



AMERICAN PERC-RITE®

CALC TOOL WORKSHEET INSTRUCTIONS:

The Perc-Rite® Design system features support and certification from **AMERICAN** for the most **COMPETITIVE** and **EFFICIENT** Code compliant Drip System for reporting and long-term serviceability.

CALC TOOL Worksheet Four Simple Steps:

1. FILL IN THE YELLOW AND GREY CELLS WITH STANDARD SITE EVALUATION INFO.
2. LOOKUP IN TABLES FOR GREEN CELL INFO.
3. AUTO CALCULATION COMPLETES DESIGN
4. SELECT THE COMPETITIVE PACKAGED SYSTEM PRINT OUTS



AMERICAN PERC-RITE®

DESIGN SUBMITTAL

Perc-Rite® CalcTool version 1.3

American Manufacturing Company, Inc.

1-800-345-3132 www.americanonsite.com

JOB NAME:

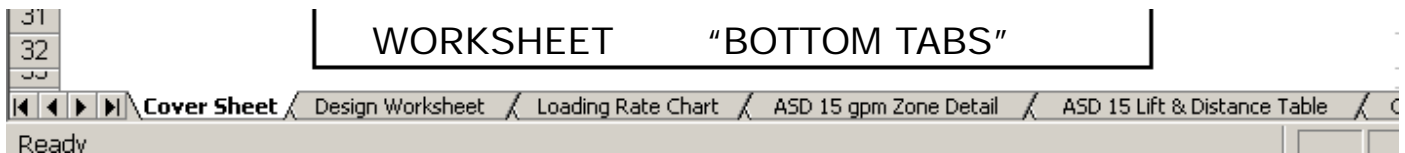
DATE:

OWNER:

DESIGNER:

STEP by STEP PERC-RITE® DRIP DESIGN

The Perc-Rite® Calc Tool guides the designer through a Simple process to determine the suitability of the proposed layout and design. After performing a standard site evaluation and site specific layout, simply input the information in the spreadsheet cells to confirm system design. The bottom tabs of the Calc Tool as shown below provide easy access to the five necessary worksheets and charts for evaluating layout.



PERC-RITE® DRIP DESIGN

The **Perc-Rite® Drip System** is a unique fluid handling system for dispersal of effluent wastewater in soil systems. The system incorporates filtration, time and level controlled application and ultra low rate drip distribution. In conditions where aerobic dispersal, such as "Low Pressure Distribution", of septic effluent is required or where land application with the use of conventional soil absorption fields are not acceptable, this system offers the "**GREENEST**" method for subsurface distribution of the wastewater effluent.

The **Perc-Rite® Drip Design System** will accommodate virtually any type of pretreatment process, whether septic tank (anaerobic), aerobic, lagoon, or any type of treatment facility. The "Calc-Tool" is an easy to use .XLS spread sheet that guides the designer through a **Perc-Rite® Design** and is located on our web page;

<http://www.americanonsite.com/american/dg-promo1.html>

To Order Call: (800) 345-3132

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PERC-RITE® WORKSHEET

- Dispersal system design worksheet for residential systems.

