Modern Trends In FOG Program Regulations

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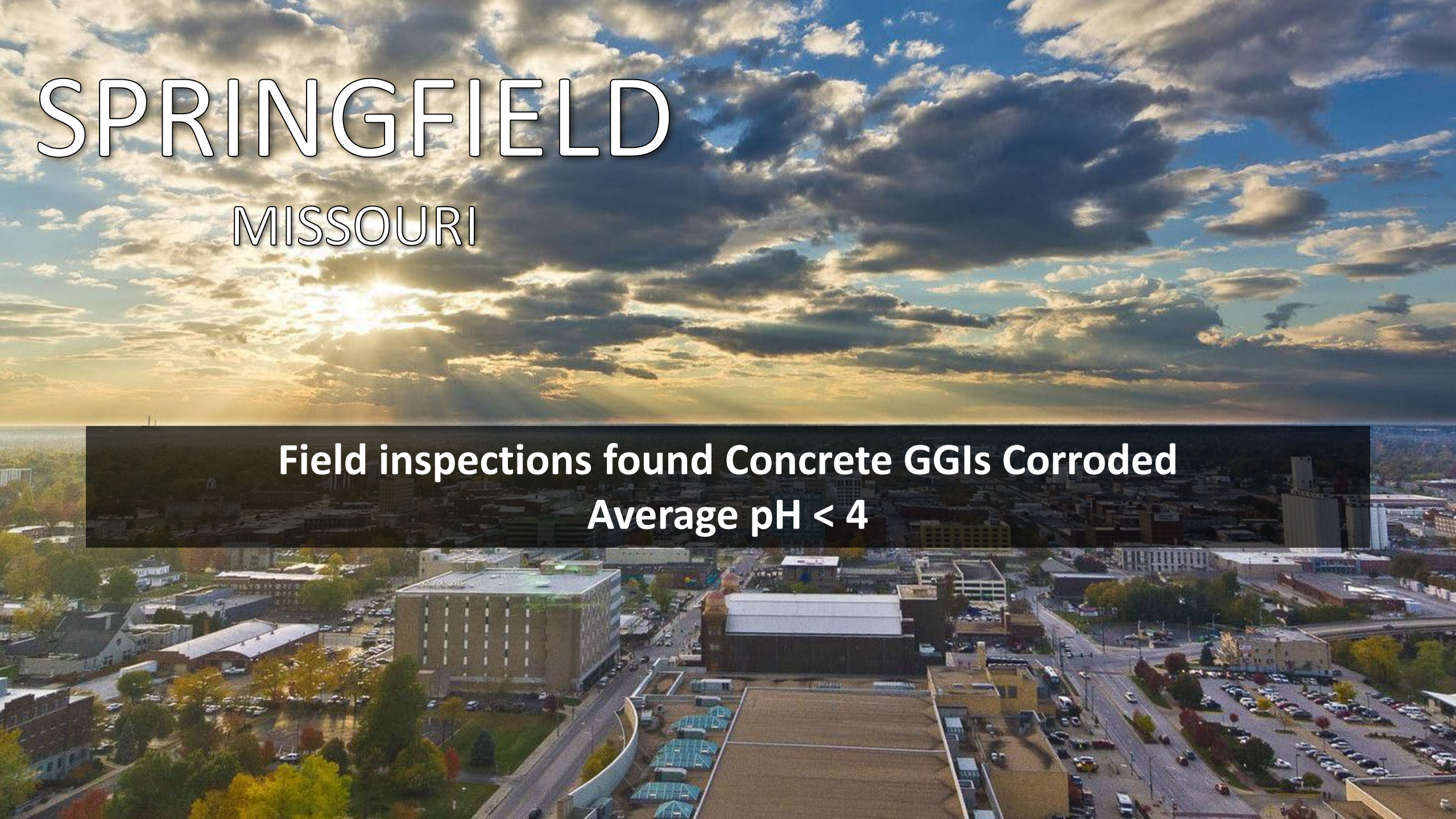
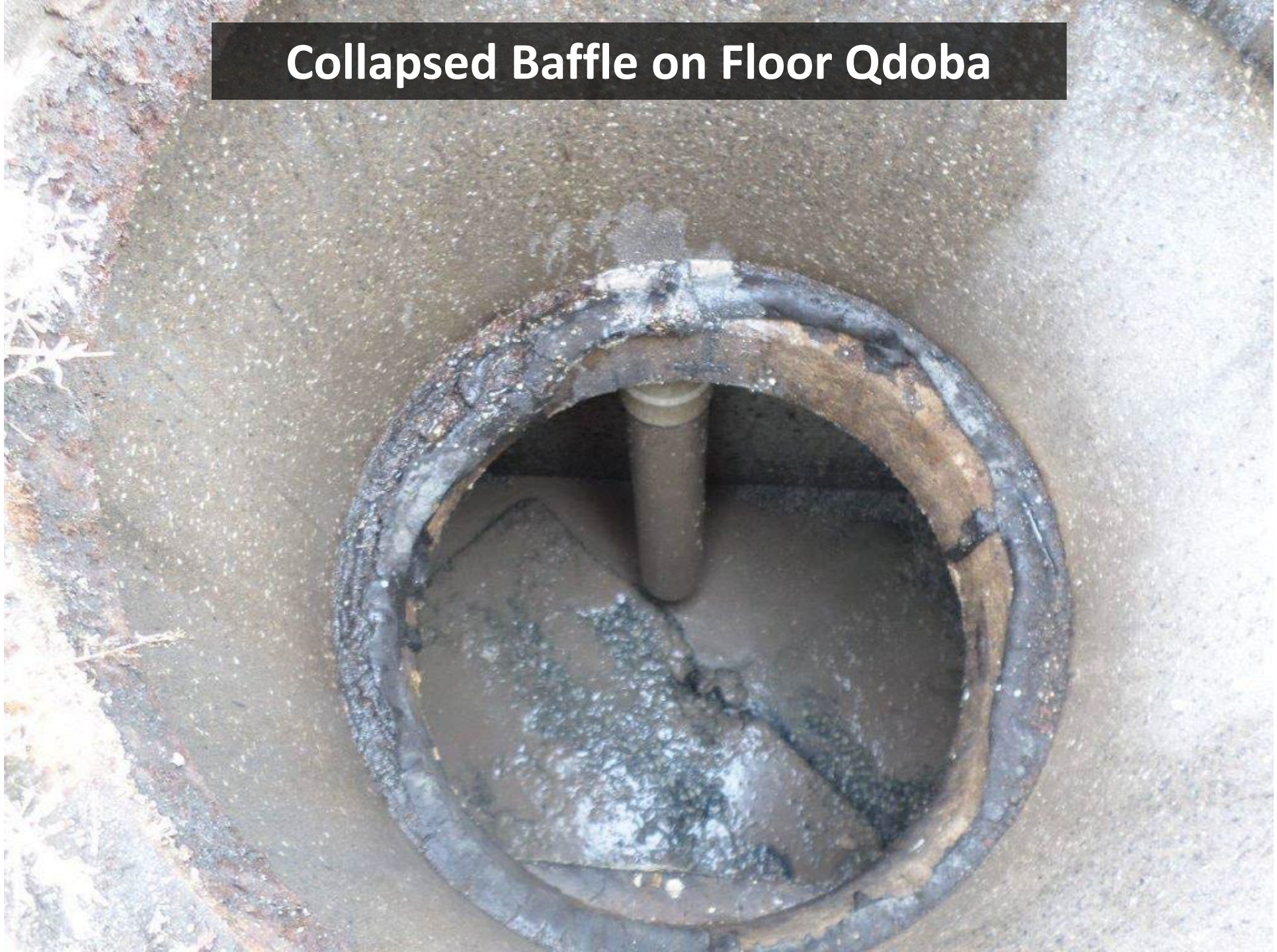

