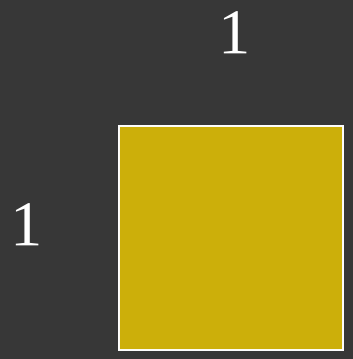
ONSITE SYSTEM SIZING & PROBLEM SESSION

Basic Installer Course



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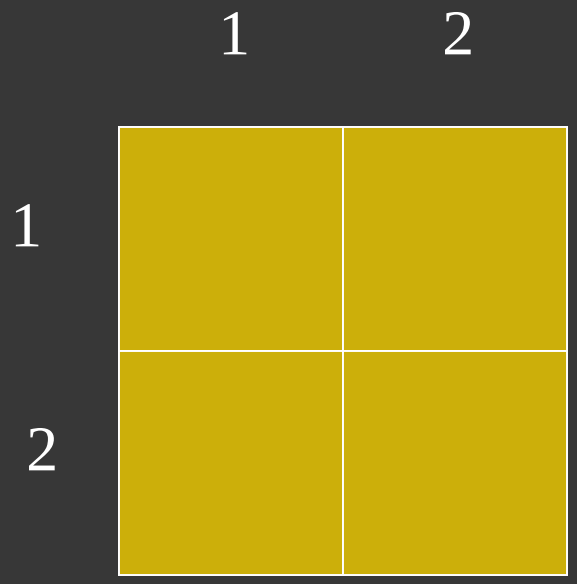

