



# Green Drain™

waterless trap  
for floor drains



## Drain Protection

Drainage technology is an area that has evolved very little since the advent of modern plumbing. However, buildings are getting bigger and the volume of matter we now push through these pipes are stressing the pipes out.

The volume of drainage blockages has increased. Waste disposals and macerators are flushing solids. Commercial kitchens are washing away fats and fat solids. The pipes haven't increased in size, but the volume of content flowing through them has.

Many buildings are also going 'green.' Low flush toilets are installed. Water-saving devices on taps, showers and even energy efficient boilers are installed. Going Green ignores the original design of modern plumbing. Gravity and WATER push content through the pipes.

### When you reduce the water in a drain pipe and increase the content, the following happens:

#### Blockages

This leads to back-ups, flooding, drain flies and more infiltrating the living/work space through the drains.

#### Dry Traps

This causes the airflow to reverse direction – instead of going down the drain it moves into the living/work area. Germs spread. It can lead to pathogen spread. Viruses such as NORO and SARS can spread quickly through the pipes and out the drains.

#### Sewer Smells

When the airflow reverses, sewer gas odors travel back into the living/work space through the drains. Sewer gas contains highly toxic substances such as hydrogen sulfide and ammonia. These gases are extremely flammable and exposure can cause headaches, nausea, dizziness and irritation to the eyes and respiratory tract.

Green Drain, Inc. manufactures an economical Drain Trap Seal Device that allows water to flow down the drain while preventing Pests, Odors, or Harmful Gases/Pathogens from infiltrating the living or work space.



## Drain Fly Infiltration

Drain flies appear in homes, rest rooms of commercial buildings, sewage disposal plants and agricultural facilities that handle moist animal waste. Restaurants, schools and other public buildings may be avoided when drain flies are a nuisance. Bronchial asthma can be caused by inhaling fragments and dust of dead flies. Since these flies originate in filthy conditions, there is the possibility of physical transmission of microbes of human health concern. Drain flies can carry bacteria and other microorganisms from egg-laying sites to food and surfaces that come in contact with food.

### Life Cycle

Drain fly larvae grow and feed in polluted, shallow water or in highly moist organic solids prevalent in drains. The life cycle of drain flies can be completed in one to three weeks. Adults live about two weeks, with old ones dying and new ones emerging.

### Prevention

The most effective way to prevent drain fly infestations is to eliminate their breeding places. Inside buildings, this would include cleaning the drain pipes, drain traps and other plumbing system components in an attempt to eliminate the bacterial scum (gelatinous rotting, organic matter) that regularly forms on the surfaces of plumbing.

### Pesticide Treatments

There are no insecticides registered for use in drains or sewage systems, as they can cause major damage of sewer and sanitation systems. In most cases, the larvae seem to be resistant to such treatments.



The Green Drain can help to prevent drain fly infiltration and potentially fatal cross contamination and infection spread caused by unprotected drains. The Green Drain is an economical Drain Trap Seal Device that allows water to flow down the drain while preventing Pests, Odors, and Harmful Gases/Pathogens from infiltrating the living or work space.



## Harmful Biologic Aerosols

It is widely established that drains are reservoirs for microbes and antibiotic residues. It is also clear that microbes in drains and pipes adhere to the surfaces of drains and drainage pipes as microbial biofilms, creating a complex ecosystem of different microbes that are fed by organic and inorganic matter. Drains act as cradles to the emergence of bacteria armed with abilities to resist multiple antibiotics. The development of resistance is probably enhanced at hospitals due to the fact that more bacteria and more antibiotics are flushed down the drains due to the very nature of hospitals constantly caring for numerous different patients that are ill and treated with antibiotics.

Thus, biofilm in building drains, not properly maintained, have the potential of spreading even more resistant bacteria. Numerous studies stress the importance of a physical barrier between drainage systems and surroundings. As shown in the SARS outbreak at Amoy Gardens, harmful biologic aerosols can enter the ventilation system from exposed drains and be spread to all the other connected rooms igniting a fearsome spread. It is essential that drainage systems must be completely tight and intact where openings have physical barriers.



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## Sewer Gas Infiltration

Sewer gas is a complex mixture of toxic and nontoxic gases that can be present at varying levels depending upon the source. It is formed during the decay of household and industrial waste. Highly toxic components of sewer gas include hydrogen sulfide and ammonia.

Sewer gas also contains methane, carbon dioxide, sulfur dioxide, and nitrous oxides. In addition, chlorine bleaches, industrial solvents, and gasoline are frequently present in municipal and privately owned sewage treatment systems.

**The principal risks and effects associated with exposure are:**

- **Hydrogen Sulfide Poisoning.** Exposure to low levels of hydrogen sulfide causes irritation of the eyes and respiratory tract. Other symptoms include nervousness, dizziness, nausea, headache, and drowsiness. This gas smells like rotten eggs, even at extremely low concentrations. Exposure to high concentrations can interfere with the sense of smell, making this warning signal unreliable. At extremely high levels, hydrogen sulfide can cause immediate loss of consciousness and death.
- **Asphyxiation.** High concentrations of methane in enclosed areas can lead to suffocation, as large amounts of methane will decrease the amount of oxygen in the air. The effects of oxygen deficiency include headache, nausea, dizziness and unconsciousness. At very low oxygen concentrations (<12%), unconsciousness and death may occur very quickly and without warning. Sewer gas diffuses and mixes with indoor air, and will be most concentrated where it is entering the home. It can accumulate in basements.
- **Explosion and Fire.** Methane and hydrogen sulfide are flammable and highly explosive.



