

Green Restaurant Guide: Pollution Prevention

Table of Contents

I. Purpose of This Guide

II. Safe Cleaners

1. What are the Issues with Unsafe Cleaners?
2. Meeting Your Cleaning Needs: Cleaning vs. Sanitizing vs. Disinfecting
3. Top 4 Actions a Restaurant Can Take for Greener Cleaning and Pollution Prevention
4. More Tips to Prevent Water Pollution and Protect People in the Workplace
5. Resources for Safer Cleaners
6. FAQ
7. Glossary

III. Fats, Oil and Grease Management

1. Why keep Fats, Oil & Grease (FOG) Out of the Sewers?
2. Top 5 Actions a Restaurant Can Take To Prevent FOG Water Pollution
3. More Tips for Preventing FOG Water Pollution
4. Case Studies & Tools
5. Glossary

IV. Integrated Pest Management

1. What is Integrated Pest Management?
 - a. Why is Integrated Pest Management Important?
2. Four Steps to Starting Your IPM Program
3. Top 5 Actions Restaurants Can Take to Eliminate Pests
4. More Tips on IPM
5. Self Inspection Tool
6. Glossary

I. Purpose of This Guide

This guide is designed to assist new and existing food establishment owners and managers in San Francisco with implementing pollution prevention and toxics reduction practices in your establishment.

If you have enrolled in the **San Francisco Green Business Program** for environmental assistance and award recognition, follow all sections of the Green Restaurant Guide to fulfill the measures on the checklist. For more information about the San Francisco Green Business Program, please visit www.sfgreenbiz.org or call 415-355-3700.

II. SAFE CLEANERS

1. What are the Issues With Unsafe Cleaners?

Cleaning products often contain ingredients that may cause harm to human health and the environment. Reactions to these ingredients may include burning eyes, skin and respiratory irritation, as well as long term health effects. Selecting appropriate eco-friendly cleaners can reduce your risk of occupational hazards.

In the USA, approximately thirty million pounds worth of cleaning products go down the drain every 24 hours. Many of these cleaning products contain toxins which do not break down fully, resulting in pollution of local waterways and hazards to wildlife.

It is important to choose cleaners that minimize potential harm but do not compromise product effectiveness. You can further reduce unnecessary hazards by purchasing multi-purpose cleaners instead of several single-purpose cleaners, and buying products in concentrate form. Most vendors carry a few lines of products to meet the varying demands of their customers. Ask your suppliers for their greenest product lines.

2. Meeting Your Cleaning Needs: Cleaning vs. Sanitizing vs. Disinfecting

Food service facilities are required to use specific types of cleaning agents for different purposes. Some cleaning products meet more than one need, depending on the concentration of the product used. In order to minimize harm, the appropriate concentration should be used for each purpose.

Cleaning is the process of removing food or soil from a surface, generally with detergent, water or manual scraping methods. Types of cleaners include:

- **Detergents:** general purpose (usually mildly alkaline or caustic) used to clean fresh soil; or heavy duty (highly alkaline) used to remove aged or dried soil, wax or baked-on grease.
- **Acid Cleaners:** used to remove mineral deposits or other soils alkaline cleaners can't remove. Effective on scale in dishwashing machines and steam tables, vary in type and strength based on cleaner's purpose.
- **Solvent Cleaners:** used to dissolve grease, effective on baked-on grease on backsplashes, oven doors and range hoods.
- **Abrasive Cleaners:** contain scouring agents to scrub baked-on food in pots and pans and soil on floors. Use carefully: these can scratch surfaces.

Sanitizing is a process that reduces the number of bacteria and microorganisms on a clean surface to safe levels and is capable of killing 99.99% within 30 seconds; time may vary with the sanitizing agent.

