5	0.6	0.9	1.0	9.1
NV	Northeastern	1.1	0.9	1.2	1.1	1.5	0.9	0.5	0.6	0.9	1.0	1.0	0.9	11.7
NV	South Central	0.7	0.8	1.1	0.7	0.8	0.5	0.7	0.9	0.8	0.8	0.6	0.5	8.6
NV	Extreme Southern	0.8	0.9	0.9	0.3	0.3	0.1	0.5	0.7	0.5	0.4	0.4	0.5	6.3

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
NY	Western Plateau	2.5	2.1	2.9	3.2	3.4	4.5	3.8	3.6	4.0	3.3	3.4	2.9	39.5
NY	Eastern Plateau	3.1	2.6	3.5	3.8	4.1	4.3	3.9	3.7	4.1	3.6	3.9	3.4	43.9
NY	Northern Plateau	3.6	2.7	3.3	3.4	3.8	4.0	4.2	4.3	4.6	3.9	4.3	3.8	45.8
NY	Coastal	4.2	3.2	4.3	4.2	4.3	3.8	3.9	4.1	4.0	3.7	4.1	3.9	47.7
NY	Hudson Valley	3.3	2.6	3.6	3.8	4.4	4.1	4.2	4.1	4.0	3.6	3.8	3.3	44.6
NY	Mohawk Valley	3.4	2.7	3.5	3.7	3.9	4.3	4.2	4.1	4.7	3.7	4.2	3.6	45.9
NY	Champlain Valley	2.5	1.9	2.4	2.9	3.1	3.3	3.6	4.0	3.5	3.0	3.2	2.5	35.9
NY	St. Lawrence Valley	2.5	2.1	2.4	2.9	3.0	3.5	3.7	4.1	4.1	3.2	3.4	2.8	37.7
NY	Great Lakes	2.9	2.3	2.8	3.2	3.2	3.7	3.3	3.7	4.2	3.4	3.8	3.3	39.7
NY	Central Lakes	2.1	1.9	2.5	3.1	3.2	3.9	3.5	3.4	4.0	3.1	3.2	2.6	36.4
OH	Northwest	2.0	1.8	2.6	3.3	3.6	3.9	3.6	3.5	2.9	2.4	2.9	2.6	35.2
OH	North Central	2.1	1.9	2.6	3.3	3.7	4.0	3.7	3.7	3.2	2.4	3.0	2.7	36.3
OH	Northeast	2.4	2.1	3.0	3.4	3.6	4.0	3.9	3.7	4.0	3.0	3.5	3.2	39.8
OH	West Central	2.3	2.1	2.8	3.5	4.0	4.2	4.3	3.6	2.8	2.5	3.1	2.8	37.9
OH	Central	2.5	2.2	2.8	3.5	4.2	4.2	4.2	3.8	2.9	2.6	3.1	2.9	38.7
OH	Central Hills	2.5	2.2	3.0	3.6	4.1	4.3	4.1	4.0	3.3	2.6	3.2	2.9	39.7
OH	Northeast Hills	2.7	2.3	3.2	3.3	4.1	4.2	4.2	3.8	3.3	2.5	3.2	3.0	39.8
OH	Southwest	2.8	2.6	3.6	4.0	4.7	4.2	4.1	3.8	2.9	2.9	3.4	3.2	42.3
OH	South Central	2.9	2.8	3.7	3.4	4.3	3.9	4.3	4.0	2.9	2.6	3.1	3.2	41.0
OH	Southeast	2.8	2.6	3.3	3.4	4.2	4.2	4.4	3.9	3.1	2.6	3.2	3.0	40.9
OK	Panhandle	0.5	0.6	1.6	1.9	3.3	2.9	2.6	2.5	1.9	1.5	1.0	0.7	21.0
OK	North Central	1.0	1.3	2.7	3.0	4.7	4.0	3.0	3.1	3.1	2.7	2.1	1.3	32.0
OK	Northeast	1.7	2.1	3.7	4.1	5.4	4.7	3.2	3.1	4.9	3.7	3.8	2.5	42.8
OK	West Central	0.9	1.2	2.4	2.6	4.8	3.9	2.2	2.7	3.1	2.6	1.8	1.2	29.2
OK	Central	1.4	1.8	3.1	3.5	5.5	4.5	2.6	2.6	4.0	3.6	2.7	2.0	37.3
OK	East Central	2.2	2.5	4.1	4.3	5.8	4.8	3.0	2.9	4.9	4.3	4.4	3.1	46.1
OK	Southwest	1.1	1.4	2.2	2.6	4.9	4.1	2.2	2.7	3.4	3.0	1.7	1.4	30.8
OK	South Central	1.8	2.2	3.4	3.6	5.5	4.5	2.5	2.5	4.2	4.1	2.9	2.4	39.7