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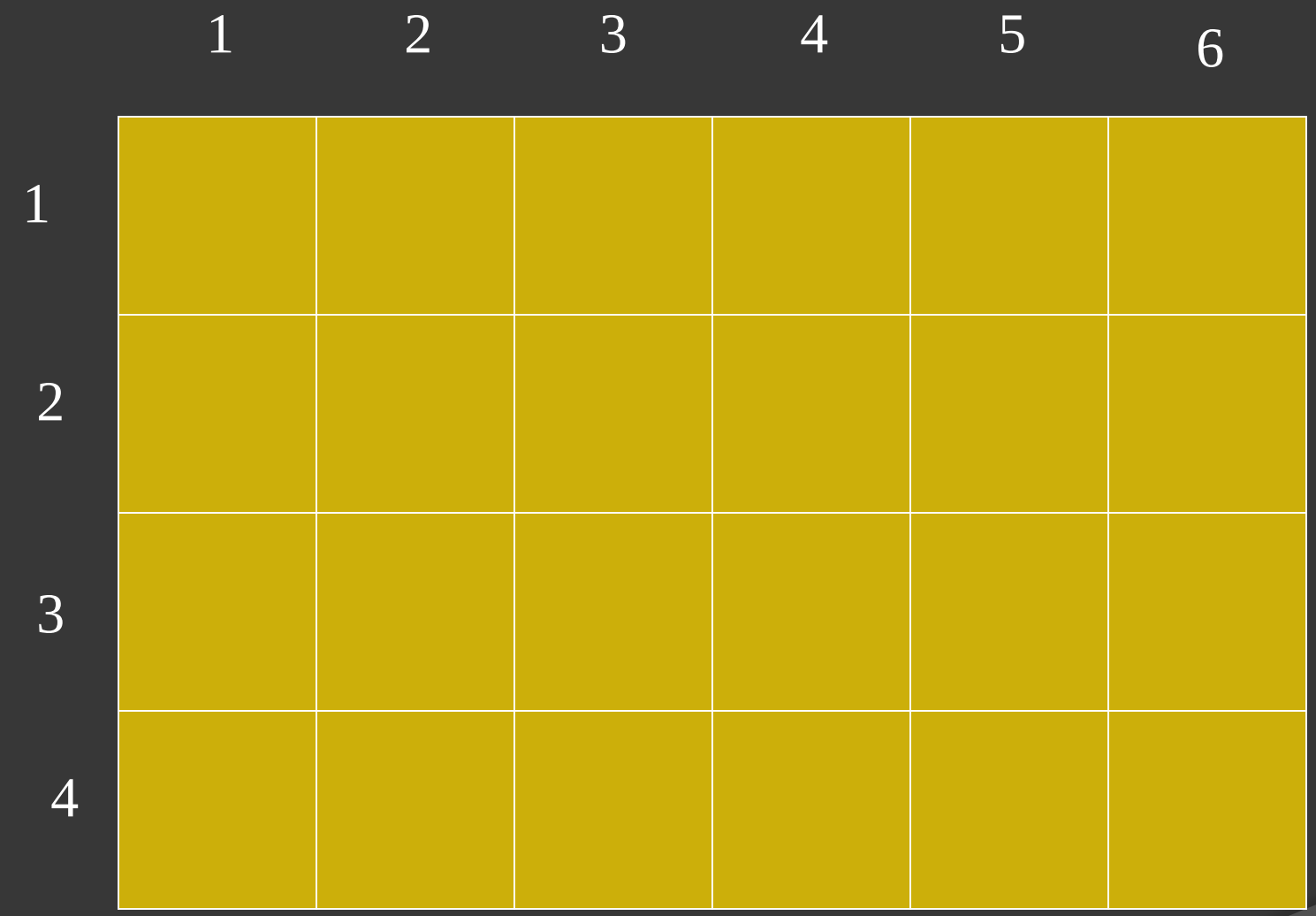
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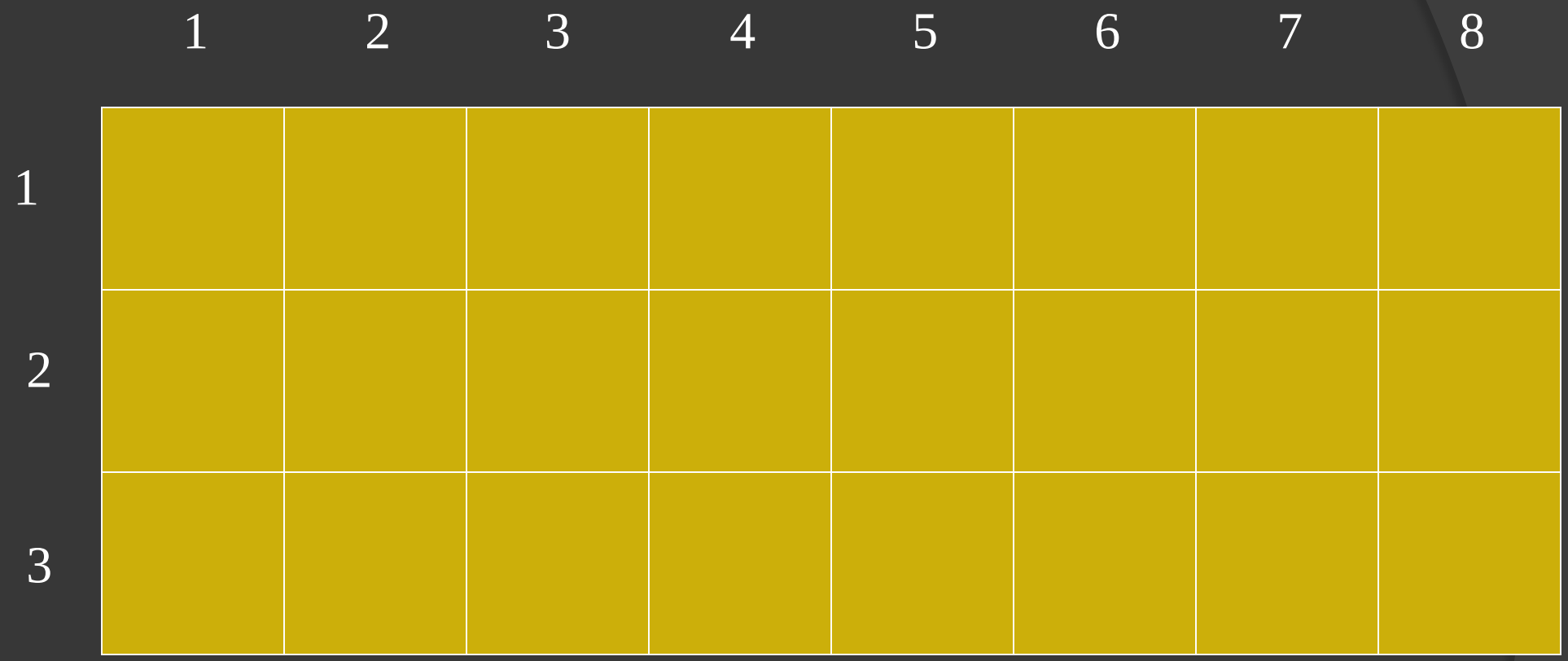
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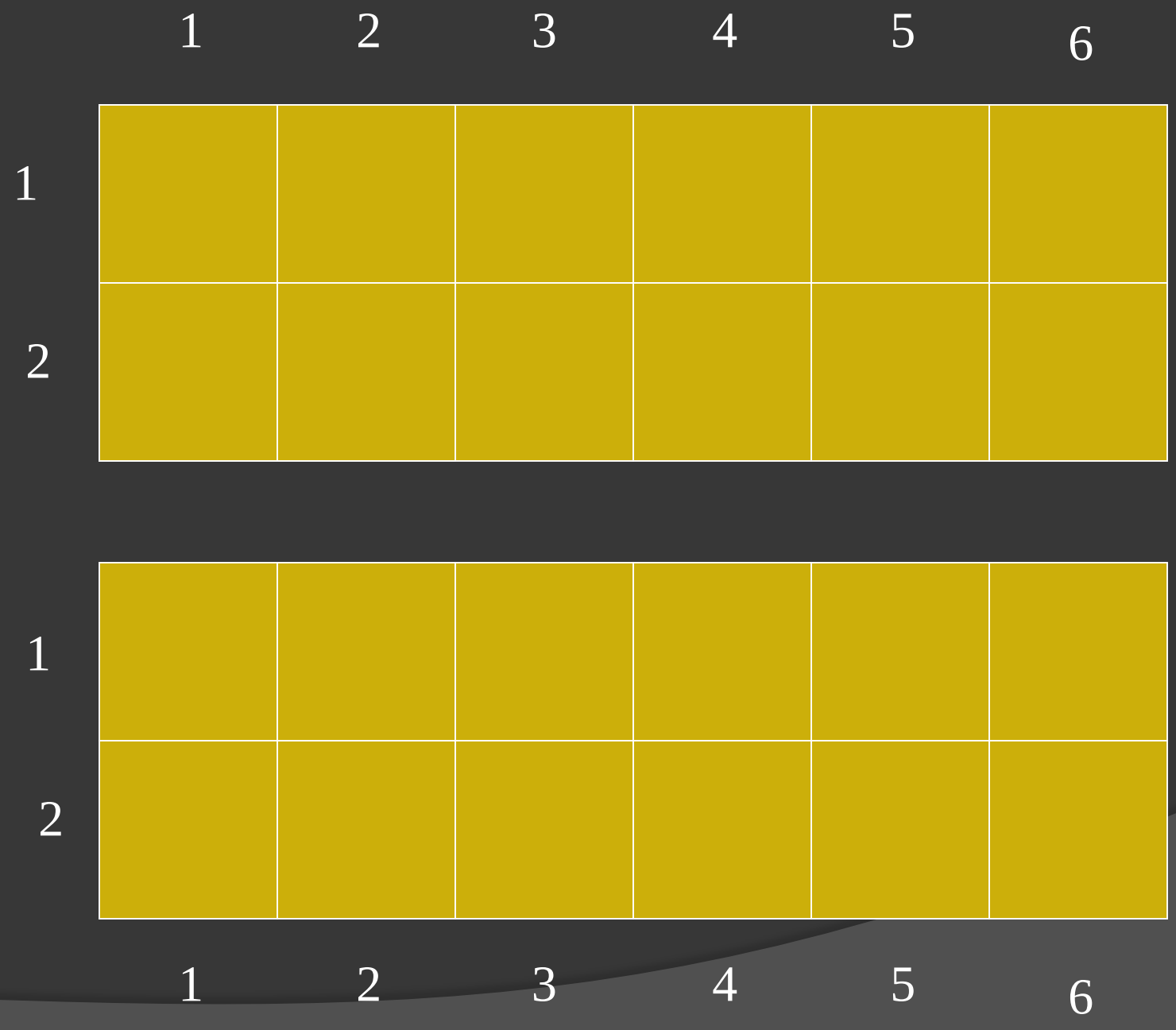