Sanitization can be accomplished manually or with automatic equipment such as dishwashers using high heat (steam or hot water) or chemicals. High temperature sanitization requires the temperature to exceed 171°F for at least 30 seconds. Sanitizers don't necessarily destroy pathogenic or disease causing bacteria. *Any surface in a food service facility that comes into contact with food must be cleaned and sanitized.*

When choosing a safer sanitizer and/or disinfectant, confirm with the supplier that the product has been approved for restaurant use and has EPA and California Department of Pesticide Registry approval. (See glossary.) Many newer green products are still in the approval process either for efficacy or for pesticide registry. Food service facilities must use only approved sanitizing systems. See the California Health and Safety Code for definitions and approved sanitizers.

http://www.ceha.org/documents/Cal_Code_rev_1_16_07.pdf

Chemical sanitizing involves either immersing the object in a sanitizing solution for a specific amount of time or spraying or wiping the object with the solution and allowing air-drying. Common sanitizers include hypochlorites (chlorine bleach solutions), quaternary ammonium compounds (quats) and iodophors (iodine solutions). Follow manufacturer's instructions for effectiveness and ask your supplier for the least toxic, but effective choice for your establishment.

Here's a brief description of the approved sanitizers for food establishments:

Hypochlorites (chlorine solutions) are the most common sanitizers used in restaurants. While effective and relatively inexpensive, they are not the greenest choice for manual surface sanitization. They are respiratory irritants, are corrosive to skin and eyes (can cause burns- see glossary), can degrade metal surfaces and cause discoloration to materials such as clothing and linens. Hypochlorites don't work as well in alkaline applications (hard water regions or where alkaline detergents are used) and will need longer surface exposure times. Hypochlorites are used in most automatic warewashing systems.

Quaternary Ammonium Compounds (quats) tend to be less irritating to workers and are more commonly used in low-level sanitization applications. They are odorless, non-staining and non-corrosive and the solution must be properly diluted according to the manufacturer's recommendations. Surpassing the recommended amount does not raise the effectiveness of the sanitizers but can in fact make the solution toxic. Quats are commonly used in circulation-in-place (CIP) systems as they tend to be acidic, rinse clean and sanitize well.

Iodophors (iodine solutions) are also approved for sanitization, but work more slowly than hypochlorites and stain most surfaces. They only work in acidic environments (low pH cleaning agents for example) and evaporate at temperatures greater than 95°F. They are seldom used in restaurant settings, but are approved sanitizers for food establishments in California.

Disinfecting is a process that destroys disease causing bacteria and/or pathogens, but not spores and not all viruses. It must be capable of reducing pathogenic bacteria by 99.99% in five to ten minutes. Disinfectants are more effective at killing pathogens than sanitizers are. For restaurants, disinfectants are more appropriate for use on non-food surfaces such as floors and walls.

3. Top 4 Actions a Restaurant Can Take for Greener Cleaning and Pollution Prevention

1. Assess all cleaning and sanitizing chemical supplies. Read the product label and the Material Safety Data Sheet (MSDS) to help make your product choices. If you don't have the MSDS, ask your supplier for it or search online using the product name and MSDS.

2. Minimize your use of harmful products. Thoroughly clean and rinse surfaces prior to using appropriate sanitizer. Follow manufacturer guidelines for safe mixing and product use. Blending products stronger than the manufacturer recommends does not necessarily make the product more effective and can pollute more. Ensure that you are maintaining proper cleaning and sanitizing procedures as outlined in the California Retail Food Code: http://www.ceha.org/documents/Cal_Code_rev_1_16_07.pdf

3. Work with vendors to find the most eco-friendly cleaning/sanitizing product line for food establishments. Most suppliers now provide quality greener products. Ensure products are compliant with the California Health and Safety Code for their specific uses.

4. *Use caution not to void automatic warewashing warranties; follow the manufacturer's recommendations for cleaning agents. Contact your warewashing supplier to find the greenest choice for your business.

5. Use dry clean up methods such as brooms, squeegees, shovels or dustpans prior to using wet methods to clean surfaces. For liquid spills use a damp mop and dispose of wash water in the sanitary sewer, not a storm drain.

4. More Tips to Prevent Pollution and Protect People in the Workplace

- Always wear gloves and eye protection, even with safer products.
- Automatic dilution stations with concentrated chemicals can minimize overexposure to workers manually diluting chemicals and keep you storing smaller quantities. Ask your vendors about these stations.
- Never mix bleach and ammonia together, as this mixture can create a toxic gas. Many establishments no longer use ammonia cleaners, but still use quaternary ammonium compounds for sanitizing. Use care to rinse thoroughly when using these products.
- Use long handled dustpan to pick up trash.
- Never dry sweep or spray cleaners in areas where food is on display or where customers are eating.
- Scrape excess food particles from utensils and dishware before cleaning.
- Track chemical use. Have your dishwashing machine service person leave a detailed report on the levels of chemicals being pumped and what adjustments were made. Request testing paper to measure your chemical levels between services.