SPRINGFIELD
MISSOURI
Field inspections found Concrete GGIs Corroded
Average pH < 4

Damaged Baffle Popeyes

Collapsed Interceptor Garst


Damaged Baffle Mexican Villa

Collapsed Baffle on Floor Qdoba



SPRINGFIELD
MISSOURI

Sponsored by Ollis, Lear and McGull

First Reading November 4, 2019 Second Reading November 18, 2019

COUNCIL BILL 2019- 253 GENERAL ORDINANCE 6557

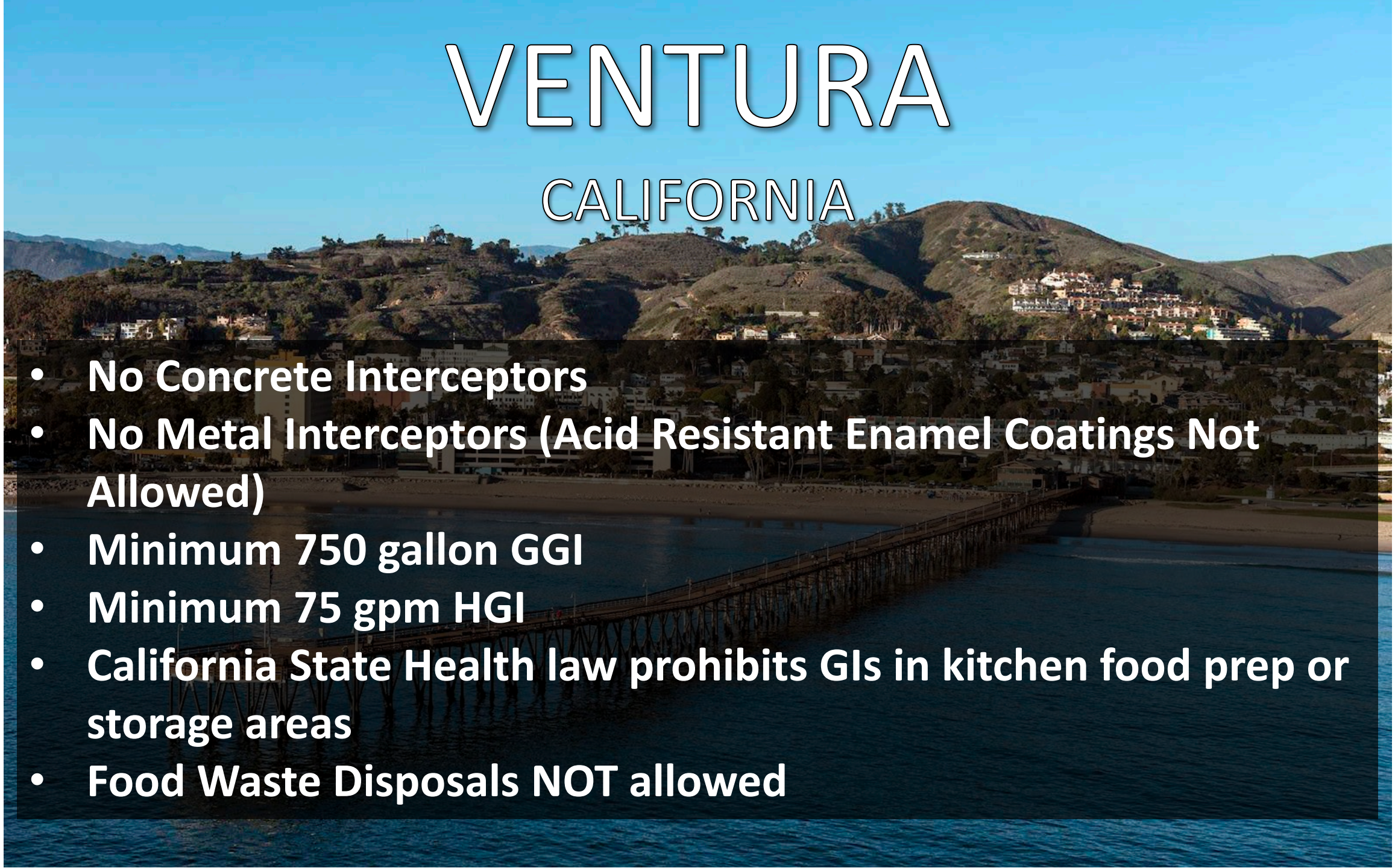
AN ORDINANCE

AMENDING Chapter 36 of the Springfield City Code, known as the 'Land Development Code,' by repealing Article VIII, 'Plumbing Code,' in its entirety, and enacting in lieu thereof a new Article VIII, 'Plumbing Code.' (Recommended by Plans and Policies Committee.)