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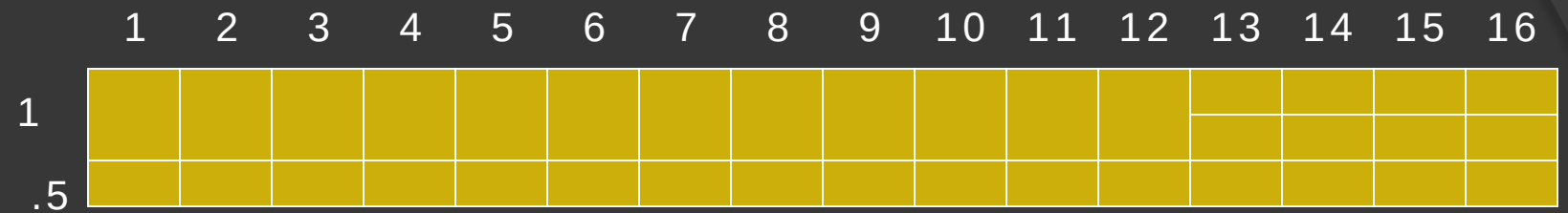
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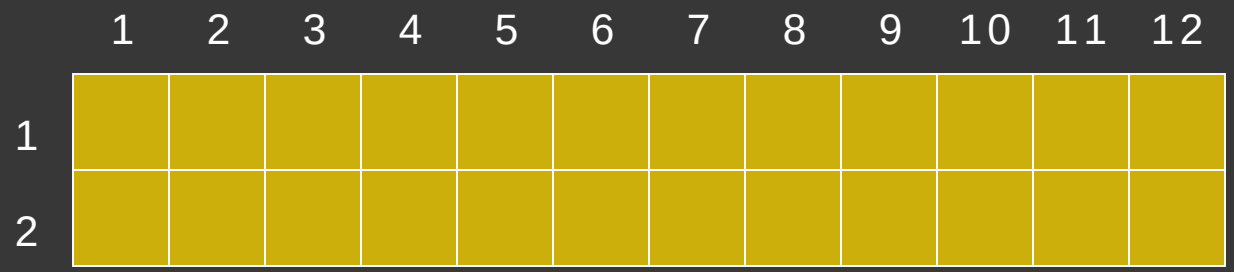
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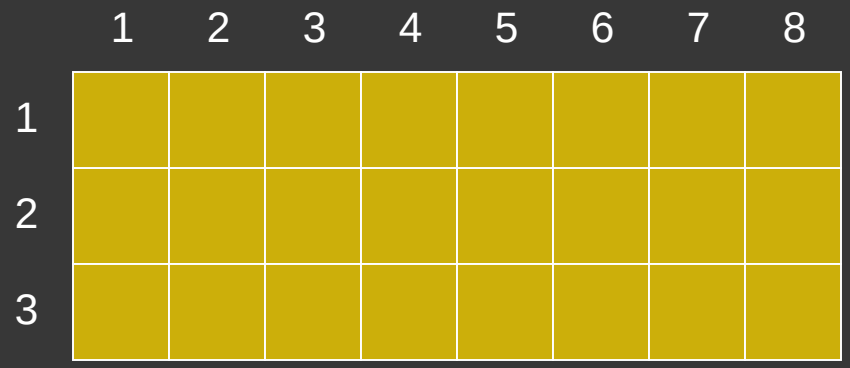
1 2 3 4 5 6 7 8
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Appendix A