5. Resources for Safer Cleaners

The following organizations rate and certify environmentally responsible products and services:

- Green Seal: GS-37 is the standard for general cleaners and GS-40 is for floor care products. www.greenseal.org
- New American Dream www.newamericandream.org/procure/products/approved.php
- Massachusetts Environmentally Preferable Products Program www.mass.gov/epp/products/cleaning.htm

- WSPPN Janitorial Pollution Prevention Project www.westp2net.org/janitorial/jp4.cfm
- Canada's EcoLogo Program www.environmentalchoice.com
- Scientific Certification Systems www.scscertified.com

6. FAQ

Q: Where can I learn more about disinfecting and sanitizing agents?

A: <http://tinyurl.com/8xb2du>

Q: Where can I learn more about hazardous substances?

A: <http://www.dhs.ca.gov/ohb/hesis/uts.htm>

Q: How can I properly dispose of hazardous materials?

A: Visit www.sfenvironment.org and use the EcoFindERRR to search for companies that dispose of or recycle almost anything.

7. Glossary

Corrosive/ Caustic: A substance that is capable of burning, dissolving or eroding a substance by chemical reaction. Corrosive materials cause visible destruction or permanent changes in human skin tissue at the site of contact (causes burns) and degrade metals. Corrosives include acids and bases (alkaline materials) and levels of corrosivity range from pH of 0 to 14, 0 indicating a strong acid, 14 indicating a strong base, with water being neutral at a pH of 7. Alkaline materials include hard water (from dissolved minerals in the water source), baking soda and some detergents. Common acids include citric acid, muriatic acid (in many concrete cleaners) and vinegar. Many greener cleaning agents are mildly acidic or alkaline. Refer to your Material Safety Data Sheets in the Physical Properties section to find the pH of your products. The closer to pH of 7, the more neutral the material and less likely to cause burns.

Pesticide: A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pests can be insects, mice and other animals, unwanted plants (weeds), fungi, or microorganisms like bacteria and viruses. Though often misunderstood to refer only to *insecticides*, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests. Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. In California pesticide registry is required for both the California Department of Pesticide Registry and the US EPA.

Toxic: According to the California Health and Safety Code, Toxic materials are substances that are not intended for ingestion and are included in one of the following categories:

- Cleaners and sanitizers which include cleaning and sanitizing agents and ingredients such as caustics, acids, drying agents, polishes, and other chemicals.
- Pesticides except sanitizers, which include substances such as insecticides and rodenticides.
- Substances necessary for the operation and maintenance of the facility, such as nonfood grade lubricants, and personal care items that may be harmful to health.
- Substances that are not necessary for the operation and maintenance of the facility and are on the premises for retail sale, such as petroleum products and paints.

Warewasher: Commonly referred to as dishwasher.

III. FATS, OIL, AND GREASE (FOG) MANAGEMENT

1. Why Keep Fats, Oil & Grease (FOG) Out of the Sewers?

Restaurants and other food handling facilities are a significant source of FOG because of the large amounts of grease used in cooking and other food preparation work. It is important to discharge nothing except water down your drains, because doing otherwise poses a health hazard to your establishment, your neighbors and local waterways.

Pouring FOG down your drain will cause the FOG to form thick layers inside your pipes, similar to how cholesterol can increase plaque buildup and constrict the flow of blood through your arteries; the flow of water through your pipes will be restricted.

Picture of clean pipe and FOG filled pipe <http://www.sfgreasecycle.org/unclogging.shtml>

A backup to your pipeline can negatively impact your establishment in a number of ways. The backflow of wastewater from your sewers may result in a temporary shutdown of your facility. If the backflow contains biohazardous material such as fecal matter, it becomes a dangerous situation. Any backup to your pipeline will be a costly procedure to repair, in addition to decontamination of your food service facility.

In case of a sewage backflow, other costs could include: operational cost due to delayed water draining and limited water use, pest management service to control flies and vermin that are attracted to FOG as a food source and/or nesting site, and decrease in the number of customers due to foul odors. Further, FOG in your drains can cause backups in the City sewer system which can lead to overflows into your establishment, onto City streets or into local waterways. If your facility is found to cause sanitary sewer overflows because you have not controlled grease discharge, you may be responsible for property damage and cleanup.

