

This fact sheet outlines tips for preventing drain system plumbing problems

Floor drain systems

Plumbing systems usually function for years without needing attention, and like many basic utilities they are often forgotten until a problem arises. Basic information about floor drain systems, separators, and simple maintenance ideas are covered in this fact sheet.

Where Liquids Go

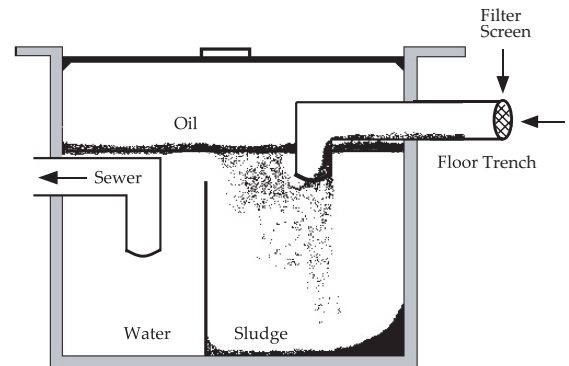
Many buildings have floor trench systems, floor drains, or wash and service bay areas that allow liquids to drain away. The Minnesota Plumbing Code 4175.1120 provides specifications for constructing and installing separators, devices that are used isolate and collect flammable and oily waste from wastewater prior to sewerage, in these buildings. The code applies to all business locations where flammable or oily liquid wastes are produced including: enclosed garages over 1,000 square feet, garages housing more than four vehicles, and vehicle maintenance or washing operations.

Buildings not connected to a municipal sewer system usually use on-site wastewater treatment such as a septic system, drainfield, or drywell. Contact the Minnesota Pollution Control Agency (MPCA) at 651.296.6300 or 800.657.3864 for information about regulatory requirements for discharging into these systems. Businesses with on-site systems usually are allowed very limited discharge.

How Separators Work

When wastewater is collected in a separator, petroleum products including oil and fuels float to the top, and heavier materials like sand and sludge settle to the bottom. This isolates the petroleum products from the wastewater, which is discharged between the top and bottom layers, prior to sewerage.

If a separator is not installed, petroleum products could accumulate in the sewer system.



Simplified Separator

This may result in a high concentration of explosive vapors in sewer lines or manholes, or petroleum wastes or other solids plugging the sewer.

Danger: Confined Spaces

Spaces below the floor, such as separators, where various organic liquids have accumulated over time, may be hazardous because of volatile compounds or lack of oxygen. Employee entry into these confined spaces requires extensive training and safety precautions.

Maintaining Separators

Routine maintenance of separators is required to prevent oil and/or sludge from accumulating and plugging the separator outlet or from discharging with the wastewater. If ignored, buildup can back up sewers and fill floor drains.

Discharging significant amounts of oil or solvent wastes into the sewer can interfere with sewer line maintenance, safety, and with the proper functioning of wastewater treatment plants. Approved discharges are highly regulated by sewer authorities. Sludges accumulating in separators may contain organic contaminants and heavy metals, which could be classified as hazardous waste. Excess discharge could

result in authorities investigating contaminant sources at your facility. Expensive testing may be required to evaluate the waste to determine its proper disposal method.

To help minimize and prevent separator troubles, periodic inspection and maintenance are necessary. Finding the separator access may be a challenge in renovated or remodeled buildings. Long-neglected separators may require hiring a clean-out service and arranging for proper disposal of the sludge. The following prevention tips will help you reduce or eliminate drain maintenance and save money by reducing the volume of solvents, cleaners, and other industrial liquids lost to the floor drain.

Capping and Plugs

Determine if all the floor drains are needed and cap unnecessary drains. If a drain location could cause or contribute to problems with separators, consult a licensed plumber to cap the drain. If improperly capped, abandoned drains can be a dangerous source of accumulated sewer gases. Temporary sewer plugs may be used in emergencies to help contain spills and prevent discharge to the sewer, but they are not a permanent fix.

Liquids

Stop solvents, fuels, and oily fluids from reaching the drain. Oils are easy to recycle when they are captured and managed separately. This can be done by keeping oil off the floor by collecting it in drip pans and trays. If oil does get on the floor use a squeegee and a dust pan to collect it. This will recover the recyclable oil and minimize residue cleanup with absorbents.

Be prepared for spill emergencies. Keep all industrial liquids and activities using these liquids away from floor drains. Sludge that accumulates in separators may become hazardous waste if you are careless about the contaminants that mix with dirt in the floor drain.

Solids and Dirt

Clean the floor using dry methods. Use a broom and dustpan instead of a hose. Do not use floor trenches as disposal receptacles.

Consider using filter screens over floor trench outlets. They can be used to capture dirt easily at floor level before it can get into the separator. Solids will effectively shut down your operation if enough accumulate in pipes, drains, and separators. Following good housekeeping practices now can minimize the potential for costly problems later.

Proper Waste Management

Accumulated floating oils can be collected, managed, and recycled with other used oil waste. Other floating hazardous materials that are collected in significant amounts, such as petroleum solvents or corrosive cleaners, need to be managed as hazardous waste.

Bottom sludges may be only accumulated dirt. Twin Cities metropolitan county hazardous waste offices or the MPCA can provide guidance on how to evaluate your facility's waste. Consult your service contractor about its ability to properly dispose of this material.

Additional Resources

Waste liquids and solids generated by cleaning out separators may be classified as hazardous waste. Regulatory information about proper management and disposal is available from Twin Cities metropolitan county hazardous waste offices, or the MPCA at 651.296.6300 or 800.657.3864.

For information related to Minnesota's Plumbing Code requirements and specifications, call the Minnesota Department of Labor and Industry, Plumbing Plan Review and Inspection Unit at 651.284.5067.



For More Information

MnTAP has a variety of technical assistance services available to help Minnesota businesses implement industry-tailored solutions that maximize resource efficiency, prevent pollution, increase energy efficiency and reduce costs. Our information resources are available online at <mntap.umn.edu>. For personal assistance call MnTAP at 612.624.1300 or 800.247.0015.