Table 3

Minimum Requirements for Conventional Gravel EDFs by Texture Group and Percolation Rate (2)

Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)						Field Sizing for Establishments w/ Primary Effluent	Field Sizing for Establishments or Large Flow System with / without Secondary Effluent
	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Sq feet per Bedroom	Linear feet/bedroom			
		24" Width	36" Width	Reg/Reduc	24" Width	36" Width	lbs-BOD/sq ft/day	gal / sq ft / day
Group 1 5 10 15	200	100	67	50/40	25	17	0.00120	1.50 / 0.75
Group 2 16 25 30	250	125	83	63/50	32	21	0.00096	1.00 / 0.60
Group 3 31 40 45 50 55 60	300	150	100	75/60	38	25	0.00080	0.714 / 0.500
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120	330 350 370 390 410 430 450 480 510 540 570 600 650	165 175 185 195 205 215 225 240 255 270 285 300 325	110 117 123 130 137 143 150 160 170 180 190 200 217	163/130	82	55	0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.568 / 0.455 0.536 / 0.429 0.507 / 0.405 0.481 / 0.385 0.457 / 0.366 0.436 / 0.349 0.417 / 0.333 0.391 / 0.313 0.368 / 0.294 0.347 / 0.278 0.329 / 0.263 0.313 / 0.250 0.288 / 0.231
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.							

(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

420-3-1-.37 <u>Gravel Field Standard EDF Sizing for Dwellings</u>

(1) The Gravel Field Standard is the minimum total bottom area for dwellings calculated by multiplying the number of bedrooms by the number in the column labeled “Square Feet per Bedroom” in Table 3 and Table 3a that corresponds to the measured or assigned percolation rate determined according to Rule 420-3-1-.73, Soil Permeability.

(a) A primary EDF shall be a **minimum of 300 square feet** of the Gravel Field Standard or equivalent disposal medium/device unless designed by an engineer.

420-3-1-.37 Gravel Field Standard EDF Sizing for Dwellings

(Use Table 3)

•Select percolation rate from column labeled “Soil Texture Group/Perc Rate

• Multiply number of bedrooms by factor from the column labeled “square feet per bedroom” to get area of EDF in square feet.

•To determine the amount of linear footage need for the drain field pipes, divide the square footage by the trench width you’ll be using (typically 1.5 ft, 2 ft, or 3 ft trench widths.

•Result is total linear feet of drain field pipe.

Appendix A

Table 3

Minimum Requirements for Conventional Gravel EDFs by Texture Group and Percolation Rate (2)

Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)						Field Sizing for Establishments w/ Primary Effluent	Field Sizing for Establishments or Large Flow System with / without Secondary Effluent
	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Sq feet per Bedroom	Linear feet/bedroom			
		24" Width	36" Width	Reg/Reduc	24" Width	36" Width	lbs-BOD/sq ft/day	gal / sq ft / day
Group 1 5 10 15	200	100	67	50/40	25	17	0.00120	1.50 / 0.75
Group 2 16 25 30	250	125	83	63/50	32	21	0.00096	1.00 / 0.60
Group 3 31 40 45 50 55 60	300	150	100	75/60	38	25	0.00080	0.714 / 0.500
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120	330 350 370 390 410 430 450 480 510 540 570 600 650	165 175 185 195 205 215 225 240 255 270 285 300 325	110 117 123 130 137 143 150 160 170 180 190 200 217	163/130	82	55	0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.568 / 0.455 0.536 / 0.429 0.507 / 0.405 0.481 / 0.385 0.457 / 0.366 0.436 / 0.349 0.417 / 0.333 0.391 / 0.313 0.368 / 0.294 0.347 / 0.278 0.329 / 0.263 0.313 / 0.250 0.288 / 0.231
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.							

(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

Single Family Dwelling

3 bedroom home
perc rate = 42 mpi

Square feet of EDF = 300 x 3 = 900 sq. ft.