2. Top 5 Actions Restaurants Can Take to Prevent FOG Pollution

1. Proper Disposal of Fats, Oil and Grease

“Yellow grease” (oil from cooking, fryers, etc) can be recycled into biofuels whereas “brown grease” (grease from grease removal systems- traps or interceptors) must be removed utilizing a grease hauler and is NOT recyclable into biofuel.

Recycle Used Cooking Oil and Grease. The San Francisco Public Utilities Commission (SFPUC) has a new program where they will pick up used vegetable oil from San Francisco restaurants for free. Pick up is from 8am- 4pm daily and with scheduled appointments. San Francisco Greasecycle will provide containers for restaurants to collect their used vegetable oil (large establishments with 55-gallon drums or 5-gallon containers for smaller establishments), please visit: <http://www.sfgreasecycle.org/> for more information on SF Greasecycle. Contact Karri Ving, Biofuel Coordinator, at 415-695-7365 or karri@sfwater.org to sign up for the free service. It takes less than four minutes to sign up. Though you may recycle the yellow grease through the SF Greasecycle program, you may also use a licensed waste grease hauler or licensed grease recycler to dispose of your yellow grease.

Brown grease must be disposed of through a licensed grease hauler. Please visit: <http://www.calfog.org/Hauler.html> for a listing of grease haulers in California. See also <http://www.ciwmb.ca.gov/FoodWaste/render.htm> for a listing of rendering companies.

2. Avoid grinders and sink garbage disposal units.

Soon restaurants will not be permitted (revision of the San Francisco Sewer Use Ordinance is in progress) to have food grinder or sink garbage disposal units because they allow significant quantities of solids to enter the sanitary sewer system and/or your grease interceptor/trap. These solids will increase the number of items that drains into your interceptor/trap and as a result increase the risk of back up. Instead of utilizing grinders and sink garbage

disposal units to dispose of food waste, compost this waste stream. Composting reduces your waste output and helps the environment at the same time.

3. Trash enclosures should be maintained to prevent solids and liquids from the dumpsters from entering a storm drain. Ensure that dumpsters are watertight. If they are leaking, call your waste hauler for a replacement dumpster. Incorporate into employees' practices to not throw fluids in dumpsters and to keep the area clean and free of solids and trash. Also, never hose down dumpsters or trash enclosures where the water is draining into a storm drain. The condition of the dumpster should not pose a vermin, odor or sanitation problem.

4. Avoid adding solvents or biological devices (enzymes) down your drains. Contrary to popular belief, these products do not fully clear your drains. They only push the problem downstream and your establishment is still susceptible to back ups. All solvents and biological devices will be PROHIBITED for use in drains (under the new SFPUC Sewer Use Ordinance); please do not use them.

5. Regular maintenance of grease removal systems. Service oil and grease interceptors at least monthly. For oil and grease interceptors to function properly no more than 1/3 of the depth of the interceptor should be a floating grease layer and no more than 1/4 of the depth should be sediment on the bottom of the interceptor. Under-sink grease traps should be serviced at least weekly. Regular maintenance and proper usage will minimize FOG down your drain and potential back ups. Do not service the grease trap if food or utensils are being processed or are exposed in the area.

3. More Tips for Preventing FOG Water Pollution

Employee Practices

Do not pour FOG down the drain. Do not use sinks to dispose of food scraps.

Remove food waste with "dry" cleanup methods such as scraping, wiping, or sweeping before using "wet" methods that use water. Wet methods typically wash the water and waste materials into the drains where they eventually collect on the interior walls of the drainage pipes.

Reduce the amount of solids that enter a grease removal device by not using your garbage disposal/grinder.

Place baskets in drains to catch solids to prevent them from going down your drains.

Reduce grease in mop water by minimizing spills of oil and grease- being very careful with oil and grease handling.

Dry cleanup: Collect spilled grease to add to a waste grease container, if possible. Use rubber scrapers to remove FOG from cookware, utensils, chafing dishes and serving ware. Use absorbent material to soak up oil and grease under fryer baskets. Use paper towels to wipe down work areas. Cloth towels will accumulate grease and oil that will eventually end up in your drains from towel washing and rinsing.