1003.3.7 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems. The required capacity of gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be determined by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes. Gravity grease interceptors shall be designed and tested in accordance with IAPMO/ANSI Z1001. Gravity grease interceptors with fats, oils, and greases disposal systems shall be designed and tested in accordance with ASME A112.14.6 and IAPMO/ANSI Z1001. Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in accordance with manu-facturer's instructions. Where manufacturer's instructions are not provided, gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in compliance with ASME A112.14.6 and IAPMO/ANSI ZIO0I. Concrete grease interceptors are prohibited.


Krispy Kreme
DOUGHNUTS®
Took only 3 years to fail

Metal is NO Better



VENTURA

CALIFORNIA

- No Concrete Interceptors
- No Metal Interceptors (Acid Resistant Enamel Coatings Not Allowed)
- Minimum 750 gallon GGI
- Minimum 75 gpm HGI
- California State Health law prohibits GIs in kitchen food prep or storage areas
- Food Waste Disposals NOT allowed

SANTA CRUZ COUNTY S.D.

CALIFORNIA

- No Concrete Interceptors
- No Metal Interceptors (Acid Resistant Enamel Coatings Not Allowed)
- California State Health law prohibits GIs in kitchen food prep or storage areas
- Food Waste Disposals NOT allowed

SOUTH PLACER M.U.D.

CALIFORNIA

- No Concrete Interceptors
- No Gravity Grease Interceptors allowed
- No Metal Interceptors (Acid Resistant Enamel Coatings Not Allowed)
- California State Health law prohibits GIs in kitchen food prep or storage areas
- Food Waste Disposals NOT allowed
- ASME Test Report required documenting Efficiency & Capacity
- Sizing according to Manufacturers recommendation or ASME

SAN DIEGO F.E.W.D

CALIFORNIA

Crosses Gravity Grease Interceptors over to Hydromechanical

FEWD

THE CITY OF SAN DIEGO PUBLIC UTILITIES DEPARTMENT
FOOD ESTABLISHMENT WASTEWATER DISCHARGE (FEWD) PERMIT PROGRAM

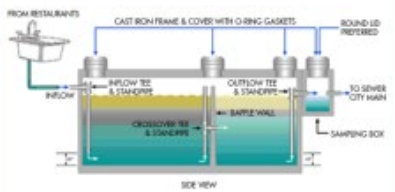
*****FEWD Plan Checks requirements:*****

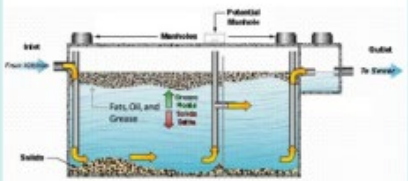
* To schedule a plan check, email completed application and plans (in PDF format) to FEWDPlanChecks@sandiego.gov
* Fixture/Equipment List with sink basin sizes shown (length x width x depth, in inches)
* Facility Floor Plan (numbered fixtures on the Floor Plan shall correspond to numbered fixtures on the Fixture/Equipment List)
* Proposed underground Plumbing Plan (showing fixtures routed to GRE)
* Details of Grease Removal Equipment (showing manholes if applicable) and sizing calculations

1. FEWD Plan Check identifies fixtures requiring grease removal equipment (GRE) and the required minimum size of GRE ONLY.
2. All installation/plumbing must be inspected/approved by the Development Services Department. The FEWD Plan Check List must be available on site during the plumbing inspection.
3. You must re-submit your plans to the FEWD Permit Program if any plumbing changes are made to the plans after the plan review date.
4. A sample box is required on all gravity grease interceptors (GGI) or substitute models (Schier GB-75 or GB-250).
5. Three (3) manholes are required on gravity grease interceptors (GGI) 1500 gallons and over. Four (4) total with the sample box.
6. A minimum five (5) foot clearance to open manholes is required on gravity grease interceptors or substitute models.
7. Location of grease removal equipment to be determined by County of San Diego DEPARTMENT OF ENVIRONMENTAL HEALTH.
8. NO suspended Hydromechanical Grease Interceptors (HGI) requiring ladder access will be allowed.
9. Size of Grease Removal Equipment (GRE) installed should match or exceed size on Plan Check List.
10. Hydromechanical Grease Interceptor calculations use a one minute drain period and should always be rounded up.
11. It is recommended to connect sinks and floor drains to GRE if sink/drain is located in a grease sensitive area.
12. Dishwashers MAY NOT be connected to any grease interceptor.

The City of SAN DIEGO

GREASE INTERCEPTOR
(Drawing not to scale)





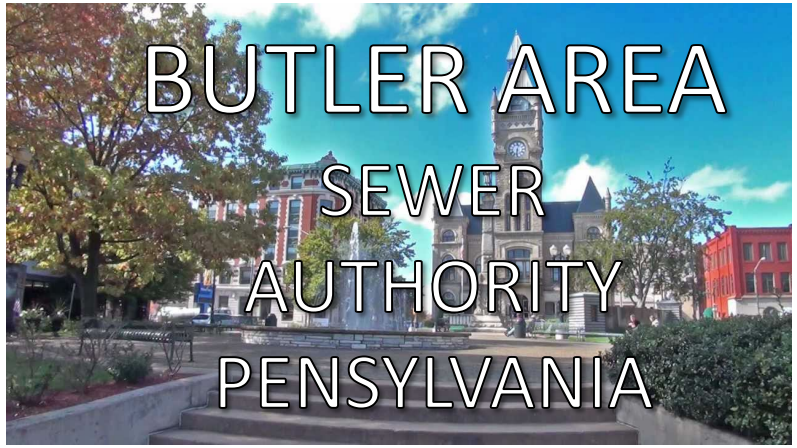
Grease Trap

- GREASE REMOVAL EQUIPMENT WILL BE SIZED USING THE CURRENT CA PLUMBING CODE.
- USE A 1 MINUTE DRAIN PERIOD FOR HYDROMECHANICAL GREASE INTERCEPTORS