OK	Southeast	2.8	3.1	4.4	4.5	6.4	4.7	3.6	2.7	4.5	5.1	4.9	4.1	50.8
OR	Coastal Area	11.4	9.7	8.9	5.7	3.8	2.3	0.8	1.1	2.4	5.3	11.7	12.4	75.5
OR	Willamette Valley	7.5	6.4	5.6	4.2	3.1	2.1	0.8	1.0	2.0	3.8	8.1	8.2	52.8
OR	Southwestern Valleys	5.6	4.7	4.3	2.9	2.1	1.1	0.5	0.7	1.2	2.7	6.0	6.1	38.0
OR	Northern Cascades	10.6	9.0	7.6	6.0	4.3	2.9	1.1	1.3	2.7	5.3	11.6	11.9	74.3
OR	High Plateau	3.6	3.0	2.6	1.7	1.5	1.1	0.7	0.8	0.9	1.5	3.5	3.6	24.4
OR	North Central	2.1	1.7	1.5	1.2	1.2	0.8	0.4	0.5	0.7	1.1	2.2	2.2	15.6
OR	South Central	1.5	1.1	1.2	1.0	1.2	0.8	0.5	0.6	0.6	0.8	1.5	1.4	12.3
OR	Northeast	2.0	1.6	1.6	1.5	1.8	1.5	0.8	0.9	0.9	1.1	2.2	2.1	17.9
OR	Southeast	1.2	1.0	1.1	1.0	1.2	0.9	0.5	0.5	0.5	0.7	1.1	1.3	10.8
PA	Pocono Mountains	3.4	2.7	3.4	3.9	4.4	4.5	4.1	3.9	4.5	3.6	3.9	3.3	45.6
PA	East Central Mountians	3.6	2.8	3.7	3.7	4.7	4.4	4.4	4.3	4.5	3.6	3.9	3.6	47.1
PA	Southeastern Piedmont	3.7	2.8	3.8	3.7	4.5	4.0	4.5	3.8	4.3	3.4	3.6	3.4	45.4
PA	Lower Susquehanna	3.4	2.8	3.6	3.5	4.3	4.0	3.6	3.4	4.1	3.2	3.4	3.2	42.4
PA	Middle Susquehanna	3.0	2.6	3.3	3.4	4.0	4.5	3.9	3.5	4.1	3.2	3.5	3.0	42.2
PA	Upper Susquehanna	2.7	2.3	2.9	3.3	3.5	4.3	3.6	3.3	3.7	3.1	3.3	2.8	38.8
PA	Central Mountains	2.6	2.4	3.2	3.3	3.8	4.8	4.1	3.8	3.9	3.0	3.5	2.8	41.2
PA	South Central Mountains	3.0	2.7	3.6	3.6	4.2	4.1	4.1	3.4	3.7	3.1	3.6	2.9	41.9
PA	Southwest Plateau	3.0	2.7	3.6	3.6	4.2	4.3	4.4	3.9	3.8	2.8	3.5	3.2	42.9
PA	Northwest Plateau	2.8	2.4	3.3	3.6	3.8	5.0	4.3	4.2	4.4	3.3	3.7	3.5	44.3
PR	North Coastal	3.9	3.1	2.8	4.5	6.1	4.0	4.6	5.9	5.8	6.0	6.4	5.2	58.1
PR	South Coastal	1.2	1.2	1.4	1.9	3.6	2.0	2.1	3.8	6.0	6.2	4.2	1.4	34.8
PR	Northern Slopes	3.6	3.2	3.0	4.5	6.9	5.0	5.0	6.4	6.4	6.9	6.3	4.9	61.9
PR	Southern Slopes	2.4	2.4	2.5	3.4	6.2	4.2	5.1	6.6	8.7	8.7	6.3	2.9	59.3
PR	Eastern Interior	5.1	4.5	4.3	5.0	8.1	6.1	7.0	8.6	9.6	9.2	9.4	6.4	83.2
PR	Western Interior	3.2	3.1	3.7	6.0	9.1	5.5	5.5	7.9	11.0	10.9	6.6	3.6	76.0
RI	State	4.5	3.6	4.7	4.3	3.7	3.5	3.2	4.0	3.8	3.8	4.6	4.4	48.0
SC	Mountain	6.5	5.4	7.1	5.1	6.2	6.1	6.2	5.5	5.5	5.1	6.0	5.6	70.2
SC	Northwest	5.0	4.4	5.4	3.6	4.3	4.0	4.3	4.3	4.2	4.0	4.1	4.2	51.8
SC	North Central	4.7	3.8	4.7	3.2	3.4	4.3	4.4	4.4	4.1	3.5	3.3	3.4	47.0

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