Wet cleanup: Keep water temperature at or below 140 degrees F when using "wet" clean up techniques. Discharge mop water (soapy water only) to the sanitary sewer, not the storm drain.

Save oil, grease and animal fats into a sealed waste grease bin.

Clean grease trap & grease interceptor on a regular basis and ensure cleaning is done properly. If grease traps are more than 50% full of solids when cleaned weekly, increase the cleaning frequency. Instructions for maintaining & cleaning grease traps: http://sfwater.org/Files/FactSheets/FOG_Guide_English.pdf

Properly clean exhaust hood filters and floor mats on a regular basis.

Clean private catch basins/storm drains before first rain and as needed thereafter. Your wastewater pollution prevention advisor can assist in establishing the best schedule for your facility.

Signage

Post "NO GREASE" signs at appropriate locations.

Post signs at trouble spots (e.g. loading docks, dumpster areas, outside hoses) describing proper practices to prevent pollutants from reaching storm drains.

Label all storm drains with “Protect our Bay and Ocean- No Dumping” message.

Exterior Storage

Post “NO GREASE” signs at appropriate locations.

Post signs at trouble spots (e.g. loading docks, dumpster areas, outside hoses) describing proper practices to prevent pollutants from reaching storm drains.

Cover outdoor grease and oil storage containers. Uncovered grease and oil storage containers can collect rainwater and overflow.

Place grease and oil storage containers away from storm drains and catch basins.

Use absorbent pads or other material to create a berm to catch grease and oil if containers must be located near a storm drain or catch basin. Avoid using free flowing materials such as kitty litter or sawdust.

Training

Have a spill prevention plan in place. Empty containers before they are full to avoid spills. Use a cover to transport grease trap and interceptor contents to a grease storage container. Provide employees with the proper equipment (ladles, containers, etc.) to transport materials without spilling.

Equipment/Facility Changes

Use drain screens in all floor drains and sink drains to catch solids that can be composted and/or materials that should go in trash.

Install a grease trap if not installed already and make sure all grease producing fixtures flow through the grease trap.

Disconnect all garbage disposals.

Install shut-off valves at storm drains on property or keep temporary storm drain plugs at loading docks or outdoor process areas for quick response. *Shut-off valve installation must be done by a contractor under permit. Contact the SF Department of Building Inspection: (415) 558-6088.*

Provide ashtrays or “butt” cans at outdoor smoking areas to discourage the illegal dumping of trash down the drain or toilets.

4. Case Studies & Tools

San Francisco Public Utilities Commission Commercial FOG Reduction Program
http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/118/MTO_ID/229/C_ID/1864/ListID/2

Waste Vegetable Oil Pick Up: The San Francisco Public Utilities Commission has a FREE program that picks up waste vegetable oil. Instead of sending your used vegetable oil to a renderer (see glossary), you can give it to the San Francisco Greasecycle program. This program recycles the used vegetable oil into biodiesel, a cleaner burning alternative to petroleum diesel. It is then used to fuel San Francisco’s buses and other diesel run City vehicles.

Savings Calculator: You can calculate potential savings from the free waste vegetable oil pick up on the following website: <http://www.sfgreasecycle.org/fse.shtml>

Grease Haulers’ Minimum Service Should Includeⁱⁱ:

- Complete pumping and cleaning of the interceptor and sample box, rather than just skimming the grease layer.
- Deodorizing and thorough cleaning of affected areas, as necessary.
- Disposal/reclamation at an approved location.

5. Glossary

Food service facility/ establishment: A place in which food or drink is prepared for sale or for service on the premises or elsewhere. Includes restaurants, bars, hotels, boarding houses, schools, etc.

Grease: Fats, oils, waxes, or other similar substances of vegetable or animal origin (including butter, lard, margarine, vegetable fats and oils, and fats in meats, cereals, seeds, nuts, and certain fruits).

Grease removal device: An interceptor, trap, or other mechanical device designed, constructed, and intended to remove, hold, or otherwise prevent the passage of grease to a publicly owned sanitary sewer system.

Grease interceptor: A concrete chamber where greasy wastewater from the kitchen is retained so that grease can float to the top and the clearer water beneath can flow out to the sanitary sewer. Capacity may be determined by calling the Department of Building Inspection and speaking with a plumbing inspector: 415-558-6054.