4. A sample box is required on all gravity grease interceptors (GGI) or substitute models (Schier GB-75 or GB-250).

SCHIER PRODUCTS CROSS REFERENCE SIZING GUIDELINES				
Gravity Grease Interceptor		Great Basin Grease Interceptor		
Liquid Holding (Gallons)	Estimated Grease Storage (lbs)*	Model	Liquid Holding (Gallons)	Grease Storage (lbs)
500	456	GB-50	65	440
750	684	GB-75	125	861
1,000	913	GB-250	275	1,895
1,250	1141	GB-250	275	1,895
1,500	1369	GB-250	275	1,895
2,000	1825	GB-500	510	3,048
2,500	2281	GB-500	510	3,048
3,000	2738	GB-1000	1,010	5,495
3,500	3194	GB-1000	1,010	5,495
4,000	3650	GB-1000	1,010	5,495
5,000	4563	GB-1000	1,010	5,495

*Based on the 25% rule; liquid holding X .125 (half grease half solids) X 7.3 (weight of FOG) = Estimated Grease Storage



***ALL* these adopt Grease Production Sizing – ASPE or Schier Original**

BUTLER AREA SEWER AUTHORITY PENSYLVANIA

STEP 1 Grease Interceptor Capacity

Insert exterior interceptor dimensions shown on cut sheets.

I.D. Width "ft"	I.D. Length "ft"	Outlet Height "ft"		Grease Interceptor Capacity
			=	lbs.

Note: Grease interceptor capacity formula applies 25% rule assuming 60% FOG and 40% bottom solids.

STEP 2 Average Monthly Meals/Day Meals/Day

STEP 3 Grease Production Value lbs./Meal

Using the chart below enter the grease production value that best fits your food establishment in the box al

LOW GREASE PRODUCTION Sandwich Shop, Convenience Store, Fresh, Bar, Sushi Bar, Delicatessen, Snack Bar, Ice Cream Parlor, Frozen	MEDIUM GREASE PRODUCTION Coffee House, Pizza, Grocery Store (no fryer), Cafeteria (no food prep), Japanese, Fast Food, Drive-In, Greek, Indian, Low	HIGH GREASE PRODUCTION Cafeteria, Family Restaurant, Italian, Steak House, Bakery/Donut Shop, Chinese Buffet, Mexican, Seafood, Fried Chicken, Grocery Store (w/fryer),
No Flatware .005 lbs./Meal	**No Flatware .025 lbs./Meal**	**No Flatware .035 lbs./Meal**
With Flatware .0065 lbs./Meal	**With Flatware .0325 lbs./Meal**	**With Flatware .0455 lbs./Meal**

Note: Grease production values are based off Schier's review of the 2011 brown grease study.

STEP 4 Calculated Days Per Pump Out Cycle

Use the values obtained from step 1, 2, 3 to solve the equation below. BASA will designate the appr days per pump out cycle.

Grease Interceptor Capacity		Meals Per Day		Grease Production Value		Days Per Pump Out Cycle	BASA Approved Days Per Pump Out Cycle
	÷	(	x	)	=		
STEP 1		STEP 2		STEP 3		STEP 4	

BENTONVILLE
ARKANSAS

STEP 2 -
Select one of the three formulas below to calculate grease production

1) Grease Output = [Servings Per Day] x [Grease Production Value] x [Days between pump-out]
2) Grease Output = [Number of Seats] x 4 [Average turns per seat per 24 hours] x [Grease Production Value] x [Days between pump-out]
3) Grease Output = ([Square Feet] x .6) / 14 [Square feet of tenant space per seat] x 4 [Average turns per seat per 24 hours] x [Grease Production Value] x [Days between pump-out]

1)

Meals Served/Day	x	Grease Production Value-see below	x	Days between Pumpouts	=	Grease Output/90 days
	x		x	90	=	

2)

Number of Seats	x	Average Turns/seat/24 hrs	x	Grease Production Value-see below	x	Days between Pumpouts	x	Grease Output/ 90days
	x	4	x		x	90	=	

3)

Square Footage of kitchen	Square footage x 6 divided by 14	Average Turns/seat/24 hrs	x	Grease Production Value-see below	x	Days between Pumpouts-90Day	x	Grease Output/ 90days
	0	4	x		x	90	=	

Note: All Foodservice Establishments (FSE) in the City of Bentonville is required by Ordinance #2019-185 to service their grease control device every 90 days. Unless it is changed by the city pretreatment division due to non-compliance with the ordinance.

Choose the appropriate grease production value for your type of FSE

Category	Grease Production Value	Description/Examples
Low	A) 0.005 lbs/meal (No Flatware) B) 0.0065 lbs/meal (W/ Flatware)	Serves food prepared offsite or food that requires minimal preparation and/or warming; sandwhich shop; convience store (no kitchen); hotel breakfast bar; frozen yogurt; coffee shop; take & bake pizza; bar (limited food service); cafeteria (no prep); grocery meat department; sushi (no grill)
Medium	C) 0.025 lbs/meal (No Flatware) D) 0.0325 lbs/meal (W/ Flatware)	Serves food from a limited menu and/or with a limited amount of onsite prepartion; pizza; ice cream parlor; fast food hamburger (pre-cooked); caterer; greek; japanese, vietnamese (pho); grocery store (no fryer); cafeteria (limited prep); low category restaurants with fryer
High	E) 0.035 lbs/meal (No Flatware) F) 0.0455 lbs/meal (W/ Flatware)	Serves a full menu of food prepared onsite; american traditional; hamburger (with grill); BBQ; mexican; italian; steak/seafood house; hibachi; buffet; fast food fried chicken; bakery/donut shop (with fryer); chinese; indian; grocery store (with fryer); cafeteria (full prep); medium category restaurant with fryer

MOUNT PLEASANT
SOUTH CAROLINA

a. **Sizing of Grease Interceptors**

Grease Interceptors shall typically be sized by the required grease capacity to support a pump-out frequency of 90 days. Grease capacity shall be calculated per the formula below:

Total # of Seats	×	Meals/Day Each Seat **2**	×	Grease Production Per Meal (lbs) Refer to Grease Production Table below	×	90 Day Pump Out Cycle	=	**Required Grease Capacity (lbs)**