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## Radon Gas Infiltration

Radon is an odorless radioactive gas that results from the natural breakdown of uranium in soil. Uranium is present in most of the soil and rock around the world. It is typically concentrated in areas with lots of granite, shale, phosphate and pitchblende.

The gas is a deadly carcinogen, accounting for over 20,000 deaths annually in North America. Studies show that sealing the sump and the floor drain eliminates the major source of radon infiltration.

- Radon gas comes from the decay products of uranium in the ground beneath buildings. It can seep in through cracks, sumps, joints, floor drains or other tiny openings in foundations.
- Radon gas emits radioactive particles that can be inhaled into the lungs. The adverse health effect—lung cancer—may not be produced immediately. An estimated 21,800 people die annually from radon-related lung cancer.
- Radon is invisible, odorless, and tasteless.
- One in 15 houses have elevated radon levels; however, in some states it is over 50 to 70% of homes. Elevated radon levels have been discovered in every state in our nation.
- The USEPA estimates as many as 8 million homes throughout the country have elevated levels of radon.
- Over 70,000 classrooms have radon levels above the EPA action level.

### Fast Facts

RADON - the second leading cause of lung cancer.  
RADON - is invisible, odorless, and tasteless.  
RADON - estimated 23,000 deaths yearly.

**SURGEON GENERAL'S WARNING:** Radon causes lung cancer.

The Green Drain can help to prevent harmful radon gas infiltration through unprotected drains. The Green Drain is an economical Drain Trap Seal Device that allows water to flow down the drain while preventing Pests, Odors, and Harmful Gases/Pathogens from infiltrating the living or work space.



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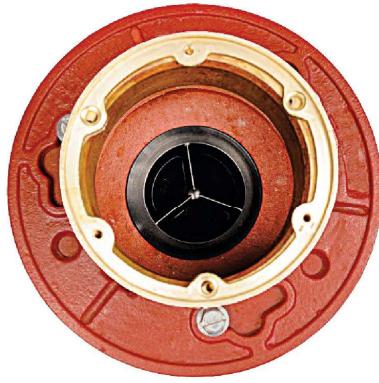
**Specifications:** Series inline floor drain trap seal with UV resistant ABS plastic frame, silicone rubber sealing flapper and four flexible sealing ribs. Tested and certified to the ASSE 1072 Standard and listed with IAPMO and I.C.C. Specify connection size (2" (51MM), 3" (76mm), 3 1/2" (89mm) or 4" (102mm))

**Function:** Used in the outlet connections of floor drain bodies, or the inside of floor drain strainers to seal the opening to prevent odors, sewer gases, and insects from entering up through the floor drain grate. The Green Drain's four flexible silicone sealing ribs ensure easy installation into openings that have variations in size. The Green Drain will open to allow drainage and close when there is no water flow. The Green Drain can be used in either new construction or retro-fit applications where trap primers were never installed.

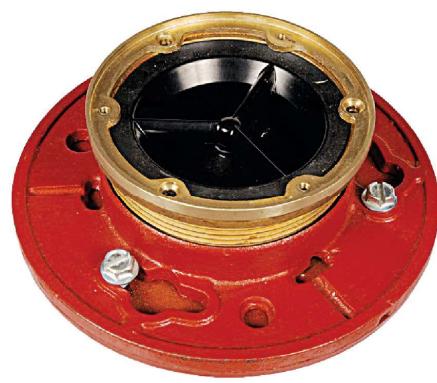
Prevents the following from entering through the top of floor drains:

- Odors and sewer/radon gases
- Insects and harmful pathogen spread

MODEL NUMBER	DEVICE SIZE		FLOW RATE	
	"A" PIPE SIZE INCH (mm)	"B" HEIGHT INCH (mm)	GPM	L/M
GD102	2" (51mm)	2" (51mm)	12.0	45.4
GD103	3" (76mm)	2" (51mm)	34.0	128.7
GD1035	3 1/2" (89mm)	2" (51mm)	51.0	193.0
GD104	4" (102mm)	2" (51mm)	73.0	276.3



BOTTOM OF BODY



TOP OF STRAINER

U.S. Patent #7,900,288





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## Prevents

- Drain Odors
- Pest Infiltration
- Sewer/Radon Gas Infiltration
- Harmful Biologic Aerosols

## Product Benefits

- Increases Indoor Air Quality
- Protects the Public Health
- Green Technology
- Helps in LEED Certification

## Product Features

- One way drain valve
- Ease of installation
- Does not impair flow rate

- Does not impair plumbing maintenance
- Provides sewage back-flow protection
- Universal Plumbing Code Certified