Grease trap: A smaller device and less expensive than a grease interceptor, designed to retain grease from one to four plumbing fixtures. This system is housed inside the facility and above ground, usually below the sink. Capacity may be determined by calling the Department of Building Inspection and speaking with a plumbing inspector: 415-558-6054.

Rendering: The process of reducing, converting or melting down fats (animal and vegetable) and oils with heat. Historically industrial rendering plants manufactured candles, soaps, leather dressings and lubricants. Waste vegetable oils from restaurants (yellow grease) are now being made into biodiesel and other biofuels.

IV. Integrated Pest Management (IPM)

1. What Is Integrated Pest Management (IPM)?

IPM is a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health, and environmental risks. Unlike conventional pest control practices, IPM does not rely solely the application of pesticides to control insects and/or rodent infestations. Instead, it primarily focuses on prevention to control pest populations.

For more information see <http://www.epa.gov/pesticides/food/ipm.htm>.

1a. Why is Integrated Pest Management Important?

More than 4.5 billion pounds of chemicals are used every year in the United States to control unwanted insects, rodents, and weedsⁱⁱⁱ. Many of these chemicals are associated with water pollution, neurological, reproductive, and developmental disorders, and cancer. The best way to limit the toxic effects of these chemicals is to abstain from usage.

2. Four Steps to Starting Your Integrated Pest Management Program

IPM is not a single pest control method but rather a series of pest management evaluations, decisions and controls. IPM is categorized into a four step method.

STEP 1: Set Action Threshold: Before taking any pest control action, IPM first sets an action threshold, the point at which either the pest population or environmental conditions indicates a pest control action must be taken. Sighting a single pest does not always mean your establishment has a pest control issue. Identifying a threshold will aid you in making appropriate pest control decisions. According to CAL code, the threshold for vermin (rodents and cockroaches) is zero. Please refer to professionals for setting other thresholds.

STEP 2: Monitor and Identify Pests: Proper monitoring will allow you to act quickly when the action threshold has been reached. Not all insects and other living organisms require control;

some are even beneficial and are no cause for concern. Differentiating those that are beneficial and harmless from those that pose a threat to human health is critical. Consult your District Health Inspector when in doubt. Monitoring and proper identification lower the possibility that pesticides will be used when they are not needed and that the wrong kind of pesticide will be used. Please refer to professionals for assistance monitoring and identifying pests..

STEP 3: Prevention: Prevention is the first line of pest control. IPM programs work to manage indoor and outdoor spaces to prevent pests from becoming a threat. Prevention methods are very effective and cost-efficient and present little to no risk to people or the environment. For prevention methods, please refer to “More Tips on Integrated Pest Management.”

STEP 4: Control: When the action thresholds indicate that pest control is necessary and preventive methods are no longer effective or available, IPM programs then evaluate the proper control method both for effectiveness and risk. Effective methods for pest control include highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical controls, such as trapping or weeding. If such methods are proven ineffective, as a last resort, broadcast spraying of non-specific pesticides may be utilized. For a list of qualified pest control contractors, please visit: http://www.sfenvironment.org/our_programs/interests.html?ssi=2&ti=1&ii=121 or look for third party certification programs such as EcoWise Certification (http://www.ecowisecertified.com/ecowise_find.html) and IPM Star Certification (http://www.ipminstitute.org/IPM_Star/ipmstar_services.htm).

3. Top 5 Actions Restaurants Can Take to Eliminate Pests

1. Remove excess cardboard. Cardboard boxes are a perfect harborage for pests, whether the boxes are empty or full of supplies. Eliminating excess cardboard will remove a potential harborage site and discourage pests from taking up residence.

2. Clean drains, spill and splash zones and indoor and outdoor trash receptacles regularly. Fruit flies, drain flies and vermin are attracted to what's inside or on the rim of drains, in nooks and corners and on trash bins. Frequent drain use does not eliminate the gelatinous sludge (slime and organic debris build up) left in drain. The sludge creates an ideal site in which small insects can lay their eggs. Regular cleaning will keep these areas clean and reduce the potential for flies.

3. Seal all holes, gaps, and cracks and watch for other structural problems that may lead to gaps. Insects and rodents can gain entrance to the facility through the smallest spaces. Mice can enter openings less than ¼ inch in diameter, and rats can enter openings less than ½ inch in diameter. Use caulk, screening, and steel wool to seal holes and cracks both inside and outside of the building and pipes and ventilation systems. A pest management professional can advise on prevention methods.