Grease Production Per Meal (lbs)			
Grease Production Rate	**Typical Examples**	**No Flatware** (lbs/meal)	**Flatware** (lbs/meal)
Low	Sandwich Shop, Convenience Store, Bar, Sushi Bar, Delicatessen, Snack Bar, Frozen Yogurt, Hotel Breakfast Bar, Residential, etc.	**0.005**	**0.0065**
Medium	Coffee House, Pizza, Grocery Store (no fryer), Ice Cream Parlor, Japanese, Cafeteria (no food prep), Fast Food, Greek, Indian, etc.	**0.025**	**0.0325**
High	Cafeteria, Family Restaurant, Italian, Steak House, Bakery/Donut Shop, Chinese, Buffet, Mexican, Seafood, BBQ, Fried Chicken, Grocery Store	**0.035**	**0.0455**

For Example: Calculate the required grease capacity for an Italian restaurant which has a a seating capacity of 75

Total # of Seats **75**	×	Meals/Day Each Seat **2**	×	Grease Production Per Meal (lbs) **0.045**	×	**90** Day Pump Out Cycle	=	**Required Grease Capacity** **608 lbs**

Colorado Springs Utilities
It's how we're all connected

GREASE TRAP / GREASE INTERCEPTOR SIZING FORM

Business Name:

Business Location:

Step 1. Determine Grease Production Value

Table 1. Foodservice Establishment (FSE) Grease Production Values

Category	Grease Production Values	Description / Examples
Low	**A** 0.005 lbs/meal (no flatware)	Serves food prepared offsite or food that requires minimal preparation and/or warming; sandwich shop, convenience store (no kitchen), hotel breakfast bar; frozen yogurt, coffee shop, take & bake pizza, bar (limited food service), cafeteria (no prep), grocery meat department, sushi (no grill)
	B 0.0065 lbs/meal (with flatware)	
Medium	**A** 0.025 lbs/meal (no flatware)	Serves foods from a limited menu and/or with a limited amount of onsite preparation; pizza, ice cream parlor; fast food hamburger (pre-cooked), caterer, Greek, Japanese, Vietnamese (Pho), grocery store (no fryer), cafeteria (limited prep), low category restaurants w/ fryer
	B 0.0325 lbs/meal (with flatware)	
High	**A** 0.035 lbs/meal (no flatware)	Serves a full menu of food prepared onsite; American traditional, hamburger (with grill), BBQ, Mexican, Italian, steak/seafood house, hibachi, buffet, fast food fried chicken, bakery/donut shop (w/ fryer), Chinese, Indian, grocery store (w/ fryer), cafeteria (full prep), medium category restaurants w/ fryer
	B 0.0455 lbs/meal (with flatware)	

INDEPENDENCE
MISSOURI

Where:

- V=Grease interceptor capacity (in lbs) from Table 2 or use manufacture rated grease capacity.
- M= Number of meals per day.
- G=Grease production (lbs grease/meal) from Table 1.
- D=Days per pump out cycle minimum of 30 days and a maximum of 90 days.

Table 1

Grease Production

Grease Output	Example Entities	No Flatware (lbs grease/meal)	With Flatware (lbs grease/meal)
Low	Sandwich shop, convenience store, bars, delicatessen, snack bar, ice cream parlor, hotel breakfast bar	0.005	0.0065
Medium	Coffee house, café, pizza, grocery store (no fryer)cafeteria (no food prep), Greek, Indian, Japanese, Korean, Thai, low grease output entity with fryer	0.025	0.0325
High	Cafeteria, family restaurant, fast food, bar and grill, , bakery, Italian, German, buffet, grocery store (with fryer)	0.035	0.0455
Very High	Steak house, seafood, Mexican, Chinese, fried chicken, barbecue	0.058	0.075

Table 2

Grease interceptor conversion gallons to pounds

Grease interceptor volume (in gal)	Grease interceptor capacity (in lbs)
500	630
750	945
1000	1260
1250	1575
1500	1890
2000	2520

$$Grease\ interceptor\ capacity\ (in\ lbs) = Grease\ interceptor\ volume\ (in\ gal)\ x\ .25\ x\ .7\ x\ 7.2$$

FOG$^{2.5}$ Control Device Guidance Manual

Carlos L. Hernandez, PE, CFM, CEHP, LEED AP

Water & Wastewater Division Chief

June 2021

This manual was developed in collaboration with the Water & Wastewater Division staff.

5.3.2 FOG Loading

Fats Oils and Grease loading to the interceptor is used to calculate cleaning frequencies, and as a factor to properly calculate the size of the grease interceptor. The production of FOG per meal or unit of production changes according to the type of food service establishment. The following values may be used to estimate the FOG loading to the grease interceptor per meal.

Restaurant Type	Grease Production Values[8]	Food Service Establishment (FSE) Type
Low Grease Producer	0.005 lbs/meal (no flatware)	Elementary cafeteria, grocery meat department, hotel breakfast bar, sub shop, sushi, take-and-bake pizza
	0.0065 lbs/meal (with flatware)	
Medium Grease Producer	0.025 lbs/meal (no flatware)	Café, coffee shop, convenience store, grocery deli, Greek, Indian, Japanese, Korean, Thai, Vietnamese
	0.0325 lbs/meal (with flatware)	
High Grease Producer	0.035 lbs/meal (no flatware)	Full-fare family, fast-food, hamburger bar and grill, German, Italian, fast-food Mexican
	0.0455 lbs/meal (with flatware)	
Very High Grease Producer	0.058 lbs/meal (no flatware)	Full-fare BBQ, fast-food fried chicken, full-fare Mexican, steak and seafood, Chinese, Hawaiian
	0.075 lbs/meal (with flatware)	

Table 4. FOG Loading

MIAMI-DADE COUNTY Cont.

The minimum size and number of grease interceptors shall be the greatest of the following:

i) 20 gallons per minute

ii) Calculations based on the Florida Building Code, latest edition.

iii) Calculations based on peak flow rate

AND

Grease Interceptor's FOG Storage Capacity at 99% removal efficiency > M (meals/day) x FOGMEAL(lbs/meal) x T (Cleaning Frequency)

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[8] Refer to ASPE Plumbing Engineer Design Handbook Volume 4, Chapter 8, Table 8-3

Where,

M = maximum number of meals served per day

FOGMEAL = average pounds of Fats, Oils and Grease contained per meal (See Table 4)

Refer to **Attachment 3** for sample calculations.

