The plumbing inspector’s view of grease control. A photo record of the good, the bad, and the ugly!

Presented by: Mike Ditty
City of Wilsonville, Oregon
Much better here....... Than here!
greasy plumbing inspections

or....

what it looks like on our side of the curb
Sanitary manhole on-site full service restaurant

Why, no sir, we sure don’t know where that grease is coming from…. Are you sure that is grease?
We dispose of our grease properly into these rendering barrels. It is an important part of our BMPs for our personnel to follow when handling grease.
Oh, that is not a big deal, we pressure wash this area all the time!
Note: the “Greasy Sheen” on the concrete floor is a give-a-way
Grease Balls!
Grease in a trap is exposed to both oxygen and water.

The final product is a peroxide (I have no idea what that is) and peroxides are polar.

Rancid Fats have a polar end and a non-polar end which makes it a surfactant (I have no idea).

The molecules will form a coating around a globe of fat and you get Grease Balls!

Grease traps that are unattended can achieve big grease balls.
150 gallons of Grease Balls removed from the public sewer in Florida
Pizza restaurant utensil wash sink indirect to mop sink
Pizza Restaurant multi-tasking sink with indirect waste to floor sink
Indirect Waste Receptors
Floor Drains, Floor Sinks and Trench Drains
Meat packaging department
Greasy trench drains the county health inspector just loves to see!
Floor Drain grate openings plugged with grease and food particles
Food particles coated in grease
Floor Drains back up and overflow because of Grease Trap
Pre-rinse sink
Rice Cookers

Pasta Cooker
Grease Hood

Grease Hood Drain Connection
Deep Fat Fryer
Tilt Kettles
Full service restaurant
Chicken rotisserie with water and drain connections

Chicken “skewer cleaner”

Poultry Skewers
Grease Trap meat department

Knife rinse

Meat packaging room
Pot wash sink with soak/ scrubber
Can Wash area
Institutional Kitchen
Pre-rinse with dishwasher
Fish Grinder
Pre-rinse faucets and sinks
Dishwasher solids tray

Coffee milk pitcher sink
1870 Butler’s pantry sink (kitchen sink)
Dishwashers with solids strainer
Soup Kettle and Warmers
Hydro-Mechanical Grease Interceptor

Principles of Operation
- Hydraulic flow action
- Internal baffling
- Air entrainment
- Specific gravity
- Separation by floatation
- Retention

hydro
noun hy·dro \ˈhī-(ˌ)drō\ A combining form meaning “water”. Used in the formation of compound words.

mechanical
adjective me·chan·i·cal \mi-ˈka-ni-kəl\ (1) : of or relating to machinery or tools mechanical applications of science a mechanical genius mechanical aptitude (2) : produced or operated by a machine or tool mechanical power a mechanical refrigerator a mechanical saw

Hydro-mechanic
Gravity Grease Interceptors

**Principles of Operation**
- Gravity flow
- Retention
- Separation by floatation
- Specific gravity
- Design for maintenance
Grease Removal Devices

**Principles of Operation**
- Powered skimming devices
- Timed control
- Event control (sensor control)
- Heat
- Draw-down
- Separation

Hold Nylon Hose/holding a bucket over end of pipe
FOG Disposal Device

- Automatic reduction in mass
- Microorganisms oxidize FOG
- FOG conversion to by-product of digestion
- Remediation
- Heat
- Chemical

Education & Best Management Practices (BMP)

Enzyme Remediation
Hydromechanical Grease Interceptors

- Grease Interceptor
- Chilling Trap, water jacketed
- Grease trap inlet cover
Abandoned Grease Trap

This was a Canplas plastic trap modified with a grease removal device. Abandoned. Spider Webs. Kitchen wash sinks bypass this trap.

Lid removed revealing dry stinky trap.
Cold Stone Ice Cream grease trap under test and leaking nicely
Hungry Howies’s Series 800 70lb grease trap
HGI access at the day care center
Food waste grinders that discharge through an HGI shall have a solids interceptor installed upstream of the inlet of the HGI.

The only design that works well is the open drawer type strainer. This
This design does not hold water under pressure (even head pressure) and clogs quickly. Although it will disassemble, it is not easily cleaned.
Elevation issues and support must be accommodated.
This solids strainer drawer type is easier to use and install but doesn’t work for a food waste grinder. (splashing, flooding)

In short, it is best to run a grinder through a gravity grease interceptor and not an HGI.

Another issue when dealing with grinders will be temperature. Be sure the HGI is rated to receive the discharge of a food waste grinder.
Access is required for maintenance and inspection.
Once upon a time in the code we could use the HGI as the primary fixture trap.

There were many problems with access and foul odors in such installations.
Holiday Inn Express, breakfast prep kitchen.

Workers called City and complained about “bad smell like Poop” in kitchen and manager would not do anything to investigate.

The Grease Trap flow control vent was connected to other sewer connected vents in the building. There was no fixture p-trap protecting the occupied space from the gases.
No fixture trap installed
Flow control vent connected to system vents allowing gas to enter occupied space because there is no fixture trap protecting the fixture.
Fixture Trap installed and protecting occupied space from sewer gases
Flow Control devices shall not have “adjustable or removable parts”
Flow Controls are required to be “readily accessible” & “visible”
Very nice code approved
"readily accessible & visible"
Flow Control Device!
The joy of Gravity Grease Interceptor installations

2. 24 hour test for Gravity Grease Interceptor. Fill with water and let stand 24 hours. All vents, inlet and outlets, baffles, and gaskets should be installed and in place for test.

3. Joint leaks have been repaired.
Wrong secondary chamber baffle size installed
Note the baffle for the secondary chamber is in two sections. The upper section is the wrong size and abuts against the bottom of the Interceptor Lid.

This obstructs air flow through and is not per the listed design. And it leaks.

The fix was wrong also.
Often missed inspection opportunity. The bottom of the chamber baffle must be sealed.
1000 Gallon Interceptor on test
Grease Interceptor testing.
A common test is to backfill ¾ or so around the interceptor to support it and fill with water.
24 hour test period.

This one developed leaks in transit that could not be field repaired and had to be replaced.

They were less than happy with the plumbing inspector.
The corrosive atmosphere in the Gravity Grease Interceptor degraded the rebar in the porous concrete.

This was a Burger King GGI that lasted about 15 years.
Tired old soldiers!
Abandoned & pumped out.
Filled with clean earth, sand, gravel, concrete or other approved material

Abandoned HGI and piping re-routed to exterior GGI

Replacing BK interceptor
Pumping out water after a reverse GGI test
Greasy Plumbing Inspections

GGI with lift station

GGI alarm station
Always consult with the AHJ or BO before approving any installation involving manifolds.
Guess the discharge game

KFC
MEAT AND BAKERY COMBO
TAVERN
BURGERS
Definition of GREASE

1a: rendered animal fat
b: oily matter
c: a thick lubricant

2: wool as it comes from the sheep retaining the natural oils or fats
— greaseless
— greaseproof
— in the grease of wool or fur: in the natural uncleaned condition