4. Keep food and garbage containers closed. Don't leave food out or allow clutter to accumulate; trash and debris serve as common pest harborage and food sources. Keep dumpsters tightly closed at all times. Do not store food or supplies directly on the floor or against the walls. Elevating supplies 6 inches above the floor and leaving 4 inches from the wall will facilitate easy assessment of pests and easy access for cleaning.

5. Practice FIFO rotation. With this “First In, First Out” method, the supplies that arrive first are used first. Leaving a product out of rotation makes it more susceptible to insect or rodent attack.

4. More Tips on Integrated Pest Management

No Cost/ Behavior Change = ☺

Low Cost = \$

Investment = \$\$

Cost	Tips For Pest Prevention ^{IV}
\$	Food products, such as flour, sugar, pancake mix, etc., should be removed from their original containers and placed in approved sealed tight containers that are properly labeled and more impermeable to pests (rodent proof).
😊	Keep all spaces clean; especially break rooms, food service areas, common areas, and rest rooms. Be sure to clean up after spills and properly dispose of crumbs or food scraps.
😊	Routinely inspect incoming shipments of food, supplies, and premises for bugs to control the spread of pests.
😊	Regularly mop hard surface floors and wash countertops. Clean your cleaning equipment routinely, i.e. mops, mop buckets, brooms, etc...
\$\$	Have the maintenance staff caulk cracks and other crevices where pests can enter.
\$	Avoid having lights pointing at doors or positioned directly above entryways. Lighting can attract insects. All exterior lighting should consist of sodium-vapor bulbs, which attract fewer insects than the standard mercury-vapor type.
\$	Trim plants away from the facility and its foundation to elimination mosquitoes and other insects. Crawling pests, such as ants, can use limbs and leaves that touch the building as roadways. They may take advantage of structural gaps to enter the facility, bypassing any treatments that have been made to the exterior foundation. Also, foliage traps moisture close to the structure, which can attract pests and mold.

5. Self Inspection Tool

Regularly inspecting your facility is necessary for a successful IPM program. The checklist below was developed by the National Pest Control Association and indicates the variety of items that should be inspected on a routine basis. It may be adapted to best suit your establishment.^V

PREPARED FOR:

INSPECTED BY:

LOCATION:

DATE:

TIME:

The items below are to be checked YES or NO to indicate if the guidelines of the NPCA Sanitation and Pest Control Floor-Level Inspection Manual are met.

Entries in the right hand column indicate deficiencies which should be corrected.

	YES	NO	
A. Exterior Areas			
1. Absence of pest harborage	_____	_____	1.
2. Absence of pest breeding	_____	_____	2.
3. Garbage handling systems	_____	_____	3.
4. Garbage storage area	_____	_____	4.
5. Garbage containers	_____	_____	5.
6. Garbage container cleaning	_____	_____	6.
7. Trash disposal	_____	_____	7.
8. Paving and drainage	_____	_____	8.

San Francisco Department of Public Health Green Restaurant Guide

9. Weed control	_____	_____	9.
10. Perimeter rodent control	_____	_____	10.
11. Perimeter insect control	_____	_____	11.

B. Building Exterior

1. Rodent proofing	_____	_____	1.
2. Insect proofing	_____	_____	2.
3. Bird proofing	_____	_____	3.
4. Roofs	_____	_____	4.
5. Other structures	_____	_____	5.
6. Lighting	_____	_____	6.

C. Building Interior

1. Walls	_____	_____	1.
2. Floors	_____	_____	2.
3. Ceilings	_____	_____	3.
4. Cleanability	_____	_____	4.
5. Pits	_____	_____	5.
6. Floor drains	_____	_____	6.
7. Plumbing	_____	_____	7.
8. Ventilation	_____	_____	8.
9. Condensation	_____	_____	9.
10. Lighting	_____	_____	10.

D. Food Storage

Packaged and Dry Food Storage

1. Pest evidence absent	_____	_____	1.
2. Proper storage practice	_____	_____	2.
3. Good housekeeping	_____	_____	3.
4. Empty container storage	_____	_____	4.