Gravity FCDs are included in Section 24-42.6 of the MDC Code and Florida Administrative Code (FAC) Rule 64E-6. Per FAC Rule 64E-6.013(7) the minimum volume of any gravity grease interceptor shall be 750-gallons and the maximum volume of an individual single grease interceptor chamber shall be 1,250-gallons. When the required effective capacity of the grease interceptor is greater than 1,250-gallons, installation of multi-chambered grease interceptors or grease interceptors in SERIES is required. Florida Building Code Plumbing section allows for gravity grease interceptors to be designed, and tested in accordance with ASME A112.14.6, and IAPMO/ANSI Z1001 standards. For Z1001, sizing per peak flow along with FOG generation shall be accounted for. Where a conflict exists between Section 24-42.6 and FAC Rule 64E6, the stricter requirement shall apply.

The material of the interceptor shall also be compatible with a pH of 3.0. Concrete protective liners, mechanically anchored or coatings, which specifications indicate that they are for wastewater immersion, and approved for use in wastewater wet wells, pump stations, manholes, AND for corrosion/acid protection, not simply waterproofing or damp-proofing will be accepted. Plan sheets shall include documentation by the manufacturer with the specifications for the liners/coatings applied by the casting facility/tank manufacturer during the casting process. For coatings the design engineer shall confirm that the coating provides abrasion protection compatible with scraping and pressure washing performed under normal maintenance, pursuant to Section 61G15, Florida Administrative Code. For instances where the casting facility does not provide the pH coating during the casting process, on site application on coatings may be allowed. Plans will need to show the proposed coating will meet our requirements, and what company will be applying the coating in accordance

The material of the interceptor shall also be compatible with a pH of 3.0.

***ALL* adopt Grease Production Sizing; Interceptor Whisperer version**

Step 1: Size by Flow Rate

The minimum flow rate for a passive HGI may be calculated by either using pipe diameter or fixture volume using either a one-minute or two-minute drainage period. Use a one-minute drainage period when the interceptor is installed within 20 feet of directly connected fixtures and/or has indirectly connected fixtures. When the interceptor will be installed exterior to the building beyond 20 feet of the connected fixtures use a two-minute drainage period.

Fixture Volume Sizing

Use the following formula for sizing fixtures by volume with a 75% fill factor:

$$\frac{L \times W \times H}{231} \times 0.75 = \text{Fixture Capacity Gallons}$$

Fixture Capacity Gallons x 1 = one-minute drainage period (GPM)
Fixture Capacity Gallons x 0.5 = two-minute drainage period (GPM)

Pipe Diameter Sizing

When the final configuration of kitchen fixtures in an establishment is unknown or to allow for the addition of fixtures in the future, the minimum interceptor volume may be determined by the diameter of the drainage pipe leading from the establishment according to Table 1:

Table 1

Pipe Size (inches)	Full-Pipe Flow (GPM)[1]	One-minute drainage period (GPM)	Two-minute drainage period (GPM)
2	20	20	10
3	60	75	35
4	125	125	75
5	230	250	125
6	375	400	200
8	426	500	250

1. 1/4 inch per foot based on Manning's formula with friction factor N = 0.012

Pipe Diameter Sizing

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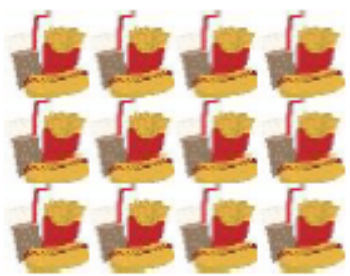
2	20	20	10
3	60	75	35
4	125	125	75
5	230	250	125
6	375	400	200
8	426	500	250

1. 1/4 inch per foot based on Manning's formula with friction factor N = 0.012

Step 2: Calculate Grease Capacity

Once the minimum flow rate has been established in Step 1, calculate the minimum grease storage capacity for the HGI required for the desired pump-out frequency as follows:

Grease Factor from Table 2 **X** Meals or Customers per day **X** Days between pump-outs **=** Grease Capacity Required



Type	Menu	Grease Factor ->	without Fryer w/o flatware A	without fryer with flatware B	with fryer w/o flatware C	with fryer with flatware D
1	Bakery		0.0250	0.0325	0.0350	0.0455
2	Bar - Drinks Only		0.0050	0.0065	0.0250	0.0325
3	Bar and Grille		0.0250	0.0325	0.0350	0.0455
4	BBQ		0.0250	0.0325	0.0350	0.0455
5	Buffet		0.0250	0.0325	0.0350	0.0455
6	Cafeteria - Full Serve		0.0250	0.0325	0.0350	0.0455
7	Cafeteria - Heat & Serve		0.0050	0.0065	0.0250	0.0325
8	Chinese		0.0350	0.0455	0.0580	0.0750
9	Coffee Shop		0.0050	0.0065	0.0250	0.0325
10	Continental breakfast		0.0050	0.0065	0.0250	0.0325
11	Convenience Store		0.0050	0.0065	0.0250	0.0325
12	Deli		0.0050	0.0065	0.0250	0.0325
13	Donut Shop		0.0250	0.0325	0.0350	0.0455
14	Don't know yet		0.0250	0.0325	0.0350	0.0455
15	Family Restaurant		0.0250	0.0325	0.0350	0.0455
16	Fast Food - Pre-Cook		0.0050	0.0065	0.0250	0.0325
17	Fast Food - Full Prep		0.0250	0.0325	0.0350	0.0455
18	Fried Chicken		0.0250	0.0325	0.0350	0.0455
19	Greek		0.0250	0.0325	0.0350	0.0455
20	Grocery Store		0.0250	0.0325	0.0350	0.0455
21	Ice Cream/Yogurt/Smoothies		0.0050	0.0065	0.0250	0.0325
22	Indian		0.0250	0.0325	0.0350	0.0455
23	Italian		0.0250	0.0325	0.0350	0.0455
24	Mexican		0.0350	0.0455	0.0580	0.0750
25	Pizza Restaurant		0.0250	0.0325	0.0350	0.0455
26	Pizza Carryout		0.0050	0.0065	0.0250	0.0325
27	Multi-unit dwelling		0.0050	0.0065	0.0250	0.0325
28	Salads / Healthy Bowls		0.0050	0.0065	0.0250	0.0325
29	Sandwich Shop		0.0050	0.0065	0.0250	0.0325
30	Seafood		0.0250	0.0325	0.0350	0.0455
31	Snack Bar		0.0050	0.0065	0.0250	0.0325
32	Steak House		0.0250	0.0325	0.0350	0.0455
33	Sushi		0.0050	0.0065	0.0250	0.0325

Grease Interceptor Sizing and Selection Worksheet

HGI Required Information:

1. ☐ Interior Installation ☐ Exterior Installation

2. Are there indirectly connected fixtures routed to the HGI? ☐ Yes ☐ No

3. Will the HGI be installed within 20 feet of the fixtures? ☐ Yes ☐ No

Note: for interior installations, if the answer to either question 2 or 3 is YES, use a one-minute drainage period, otherwise use a two-minute drainage period. For exterior installations use a two-minute drainage period.