SC	Northeast	4.5	3.5	4.3	3.0	3.7	4.6	5.5	5.7	4.8	3.4	2.9	3.7	49.6
SC	West Central	5.0	4.2	5.0	3.2	3.6	4.3	4.5	4.5	3.9	3.4	3.3	3.7	48.4
SC	Central	4.7	3.7	4.4	3.0	3.5	4.9	5.2	5.1	4.2	3.1	2.9	3.5	48.1
SC	Southern	4.3	3.4	4.1	3.0	3.4	5.5	5.5	6.5	5.2	3.2	2.7	3.5	50.4
SD	Northwest	0.4	0.5	1.0	1.8	2.9	3.0	2.3	1.5	1.1	1.5	0.6	0.4	17.0
SD	North Central	0.4	0.5	1.1	1.8	2.7	3.1	2.6	2.1	1.4	1.6	0.7	0.4	18.3
SD	Northeast	0.6	0.5	1.3	1.9	2.7	3.4	3.2	2.7	1.9	1.7	0.9	0.4	21.3
SD	Black Hills	0.7	0.8	1.4	2.5	3.7	3.6	2.8	2.1	1.5	1.8	0.9	0.7	22.5
SD	Southwest	0.4	0.5	1.1	2.0	3.1	3.0	2.3	1.7	1.3	1.5	0.7	0.4	17.9
SD	Central	0.4	0.5	1.3	2.0	2.9	3.1	2.7	2.0	1.5	1.5	0.7	0.4	19.0
SD	East Central	0.5	0.6	1.5	2.2	3.1	3.7	3.1	2.7	2.2	1.8	1.1	0.4	22.9
SD	South Central	0.5	0.6	1.5	2.4	3.6	3.3	3.1	2.0	1.8	1.7	0.9	0.5	21.8
SD	Southeast	0.5	0.6	1.7	2.6	3.6	3.5	3.1	2.8	2.4	1.8	1.2	0.5	24.3
TN	Eastern	4.7	4.2	5.3	4.1	4.9	4.3	4.7	3.7	3.6	2.9	4.1	4.5	51.1
TN	Cumberland Plateau	5.2	4.4	6.0	4.5	5.4	4.7	4.9	4.0	4.0	3.5	5.0	5.5	57.1
TN	Middle	4.6	4.4	5.9	4.5	5.5	4.5	4.6	3.5	4.1	3.5	5.0	5.4	55.3
TN	Western	4.2	4.3	5.3	5.1	5.4	4.5	4.5	3.1	3.7	3.4	5.1	5.4	54.0
TX	High Plains	0.6	0.6	1.0	1.4	2.8	2.9	2.4	2.6	2.4	1.6	0.8	0.7	19.6
TX	Low Rolling Plains	0.9	1.2	1.4	1.9	3.5	3.4	1.9	2.5	3.2	2.4	1.2	1.1	24.5
TX	North Central	1.8	2.4	2.8	3.0	4.8	3.7	2.2	2.2	3.2	4.0	2.7	2.6	35.2
TX	East Texas	3.9	3.5	4.0	3.9	5.0	4.6	3.0	2.8	3.8	4.6	4.6	4.5	48.1
TX	Trans Pecos	0.5	0.5	0.3	0.5	1.2	1.5	1.9	2.1	2.3	1.3	0.5	0.6	13.2
TX	Edwards Plateau	1.0	1.4	1.4	1.8	3.2	3.1	1.9	2.4	3.0	2.7	1.5	1.3	24.7
TX	South Central	2.3	2.2	2.2	2.7	4.5	4.2	2.1	2.9	4.0	4.1	2.8	2.3	36.2
TX	Upper Coast	4.1	3.0	3.2	3.3	5.0	5.4	3.9	4.0	5.9	4.6	4.2	3.7	50.3
TX	Southern	1.1	1.3	1.2	1.8	3.1	3.3	1.6	2.4	3.1	2.8	1.3	1.1	24.1
TX	Lower Valley	1.4	1.5	1.1	1.6	2.6	2.8	1.8	2.5	4.7	3.0	1.4	1.2	25.4
UT	Western	0.6	0.7	0.9	0.9	1.1	0.6	0.7	0.8	0.8	1.0	0.7	0.5	9.2
UT	Dixie	1.6	1.6	2.0	0.9	0.7	0.3	0.9	1.1	0.9	1.0	1.1	0.8	12.9
UT	North Central	1.6	1.6	1.9	1.9	2.2	1.1	0.9	1.0	1.4	1.8	1.5	1.4	18.2
UT	South Central	1.2	1.2	1.4	1.1	1.1	0.6	1.0	1.4	1.2	1.3	1.1	0.9	13.4
UT	Northrn Mountains	2.0	1.9	2.0	1.9	2.0	1.1	1.1	1.2	1.6	1.9	1.9	1.7	20.1