Damaged Good Storage

5. Segregation	_____	_____	5.
6. Repackaging	_____	_____	6.
7. Proper housekeeping returned goods	_____	_____	7.
8. Adequate handling program	_____	_____	8.

Refrigerated Area

9. Pest evidence absent	_____	_____	9.
10. Condensation absent	_____	_____	10.
11. Cleaning satisfactory	_____	_____	11.
12. Other	_____	_____	12.

San Francisco Department of Public Health Green Restaurant Guide

E. Food Preparation Areas

- | | | | |
|--|-------|-------|----|
| 1. Enclosed areas easily opened | _____ | _____ | 1. |
| 2. Spaces under and behind equipment cleaned | _____ | _____ | 2. |
| 3. Counter and surface areas clean | _____ | _____ | 3. |
| 4. No permanent food storage in preparation area | _____ | _____ | 4. |

F. Dishwashing Area

- | | | | |
|----------|-------|-------|----|
| 1. Clean | _____ | _____ | 1. |
|----------|-------|-------|----|

G. Indoor Garbage and Recycling Area

- | | | | |
|--|-------|-------|----|
| 1. Storage area for receptacles adequate | _____ | _____ | 1. |
| 2. Storage area clean | _____ | _____ | 2. |
| 3. Containers of proper type | _____ | _____ | 3. |
| 4. Garbage containers regularly covered | _____ | _____ | 4. |
| 5. Shows evidence of regular cleaning | _____ | _____ | 5. |

H. Toilet and Locker Rooms

Toilet Facilities

- | | | | |
|---|-------|-------|----|
| 1. Adequate for current number of employees | _____ | _____ | 1. |
| 2. Sanitary and in good repair | _____ | _____ | 2. |
| 3. Door self-closing and does not open into food area | _____ | _____ | 3. |
| 4. Adequate ventilation and no offensive odor | _____ | _____ | 4. |
| 5. Lockers regularly emptied and clean | _____ | _____ | 5. |
| 6. Area free of old clothes and trash | _____ | _____ | 6. |

Handwashing Facilities

- | | | | |
|----------------------------------|-------|-------|----|
| 7. Adequate and convenient | _____ | _____ | 7. |
| 8. Appropriate trash receptacles | _____ | _____ | 8. |

I. Lunch Room

- | | | | |
|----------------------------|-------|-------|----|
| 1. Accessible for cleaning | _____ | _____ | 1. |
| 2. Clean | _____ | _____ | 2. |

J. Utility Areas

- | | | | |
|--------------------------|-------|-------|----|
| 1. Clean | _____ | _____ | 1. |
| 2. Pest harborage absent | _____ | _____ | 2. |

K. Office Areas

- | | | | |
|--------------------------|-------|-------|----|
| 1. Clean | _____ | _____ | 1. |
| 2. Regular trash removal | _____ | _____ | 2. |

L. Public Areas

- | | | | |
|--|-------|-------|----|
| 1. Floor areas clean | _____ | _____ | 1. |
| 2. Equipment and counters easily cleaned | _____ | _____ | 2. |
| 3. Pest harborage absent | _____ | _____ | 3. |

Infestation Absent			
1. Rodents	_____	_____	1.
2. Insects	_____	_____	2.
3. Other	_____	_____	3.

Evidence of Pest Absent			
1. Rodents	_____	_____	1.
2. Insects	_____	_____	2.
3. Other	_____	_____	3.

6. Glossary

Pesticide: A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pests can be insects, mice and other animals, unwanted plants (weeds), fungi, or microorganisms like bacteria and viruses. Though often misunderstood to refer only to *insecticides*, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests. Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. In California pesticide registry is required for both the California Department of Pesticide Registry and the US EPA.

Harborage: Any protected place, shelter or refuge. In this context, a place where pests can thrive with shelter and nourishment such as refuse or storage areas inside or outside food establishments.

Credits

Thank you to Heike Bridgwater and Ivy Wong for your dedication and extensive contributions to this guide.

Information and guidelines from the San Francisco Green Business Program DIY guide and checklist were used in this guide.

ⁱⁱ <http://www.calfog.org/docs/pagrd.pdf>

ⁱⁱⁱ <http://www.newdream.org/procure/products/ipm.pdf>

^{iv} <http://www.allfoodbusiness.com/pestcontrol.php>

^v <http://pubs.caes.uga.edu/caespubs/pubcd/b927-w.html>