Step 1: Calculated Flow Rate

1. Total Fixture Volume: _____ Flow Rate GPM (one or two-minute): _____

2. OR, Pipe Diameter (Table 1): _____ Flow Rate GPM (one or two-minute): _____

Step 2: Calculated Grease Capacity

Grease Factor (Table 2): _____ Meals or customers served per day: _____
Days open 60-day period[3]: _____ Grease produced 60-day period (lbs)[4]: _____
Days open 90-day period[3]: _____ Grease produced 90-day period (lbs)[4]: _____

[3]For FSEs that are not open every day, count the number of days open in a 60/90 day period
[4]Calculation: Grease factor*Meals or customers per day*Days open in 60/90-day period

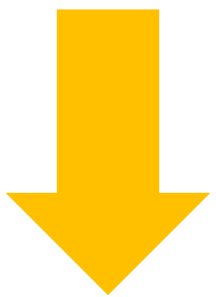
Note: The correctly sized and selected HGI(s) will have the minimum required flow rate determined in Step 1 and the minimum substantiated grease capacity determined in Step 2.

What is the make and model of the HGI: _____

Flow rate (GPM): _____ Liquid capacity (gal): _____ Proven grease capacity (lbs): _____

Please submit the completed Grease Interceptor Sizing and Selection Worksheet to the Utility for approval along with any other required documents.

Let’s do some Sizing Examples



Private Secondary Education Facility, Andover, MA

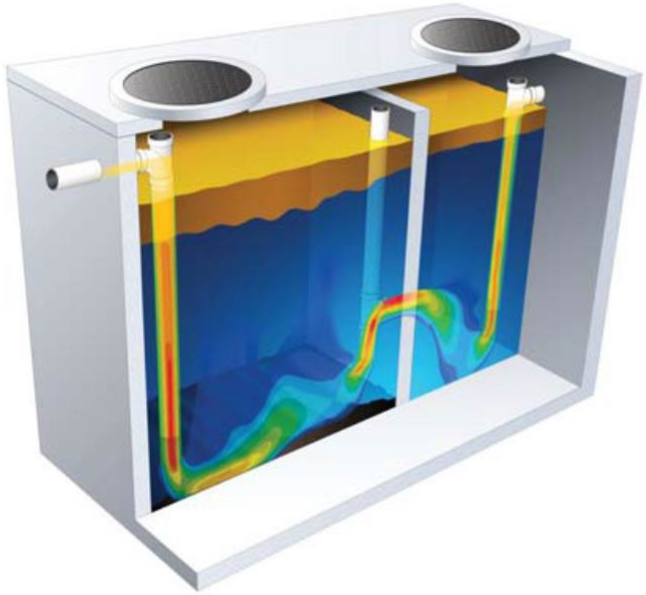

25,000 meals
per week
3,571 meals
per day

Type	Menu	Grease Factor ->	without Fryer w/o flatware A	without fryer with flatware B	with fryer w/o flatware C	with fryer with flatware D
1	Bakery		0.0250	0.0325	0.0350	0.0455
2	Bar - Drinks Only		0.0050	0.0065	0.0250	0.0325
3	Bar and Grille		0.0250	0.0325	0.0350	0.0455
4	BBQ		0.0250	0.0325	0.0350	0.0455
5	Buffet		0.0250	0.0325	0.0350	0.0455
6	Cafeteria - Full Serve		0.0250	0.0325	0.0350	0.0455
7	Cafeteria - Heat & Serve		0.0050	0.0065	0.0250	0.0325
8	Chinese		0.0350	0.0455	0.0580	0.0750
9	Coffee Shop		0.0050	0.0065	0.0250	0.0325
10	Continental breakfast		0.0050	0.0065	0.0250	0.0325
11	Convenience Store		0.0050	0.0065	0.0250	0.0325
12	Deli		0.0050	0.0065	0.0250	0.0325
13	Donut Shop		0.0250	0.0325	0.0350	0.0455
14	Don't know yet		0.0250	0.0325	0.0350	0.0455
15	Family Restaurant		0.0250	0.0325	0.0350	0.0455
16	Fast Food - Pre-Cook		0.0050	0.0065	0.0250	0.0325
17	Fast Food - Full Prep		0.0250	0.0325	0.0350	0.0455
18	Fried Chicken		0.0250	0.0325	0.0350	0.0455
19	Greek		0.0250	0.0325	0.0350	0.0455
20	Grocery Store		0.0250	0.0325	0.0350	0.0455
21	Ice Cream/Yogurt/Smoothies		0.0050	0.0065	0.0250	0.0325
22	Indian		0.0250	0.0325	0.0350	0.0455
23	Italian		0.0250	0.0325	0.0350	0.0455
24	Mexican		0.0350	0.0455	0.0580	0.0750
25	Pizza Restaurant		0.0250	0.0325	0.0350	0.0455
26	Pizza Carryout		0.0050	0.0065	0.0250	0.0325
27	Multi-unit dwelling		0.0050	0.0065	0.0250	0.0325
28	Salads / Healthy Bowls		0.0050	0.0065	0.0250	0.0325
29	Sandwich Shop		0.0050	0.0065	0.0250	0.0325
30	Seafood		0.0250	0.0325	0.0350	0.0455
31	Snack Bar		0.0050	0.0065	0.0250	0.0325
32	Steak House		0.0250	0.0325	0.0350	0.0455
33	Sushi		0.0050	0.0065	0.0250	0.0325

Grease Factor from Table 2		Meals or Customers per day		Days between pump-outs		Grease Capacity Required
	X		X		=	

0.0455 x 3571 x 1 = 162 pounds of grease per day
0.0455 x 3571 x 30 = 4,860 pounds of grease per month
0.0455 x 3571 x 90 = 14,580 pounds of grease per quarter
0.0455 x 3571 x 360 = 58,320 pounds of grease per year

What's the "right" size grease interceptor?