UT	Untia Basin	0.5	0.5	0.6	0.8	1.0	0.6	0.7	0.8	0.9	1.1	0.5	0.4	8.5
UT	Southeast	0.8	0.7	0.9	0.7	0.8	0.4	0.9	1.0	1.0	1.3	0.8	0.6	9.8
VA	Tidewater	4.0	3.3	4.4	3.2	4.0	3.5	4.7	4.4	4.4	3.5	3.1	3.2	45.6
VA	Eastern Piedmont	3.8	3.2	4.2	3.3	4.1	3.6	4.4	3.9	4.0	3.9	3.4	3.2	45.0
VA	Western Piedmont	3.8	3.3	4.2	3.7	4.4	4.0	4.6	3.8	4.4	3.8	3.4	3.3	46.6
VA	Northern	3.2	2.7	3.6	3.2	4.2	3.9	3.9	3.7	4.1	3.6	3.5	3.0	42.4
VA	Central Mountain	3.2	2.7	3.6	3.2	4.1	3.7	4.0	3.4	3.6	3.2	3.2	2.8	40.6
VA	Southwestern Mountain	3.5	3.4	4.1	3.7	4.6	4.1	4.3	3.6	3.5	3.1	3.2	3.3	44.3
VI	St Thomas, St Croix, St John	2.5	1.9	1.8	2.8	3.8	2.5	2.9	4.0	5.8	5.4	6.1	3.5	42.9
VT	Northeastern	3.3	2.4	3.1	3.3	3.9	4.1	4.4	4.7	4.1	3.8	3.8	3.4	44.2
VT	Western	2.5	1.9	2.7	3.0	3.6	3.7	4.1	4.3	3.9	3.4	3.4	2.7	39.0
VT	Southeastern	3.8	2.9	3.9	3.9	4.2	4.0	4.0	4.1	3.8	3.9	4.1	3.8	46.4
WA	West Olympic Coastal	13.9	12.1	10.6	7.1	4.7	3.2	2.0	2.2	3.8	8.6	14.7	15.0	97.8
WA	Northeast Olympic San Juan	3.3	2.3	2.1	1.7	1.7	1.4	0.9	1.0	1.3	2.1	3.8	3.5	25.2
WA	Puget Sound Lowlands	5.6	4.6	4.2	3.2	2.5	2.0	1.2	1.3	2.0	3.7	6.4	6.2	42.7
WA	East Olympic Cascade Foothills	9.0	7.2	6.4	4.8	3.6	2.8	1.5	1.6	2.8	5.4	10.1	9.6	64.8
WA	Cascade Mountains West	13.6	11.0	9.1	6.5	4.5	3.5	1.8	1.9	3.9	7.4	14.8	14.8	92.8
WA	East Slope Cascades	4.9	3.7	2.5	1.4	1.1	1.0	0.5	0.7	1.0	2.0	4.7	5.3	28.8
WA	Okanogan Big Bend	1.4	1.2	1.1	0.9	1.2	1.0	0.7	0.6	0.6	0.7	1.6	1.8	12.6
WA	Central Basin	1.3	1.0	0.9	0.7	0.8	0.6	0.3	0.4	0.5	0.7	1.4	1.5	10.2
WA	Northeastern	2.1	1.8	1.8	1.6	2.1	1.9	1.2	1.1	1.1	1.2	2.5	2.7	21.0
WA	Palouse Blue Mountains	2.1	1.8	1.7	1.5	1.6	1.2	0.7	0.7	0.8	1.3	2.4	2.4	18.2
WI	Northwest	1.1	0.8	1.8	2.4	3.3	4.2	4.3	4.4	3.9	2.6	2.2	1.1	32.0
WI	North Central	1.3	0.9	1.8	2.4	3.3	4.0	4.1	4.4	4.0	2.7	2.3	1.3	32.4
WI	Northeast	1.3	1.0	2.0	2.7	3.3	3.7	3.7	3.8	3.7	2.5	2.3	1.5	31.5

AVERAGE RAINFALL (inches)

State	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
WI	West Central	1.1	0.9	1.9	3.1	3.7	4.2	4.5	4.5	3.8	2.4	2.2	1.1	33.3
WI	Central	1.2	1.0	2.1	3.0	3.5	3.9	4.1	4.2	3.7	2.4	2.3	1.3	32.7
WI	East Central	1.4	1.1	2.1	2.8	3.0	3.5	3.4	3.9	3.4	2.4	2.4	1.6	31.0
WI	Southwest	1.1	1.1	2.1	3.6	3.6	4.4	4.3	4.5	3.4	2.3	2.3	1.3	33.9