line #	INPUTS	Select One		You must be able to answer YES to both questions in order to continue.
		no		Are supply and return pipes 1"?
		no		Is the lift to the HU <8' and the run to the HU <30' with 1-1/2" pipe?
1	Anaerobic	Select One: Anaerobic or Aerobic?		Aerobic may use either ASD 15 or QM Zone Details. Anaerobic may only use ASD 15 Zone Details.
2	Coarse sand or coarser	Select a soil texture/structure.		Found in column 1 on the Loading Rate Chart. (given by site evaluator)
3	450	GPD	# Bedrooms 3	Design quantity of wastewater to disperse. This row equals the total number of GPD. (# Bedrooms in not used in calculations)
4	85	Contour Run Length		Enter the tubing length along contour. If run length is not on table, use the actual run length. Example: 85 ft.
5	150	Supply LF		Length of supply line between hydraulic unit and farthest zone.
6	20	Lift Ft.		Vertical lift from off level in the pump chamber and highest zone elevation.
7	0	Area (gal/ft ² /day) per code	Tab over from Perc Rate Coarse sand or coarser on Loading Rate Chart	Area loading rate required to treat and disperse wastewater. This line is to be input from Loading Rate Chart. (See Loading Rate Chart)
8	#DIV/0!	Area Calculation		Total land area needed to disperse wastewater.
9	#DIV/0!	Total LF Tubing		Required total linear feet of tubing to treat and disperse wastewater.
10	#DIV/0!	Calculated Runs		Determines number of runs (Total LF / Contour RL). Rounds up to the next whole number. Found on Zone Detail Table.
	#DIV/0!	Min. # Runs		
11	Z L R	Zone Detail	ASD 15: 0 QM 12: 0	On Zone Detail Table , cross the next highest Run Length (ft) from 85 with the row for at least #DIV/0! runs
	Z 1 2 3		Input the appropriate Zone Detail # into the drop-down list to the left.	
12	0	Max. Lift Allowed	ASD 15: 0 QM 12: 0	On Lift & Distance Table , cross the Supply/Return 150 with the column for 2 laterals
		ASD 15 gpm	Select which Lift & Distance table you used in the box to the left.	
13	510	LF Provided		Total linear feet of tubing Provided to disperse wastewater.
14	510	LF/Zone		Total linear feet per zone.
15	NO	Will zone flush?		Reference Lift & Distance Table for pump capacity determined by the length of run to the farthest field and the number of laterals. For 1" supply and return only.

*In line # 11, Z = # of zones, L = laterals per zone, R = runs per lateral

	given by engineer
	auto-computed
	looked up on tables
	user select

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PERC-RITE® DESIGN PROCEDURES - for ENGINEERS & DESIGNER'S

line **SIZE PIPE** — Confirm the the pipe size is 1" by clicking the grey cells under "Select One" and say "Yes" to confirm. If you cannot say yes the spreadsheet will not calculate the suitability and you must do manual calculations (Contact our staff engineers)

1. **TREATMENT TYPE** — Determine the type of treatment, anaerobic or aerobic, fill in **Line 1**.
2. **SOIL TYPE** — Fill in the soil type in **Line 2**. This will highlight the appropriate soil class on the "Bottom Tab" Labeled "Loading Rate Chart". Go to the chart, select the appropriate rate and fill it in on that chart's highlighted box.
3. **DEMAND ANALYSIS** — Determine the gallons per day the system needs to disperse, fill in **Line 3**.
4. **Contour Run Length** — Determine the length across contour and fill in **Line 4**, this will highlight the appropriate "run lgth" and highlighted on the "ASD 15 gpm Zone Detail" "Bottom Tab".
5. **Supply LF** — Determine the length of the supply pipe between the filter unit and the farthest Zone. Fill in **Line 5**.
6. **Lift Ft.** — Determine the vertical lift (also called Static Lift) from the off float to the field, Fill in **Line 6**.
7. **Loading Rate Chart** — Click on the "Bottom Tab" and determine the loading rate, the highlighted cell help guide the appropriate selection. Fill in **Line 7**.
8. **CALCULATED FIELDS 8-10** — These cells calculate the "Area", the "Linear feet of tubing" and "Runs" necessary for a suitable design. Review the information in the cell to make sure they make sense for the specific site.
9. **Zone Detail** — Go to the "Bottom Tab" to determine the appropriate Zone Detail form the highlighted "run lgth" column and the minimum number of runs. Enter the selected zone detail designation (such as "Z123") in the upper right input cell and return to the worksheet. This will memo the detail in the third column in this row. Then click on and change each number to reflect the appropriate number of zones, laterals and runs per lateral.
10. **ASD 15 Lift & Distance Table** — Go to the "Bottom Tab" to select the "Maximum Lift" for the layout. This value is determined by referencing the highlighted "Length of Run" and the "Number of Laterals" as shown below. The selected value must be input into the input box then return to worksheet.
11. **"Yes" or "No"** — Cells 13 and 14 show the Total linear feet provided and the linear feet per zone. The value in the last line, **Line 15** states if the layout is suitable.