GGI – 1,000 gallon

Flow rate?
Grease capacity?
Efficiency?

DFU sizing, Appendix H, EPA Method…

?? days between pumpouts

GB-1000

Indoor/Outdoor Grease Interceptor
100 GPM / 5,495 lbs. Grease Retained
200 GPM / 4,959 lbs. Grease Retained
Liquid Capacity: 1,000 gal.

5,495 / 162 =

33 days between pumpouts

County Jail, Norfolk, VA


20,440 meals
per week
2,920 meals
per day

Type	Menu	Grease Factor ->	without Fryer w/o flatware A	without fryer with flatware B	with fryer w/o flatware C	with fryer with flatware D
1	Bakery		0.0250	0.0325	0.0350	0.0455
2	Bar - Drinks Only		0.0050	0.0065	0.0250	0.0325
3	Bar and Grille		0.0250	0.0325	0.0350	0.0455
4	BBQ		0.0250	0.0325	0.0350	0.0455
5	Buffet		0.0250	0.0325	0.0350	0.0455
6	Cafeteria - Full Serve		0.0250	0.0325	0.0350	0.0455
7	Cafeteria - Heat & Serve		0.0050	0.0065	0.0250	0.0325
8	Chinese		0.0350	0.0455	0.0580	0.0750
9	Coffee Shop		0.0050	0.0065	0.0250	0.0325
10	Continental breakfast		0.0050	0.0065	0.0250	0.0325
11	Convenience Store		0.0050	0.0065	0.0250	0.0325
12	Deli		0.0050	0.0065	0.0250	0.0325
13	Donut Shop		0.0250	0.0325	0.0350	0.0455
14	Don't know yet		0.0250	0.0325	0.0350	0.0455
15	Family Restaurant		0.0250	0.0325	0.0350	0.0455
16	Fast Food - Pre-Cook		0.0050	0.0065	0.0250	0.0325
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23	Italian		0.0250	0.0325	0.0350	0.0455
24	Mexican		0.0350	0.0455	0.0580	0.0750
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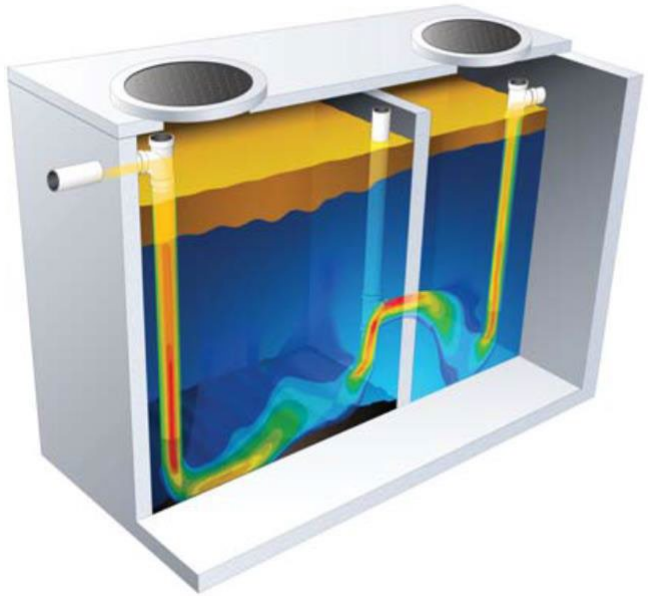
30	Seafood		0.0250	0.0325	0.0350	0.0455
31	Snack Bar		0.0050	0.0065	0.0250	0.0325
32	Steak House		0.0250	0.0325	0.0350	0.0455
33	Sushi		0.0050	0.0065	0.0250	0.0325

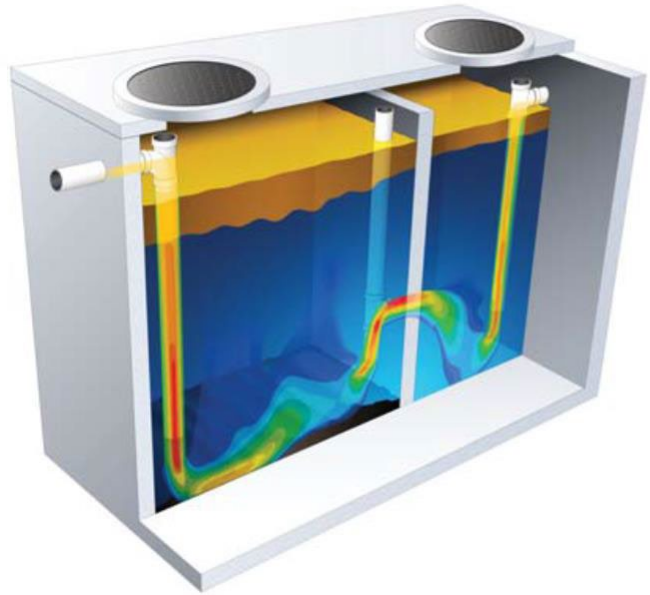
Grease Factor from Table 2		Meals or Customers per day		Days between pump-outs		Grease Capacity Required
	X		X		=	

0.0455 x 2920 x 1 = 132 pounds of grease per day
0.0455 x 2920 x 30 = 3,960 pounds of grease per month
0.0455 x 2920 x 90 = 11,880 pounds of grease per quarter
0.0455 x 2920 x 360 = 47,520 pounds of grease per year

What's the "right" size grease interceptor?



REPLACE:
2 each 3,000
gallon tanks



Size tanks?

DFU sizing, Appendix H, EPA Method…

?? days between pumpouts

What’s the “right” size grease interceptor?

GB-1000 (3) = 3,000 gallons

5,495 x 3 = 16,485 lbs

90 days between pumpouts

BIGGEST Industry TRENDS in FOG Program REGULATIONS…

- Rejecting CONCRETE and METAL Grease Interceptors
- DISCRIMINATING against Gravity Grease Interceptors
- Requiring 3rd Party PERFORMANCE validation for Grease Interceptors
- Adopting GREASE PRODUCTION Sizing instead of Flow Rate or Liquid Volume only sizing

Questions?