24" trench = 900 ÷ 2 = 450 lf total

36" trench = 900 ÷ 3 = 300 lf total

Determining Linear Feet from square footage of Primary EDF

Total Sq. Ft. ÷ Trench width in feet = total linear feet required

24 inch trench width = 2 feet trench width

36 inch trench width = 3 feet trench width

- -

example: 300 sq.ft. / 3 feet (36" wide trench)= 100 linear feet

420-3-1-.39 EDF Sizing for Establishments

(1) The EDF field sizing (square footage of bottom area) for establishments is based on BOD loading for wastewater that has a higher organic concentration (stronger) than the secondary standards and hydraulic loading for wastewater that is weaker than secondary standards. It shall be calculated by the following method:

(a) Determine the average design load in lbs of BOD/day from Table 1 (or other appropriate engineering literature, as identified by the engineer and approved by the Board).

(b) To calculate the BOD load to the field assume that the septic tank will remove 40% of the BOD from sewage and 30% of BOD in high-strength sewage.

(c) Divide the BOD load to the field calculated in paragraph (b) by the appropriate figure from the column headed “Field Sizing for Establishments Primary Effluent” in Table 3 or Table 3a. This is the size of the field based on BOD loading.

(d) Next divide the design flow in gpd from the establishment by the appropriate number from the column headed “Field Sizing for Establishments w/ Secondary Effluent.” This is the required size of the field based on hydraulic loading to the soil.

(e) The larger field size computed above is the required bottom area.

(f) Advanced treatment is required for all establishment design flows over 1,200 gpd of high-strength sewage and 4,000 gpd sewage unless it can be shown that the wastewater is already weaker than secondary standards in which case the field can be sized as prescribed above.

420-3-1-.39 EDF Sizing for ESTABLISHMENTS page 47

(1) EDF sizing based on BOD loading of wastewater that has –

- higher organic concentration (stronger)
  than the secondary standards, and

- hydraulic loading for wastewater that is weaker than secondary standards

Appendix A

Table 3

Minimum Requirements for Conventional Gravel EDFs by Texture Group and Percolation Rate (2)

Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)						Field Sizing for Establishments w/ Primary Effluent	Field Sizing for Establishments or Large Flow System with / without Secondary Effluent
	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Sq feet per Bedroom	Linear feet/bedroom			
		24" Width	36" Width	Reg/Reduc	24" Width	36" Width	lbs-BOD/sq ft/day	gal / sq ft / day
Group 1 5 10 15	200	100	67	50/40	25	17	0.00120	1.50 / 0.75
Group 2 16 25 30	250	125	83	63/50	32	21	0.00096	1.00 / 0.60
Group 3 31 40 45 50 55 60	300	150	100	75/60	38	25	0.00080	0.714 / 0.500
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120	330 350 370 390 410 430 450 480 510 540 570 600 650	165 175 185 195 205 215 225 240 255 270 285 300 325	110 117 123 130 137 143 150 160 170 180 190 200 217	163/130	82	55	0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.568 / 0.455 0.536 / 0.429 0.507 / 0.405 0.481 / 0.385 0.457 / 0.366 0.436 / 0.349 0.417 / 0.333 0.391 / 0.313 0.368 / 0.294 0.347 / 0.278 0.329 / 0.263 0.313 / 0.250 0.288 / 0.231
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.							

(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

420-3-1-.39 EDF Sizing for ESTABLISHMENTS page 48

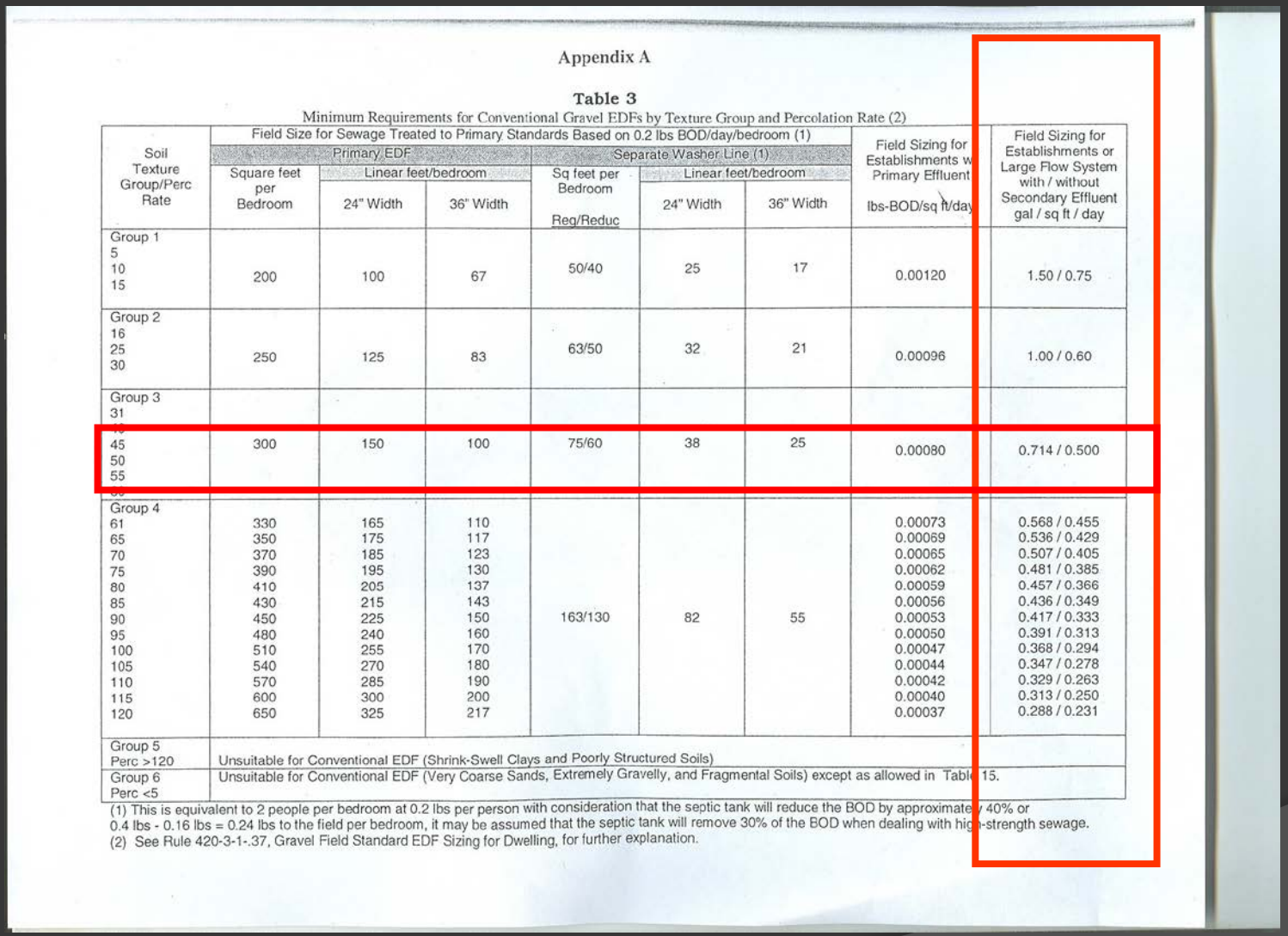
(a) Determine average design load in lbs BOD/day from Table 1 (or other literature)