ZONE DETAIL TABLE

The zone detail table below highlights the length of run on the top line and the minimum number of runs under the first column. In the event, for example, 85' contour length is laid out, then the 100 foot zone detail will be highlighted and should be used. The worksheet will however calculate using the 85' run.

15 GPM AUTOMATIC DRIP SYSTEMS: 24" EMITTER SPACING									
RUN LGTH	50	75	100	125	150	200	225	250	300
#RUN	ZD LF	ZD LF	ZD LF	ZD LF	ZD LF	ZD LF	ZD LF	ZD LF	ZD LF
2						Z121 400	Z121 450	Z121 500	Z121 600
3					Z131 450	Z131 600	Z131 675	Z131 750	Z131 900
4			Z122 400	Z122 500	Z122 600	Z141 800	Z141 900	Z141 1000	Z141 1200
			Z14 400	Z141 500	Z141 600	Z221 800	Z221 900	Z221 1000	Z221 1200

LIFT & DISTANCE TABLE

The American Calc Tool aids the designer in selecting the appropriate zone detail for typical sites. Once the area and contour length is determined the designer connects components with 1" pipe and with the lift and distance information, determines suitability.

1	Longest supply Manifold Length (feet)	LATERALS					
		2	3	4	5	6	7
		300'	300'	300'	240'	165'	100'
2							
3	100	98	88	75	74	79	77
4	150	96	84	69	66	70	68

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PERC-RITE[®] DRIP - The "GREENEST" ALTERNATIVE

OPERATING PARAMETERS

16	450	Peak Gallons per day	Maximum or design gallons per day.
17	270	Average Gallons per day	Average gallons per day. (calculated as 60% of Peak)
18	2.59	Dosing Flow (gpm)	Based on .61 gph per emitter.
19	5.79	Flushing Flow (gpm)	Flow to generate 2 fps at the distal end of each lateral.
20	23,205	Gallons per dose	The zone dose volume is 3.5 - 5 times the volume of the pipe.
21	19.39	Peak Design Doses per day	The total number of zone doses. Individual zone doses is this number divided by the number of zones.
22	423.8	Run Time (Seconds)	Estimated run time for dose gallons based on filtration capacity, flushing flow, and dosing rate
23	Zone	min	Default Standard Rest Time This is the rest time at average flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
	1	160	
24	Zone	min	Default Peak Rest Time This is the rest time at peak flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
	1	90	
25	Zone	min	Calculated Standard Rest Time (Recommended) This is the rest time at average flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
	1	123.76	
26	Zone	min	Calculated Peak Rest Time (Recommended) This is the rest time at peak flow. The rest time is independent of run time. (60 min. rest = 24 doses per day)
	1	74.256	
27	Zone	doses/day	Calculated Standard doses per day (Recommended) This is the total number of doses per day independent of the number of zones. The rest time is independent of run time. (450 gal. per day / 50 gal per dose = 9 doses per day) for a 2, 3, or 4 zone system.
	1	11.6	
28	Zone	doses/day	Calculated Peak doses per day (Recommended) This is the total number of doses per day independent of the number of zones. The rest time is independent of run time. (450 gal. per day / 50 gal per dose = 9 doses per day) for a 2, 3, or 4 zone system.
	1	19.4	

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AUTOMATIC OPERATING PARAMETERS

The above operating parameters are automatically calculated for your convenience. The recommended run times and rest times will operate the system at the most efficient point for a "fully loaded" system. The rest values may be lengthened for under used systems. The run times should remain the same since they are based on "equal" distribution calculations.

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