WI	South Central	1.3	1.3	2.2	3.5	3.4	4.2	4.1	4.2	3.5	2.5	2.4	1.6	34.1
WI	Southeast	1.6	1.3	2.2	3.5	3.1	3.8	3.8	4.2	3.5	2.5	2.6	1.9	33.9
WV	Northwestern	3.0	2.7	3.6	3.3	4.3	4.1	4.5	4.1	3.3	2.7	3.3	3.2	42.0
WV	North Central	3.5	3.2	4.1	3.7	4.7	4.5	5.0	4.4	3.7	3.1	3.7	3.5	46.9
WV	Southwestern	3.4	3.1	3.9	3.5	4.5	4.2	4.8	4.2	3.4	2.9	3.5	3.5	44.7
WV	Central	4.0	3.6	4.4	4.1	5.0	4.6	5.2	4.5	3.8	3.3	3.7	3.9	50.1
WV	Southern	3.3	3.0	3.7	3.5	4.4	3.7	4.3	3.5	3.2	2.8	2.9	3.0	41.4
WV	Northeastern	2.5	2.2	3.1	2.9	3.9	3.5	3.8	3.6	3.3	3.0	3.0	2.4	37.1
WY	Yellowstone River Basin	1.1	0.8	1.0	1.1	1.8	1.8	1.5	1.4	1.2	1.0	1.0	1.0	14.5
WY	Snake River Basin	2.4	2.0	1.9	1.7	2.4	1.8	1.5	1.4	1.6	1.6	2.2	2.3	22.8
WY	Green and Bear River Basin	0.6	0.5	0.7	0.9	1.4	0.9	1.0	0.9	1.0	0.9	0.7	0.6	9.9
WY	Big Horn River Basin	0.4	0.3	0.6	1.1	1.9	1.5	1.0	0.7	1.1	0.9	0.5	0.4	10.5
WY	Powder, Little MO, Tongue RB	0.6	0.5	0.9	1.7	2.5	2.2	1.4	1.0	1.3	1.3	0.7	0.6	14.7
WY	Belle Fourche River Basin	0.5	0.6	1.0	2.0	2.8	2.7	1.9	1.4	1.3	1.5	0.7	0.6	17.0
WY	Cheyenne Niobara River Basin	0.4	0.5	0.8	1.8	2.6	2.3	1.9	1.3	1.2	1.2	0.7	0.5	14.9
WY	Lower Platte River Basin	0.4	0.5	0.9	1.7	2.6	2.0	1.9	1.4	1.3	1.0	0.7	0.5	15.0
WY	Wind River Basin	0.3	0.3	0.6	1.3	1.9	1.2	0.9	0.6	1.0	0.8	0.5	0.3	9.7
WY	Upper Platte River Basin	0.6	0.6	0.9	1.3	1.9	1.2	1.2	1.0	1.0	1.0	0.8	0.6	12.0

Source: NOAA Climate Normals, 1971-2000

Note: Due to rounding precision, yearly totals may differ slightly from the sum of the monthly totals

Abbreviations used for States, including Puerto Rico and US Virgin Islands:

AK	Alaska	MA	Massachusetts	OR	Oregon
AL	Alabama	MD	Maryland	PA	Pennsylvania
AR	Arkansas	ME	Maine	PR	Puerto Rico
AZ	Arizona	MI	Michigan	RI	Rhode Island
CA	California	MN	Minnesota	SC	South Carolina
CO	Colorado	MO	Missouri	SD	South Dakota
CT	Connecticut	MS	Mississippi	TN	Tennessee
DE	Delaward	MT	Montana	TX	Texas
FL	Florida	NC	North Carolina	UT	Utah
GA	Georgia	ND	North Dakota	VA	Virginia
HI	Hawaii	NE	Nebraska	VT	Vermont
IA	Iowa	NH	New Hampshire	VI	Virgin Islands
ID	Idaho	NJ	New Jersey	WA	Washington
IL	Illinois	NM	New Mexico	WI	Wisconsin
IN	Indiana	NV	Nevada	WV	West Virginia
KS	Kansas	NY	New York	WY	Wyoming
KY	Kentucky	OH	Ohio		
LA	Louisiana	OK	Oklahoma		