(b) Assume that a septic tank will remove

- 40% of BOD from sewage

- 30% of BOD from high-strength sewage

420-3-1-.39 EDF Sizing for ESTABLISHMENTS page 48



Appendix A

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Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)						Field Sizing for Establishments w Primary Effluent	Field Sizing for Establishments or Large Flow System with / without Secondary Effluent
	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Sq feet per Bedroom	Linear feet/bedroom			
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Group 2 16 25 30	250	125	83	63/50	32	21	0.00096	1.00 / 0.60
Group 3 31								
45 50 55	300	150	100	75/60	38	25	0.00080	0.714 / 0.500
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120	330 350 370 390 410 430 450 480 510 540 570 600 650	165 175 185 195 205 215 225 240 255 270 285 300 325	110 117 123 130 137 143 150 160 170 180 190 200 217	163/130	82	55	0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.568 / 0.455 0.536 / 0.429 0.507 / 0.405 0.481 / 0.385 0.457 / 0.366 0.436 / 0.349 0.417 / 0.333 0.391 / 0.313 0.368 / 0.294 0.347 / 0.278 0.329 / 0.263 0.313 / 0.250 0.288 / 0.231
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.							

(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

40

420-3-1-.39 EDF Sizing for ESTABLISHMENTS page 48

So a 50 seat restaurant

(Not on an interstate)

50 seats x .2 lbs/day/seat =

10.0 lbs/day BOD

BUT!

septic tank would remove 30% of BOD in high-strength waste so the actual BOD to the field would be 7 lbs/day

10 x .3 = 3

And

10 – 3 = 7!

	Unit Design BOD/TSS lbs/day	Design Flow gpd
	0.4 (min)	150 (300 min)
	0.2 (min)	75 (min)
	0.02	5
	0.05	15
	0.05	25
	0.15	10
	0.40 1	20
	0.80	175
Movie	0.02	4
Restau	0.2	50
Restau		
Intersta	0.7	100-180
Intersta	0.01	5
Service	0.01	10

420-3-1-.39 EDF Sizing for ESTABLISHMENTS

To determine size of field based on BOD loading:

c) Divide the BOD load to the field

by the appropriate figure from the column headed

“Field Sizing For Establishments Primary Effluent”

in Table 3 or Table 3a.

420-3-1-.39 EDF Sizing for ESTABLISHMENTS

Appendix A

Table 3

Minimum Requirements for Conventional Gravel EDFs by Texture Group and Percolation Rate (2)

Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)						Field Sizing for Establishments w/ Primary Effluent	Field Sizing for Establishments w/ Secondary Effluent
	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Square feet per Bedroom	Linear feet/bedroom		lbs-BOD/sq ft/day	gal / sq ft / day
		24" Width	36" Width		24" Width	36" Width		
Group 1 5 10 15	200	100	67	40	20	13	0.00120	1.50
Group 2 16 25 30	250	125	83	50	25	17	0.00096	1.00
Group 3 31 40 45 50 55 60	300	150	100	50	33	22	0.00080	0.65
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120	330 350 370 390 410 430 450 480 510 540 570 600 650	165 175 185 195 205 215 225 240 255 270 285 300 325	100 117 123 130 137 143 150 160 170 180 190 200 217	135	68	45	0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.57 0.54 0.51 0.48 0.46 0.44 0.42 0.39 0.37 0.35 0.33 0.31 0.29
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.							

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(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

Appendix A

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	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Sq feet per Bedroom Reg/Reduc	Linear feet/bedroom			
		24" Width	36" Width		24" Width	36" Width		
Group 1 5 10 15	200	100	67	50/40	25	17	0.00120	1.50 / 0.75
Group 2 16 25 30	250	125	83	63/50	32	21	0.00096	1.00 / 0.60
Group 3 31 40 45 50 55 60	300	150	100	75/60	38	25	0.00080	0.714 / 0.500
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120	330 350 370 390 410 430 450 480 510 540 570 600 650	165 175 185 195 205 215 225 240 255 270 285 300 325	110 117 123 130 137 143 150 160 170 180 190 200 217	163/130	82	55	0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.568 / 0.455 0.536 / 0.429 0.507 / 0.405 0.481 / 0.385 0.457 / 0.366 0.436 / 0.349 0.417 / 0.333 0.391 / 0.313 0.368 / 0.294 0.347 / 0.278 0.329 / 0.263 0.313 / 0.250 0.288 / 0.231
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
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(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

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Table 3

Minimum Requirements for Conventional Gravel EDFs by Texture Group and Percolation Rate (2)

Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)		Field Sizing for Establishments w/ Primary Effluent lbs-BOD/sq ft/day	Field Sizing for Establishments or Large Flow System with / without Secondary Effluent gal / sq ft / day
	Primary EDF	Separate Washer Line (1)		
	Square ft per Bedroom			
Group 1				
5				
10			0.00120	1.50 / 0.75
15	20			
Group 2				
16				
25			0.00096	1.00 / 0.60
30	25			
Group 3				
31				
40				
45	30		0.00080	0.714 / 0.500
50				
55				
60				
Group 4				
61	33		0.00073	0.568 / 0.455
65	35		0.00069	0.536 / 0.429
70	37		0.00065	0.507 / 0.405
75	39		0.00062	0.481 / 0.385
80	41		0.00059	0.457 / 0.366
85	43		0.00056	0.436 / 0.349
90	45		0.00053	0.417 / 0.333
95	48		0.00050	0.391 / 0.313
100	51		0.00047	0.368 / 0.294
105	54		0.00044	0.347 / 0.278
110	57		0.00042	0.329 / 0.263
115	60		0.00040	0.313 / 0.250
120	65		0.00037	0.288 / 0.231
Group 5 Perc >120	Unsuita			
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.			

(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

So a 50 seat restaurant

(Not on an interstate) (45 mpi perc)

50 seats x .2 lbs/day/seat =

10.0 lbs/day BOD

(Septic tank removes 30% of BOD from high-strength sewage!!!)

10 x .30 = 3lbs/sq. ft.

10 – 3 = 7 so…

7.0 lbs / .00080 lbs/sq.ft.=

8750 sq. ft.

420-3-1-.39 EDF Sizing for ESTABLISHMENTS

NOW :To determine size of field based on

hydraulic loading:

d) Divide design flow in gpd for the establishment

by column headed “Field Sizing for establishments w/o Secondary Effluent”

in Table 3 or Table 3a.

Appendix A

Table 3

Minimum Requirements for Conventional Gravel EDFs by Texture Group and Percolation Rate (2)

Soil Texture Group/Perc Rate	Field Size for Sewage Treated to Primary Standards Based on 0.2 lbs BOD/day/bedroom (1)						Field Sizing for Establishments w/ Primary Effluent	Field Sizing for Establishments or Large Flow System with / without Secondary Effluent
	Primary EDF			Separate Washer Line (1)				
	Square feet per Bedroom	Linear feet/bedroom		Sq feet per Bedroom	Linear feet/bedroom			
		24" Width	36" Width	Reg/Reduc	24" Width	36" Width	lbs-BOD/sq ft/day	gal / sq ft / day
Group 1 5 10 15	200	100	67	50/40	25	17	0.00120	1.50 / 0.75
Group 2 16 25 30							0.00096	1.00 / 0.60
Group 3 31								
40 45 50 55							0.00080	0.714 / 0.500
60								
Group 4 61 65 70 75 80 85 90 95 100 105 110 115 120							0.00073 0.00069 0.00065 0.00062 0.00059 0.00056 0.00053 0.00050 0.00047 0.00044 0.00042 0.00040 0.00037	0.568 / 0.455 0.536 / 0.429 0.507 / 0.405 0.481 / 0.385 0.457 / 0.366 0.436 / 0.349 0.417 / 0.333 0.391 / 0.313 0.368 / 0.294 0.347 / 0.278 0.329 / 0.263 0.313 / 0.250 0.288 / 0.231
Group 5 Perc >120	Unsuitable for Conventional EDF (Shrink-Swell Clays and Poorly Structured Soils)							
Group 6 Perc <5	Unsuitable for Conventional EDF (Very Coarse Sands, Extremely Gravelly, and Fragmental Soils) except as allowed in Table 15.							

So a 50 seat restaurant

(Not on an interstate) (45 mpi perc)

50 seats x 50 gal/day/seat =

2,500 gal/day

2,500 gal/day / 0.5 gal/sq/ft =

5000 sq.ft. EDF

(1) This is equivalent to 2 people per bedroom at 0.2 lbs per person with consideration that the septic tank will reduce the BOD by approximately 40% or 0.4 lbs - 0.16 lbs = 0.24 lbs to the field per bedroom, it may be assumed that the septic tank will remove 30% of the BOD when dealing with high-strength sewage.

(2) See Rule 420-3-1-.37, Gravel Field Standard EDF Sizing for Dwelling, for further explanation.

420-3-1-.39 EDF Sizing for ESTABLISHMENTS

(e) The larger field size computed is the required bottom area

So a 50 seat restaurant

(Not on an interstate) (45 mpi perc)

50 seats x .2 lbs/day/seat =

10.0 lbs/day BOD

(Septic tank removes 30% of BOD from high-strength sewage!!!)

10 x .30 = 3lbs/sq. ft.

10 – 3 = 7 so…

7.0 lbs / .00080 lbs/sq.ft.=

8750 sq. ft.

So a 50 seat restaurant

(Not on an interstate) (45 mpi perc)

50 seats x 50 gal/day/seat =

2,500 gal/day

2,500 gal/day / 0.5 gal/sq/ft =

5000 sq.ft. EDF

Single Family Dwelling
Effluent Disposal Field

3 bedroom home separate washer line
perc rate = 42 mpi
using 24" trench

Primary EDF area = 300 x 3 = 900
1/5 or .20 reduction on Primary EDF = 900 x .2 = 180
900 - 180 = 720 sq. ft for Primary EDF
720 ÷ 2 (2 ft trench) = 360 linear ft

Washer Line must be ¼ or .25 size of Primary EDF
900 x .25 = 225 sq. ft for Washer Line
225 ÷ 2 (2 ft trench) = 112.5 or 113 linear ft

Single Family Dwelling
Effluent Disposal Field

3 bedroom home with spa to house sewer
perc rate = 42 mpi
Trench width = 24 in.

Size Effluent Disposal field?

Single Family Dwelling Effluent Disposal Field

3 bdrm home with spa to house sewer
perc rate = 42 mpi - using 24" trench

Tank = 3 br home requires 1000 gal s/t
EDF sq. ft. = 300 x 3 = ***900 sq. ft***.
EDF = 150 lf x 3 br (or 900 ÷ 2) =
450 total lf without spa
Spa to house sewer = + 50% to EDF
450 x .5 = 225
450 + 225 = ***675 linear ft in EDF***

EDF Sizing for ESTABLISHMENTS

- Factory with showers
- 3 shifts with 15 people per shift
- perc rate = 42 mpi
- using 36" trench
- Tank Size?
- Size of EDF?

Step One: Calculate daily sewage flow from Table 1

- 15 people x 3 shifts x 25 gpd = **1125 gallons daily flow**
- Tank size = 1125 x 2 (days hydraulic retention) = **2250g tank**

EDF Sizing for ESTABLISHMENTS

- Factory with showers – Regular strength sewage
- 3 shifts with 15 people per shift
- perc rate = 42 mpi
- using 36" trench
- Size of EDF?

Step One: Calculate EDF based on ***lbs./BOD/sq. ft./day***

- 15 people x 3 shifts x .08 BOD/day (from Table 1) = 3.6
- Septic tank will remove 40% of the BOD
- 3.6 x .4 = 1.44 **AND** 3.6 – 1.44 = ***2.16 total BOD/day***
- 2.16 ÷ .0008 (from Table 3) = ***2700 sq. ft. EDF***
- ***2700 ÷ 3 = 900 linear feet of trench.***

EDF Sizing for ESTABLISHMENTS

- Factory with showers – Regular strength sewage
- 3 shifts with 15 people per shift
- perc rate = 42 mpi
- using 36" trench
- Size of EDF?

Step Two : Calculate EDF based on ***hydraulic loading***

- 15 people x 3 shifts x 25 gpd (from Table 1) = ***1125 gpd***
- 1125 ÷ 0.5 (from Table 3) = 2250 ***sq ft EDF.***
- ***2250 ÷ 3 = 750 linear ft. of trench.***

EDF Sizing for ESTABLISHMENTS

(e) The larger field size computed is the required bottom area

Step One: Calculate EDF based on ***lbs./BOD/sq. ft./day***

15 people x 3 shifts x .08 BOD/day (from Table 1) = 3.6
Septic tank will remove 40% of the BOD
3.6 x .4 = 1.44 **AND** 3.6 – 1.44 = ***2.16 total BOD/day***
2.16 ÷ .0008 (from Table 3) = ***2700 sq. ft. EDF***
2700 ÷ 3 = 900 linear feet of trench.

Step Two : Calculate EDF based on ***hydraulic loading***

15 people x 3 shifts x 25 gpd (from Table 1) = ***1125 gpd***
1125 ÷ 0.5 (from Table 3) = ***2250 sq ft EDF.***
2250 ÷ 3 = 750 linear ft. of trench.