



SCOPE OF SERVICE:

FLY CONTROL

In Commercial Food Facilities



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SCOPE OF SERVICE

FOR FLY CONTROL IN COMMERCIAL FOOD FACILITIES

(ALWAYS READ AND UNDERSTAND LABEL DIRECTIONS COMPLETELY BEFORE ANY APPLICATION.)

I. BASICS OF INTEGRATED PEST MANAGEMENT FOR FLIES

- A. Inspection of the structure interior and exterior
- B. Identification of fly species
- C. Sanitation – critical inside and on the exterior
- D. Exclusion to prevent entry of flies from the outside
- E. Determination of a control program, equipment and product usage
- F. Setting up a fly control program involving management
- G. Monitoring, communication and follow-up



II. INSPECTION

Inspect the indoor area to determine where flies may be developing. This includes areas that may contain moist organic food materials such as drains, cracks in the floor grout, cracks in walls or baseboard areas, under equipment, garbage receptacles and under bar areas. Extend your inspection outdoors to determine if fly populations are coming from dumpster areas or places where organic materials have been spilled. Determine if the facility is maintaining high sanitation levels and methods of control are in place and in working order. If it is a new account, review current programs with management and determine level of sanitation.

III. IDENTIFICATION OF FLY SPECIES

Common flies found in commercial food facilities include drain flies, red-eyed fruit flies, black fruit flies, phorid flies and house flies.

Drain Fly (*Psychodidae*)



Drain flies (also called moth flies) are small, dark, fuzzy looking flies. They are weak fliers, and adults can be seen slowly flying in an erratic manner for short distances. During the day adults can be found clinging to the sides of showers, sinks, bathroom or kitchen walls and other rooms that may contain drains. At night they become more active and hover near drains and other breeding sites. They lay their eggs in the gelatinous organic layer that accumulates on the side of drains. The developing larvae will then feed on that material, grow and

develop into pupa and emerge as adults to start the process over again. A life cycle develops in 7-14 days depending on conditions and temperature.

Red-Eyed Fruit Fly (*Drosophila melanogaster*)



The most common fruit flies are 1/4" small flies that are pale brown with distinctive red eyes. They are mainly known to be associated with fermenting vegetables and fruits, but can reproduce from almost any wet or moist decaying organic matter found in a kitchen. This moist organic matter is critical in the development of the fly larvae and is found in areas

including trash cans, drains, wet areas under equipment, dripping pipes, the undersides of refrigerators

or bar areas, spilled soda or beer, cracks in walls and floor grout. They can develop in almost any damp area where food and organic matter can build up. The key to control is to inspect and eliminate or treat the resource sites. A life cycle develops in 8-10 days depending on conditions and food sources.

Black Fruit Fly (*Drosophila repleta*)

This fruit fly species has been reported in many commercial kitchens. It has a blackish brown body, dark red eyes, darker wings and is slightly larger than the red-eyed fruit fly. The adult fly usually remains longer on a surface when disturbed and doesn't fly away as readily as the red-eyed variety. These flies will develop and feed in many of the same areas as the red-eyed species. Both species of fruit fly can be found in the same commercial locations, but the adults and maggots can be found in different locations. Life cycle runs about the same as the red-eyed species.



Phorid Fly (*Phoridae*)

This is a family of very small (1/8") flies that resemble fruit flies. They have a characteristic "hump back" shape when viewed from the side and are usually tan to brown with dark eyes. They tend to run across a surface to escape rather than taking immediate flight. Phorid flies will feed and develop in moist decaying matter and can be confused with fruit flies. There is also a concern with these flies' ability to transmit germs and bacteria onto food products. Phorid flies can also be found in mortuaries, funeral homes and hospitals. Their life cycles can run from 14-35 days.



House Fly (*Musca domestica*)

This fly is gray to brown in color with reddish eyes and will have several gray stripes on the upper side of the body. The house fly is probably the most common fly found in structures throughout the world, especially in almost any structure that has garbage or other decaying organic matter. They are very attracted to garbage cans and dumpsters and will easily enter a structure from any open door or window. House flies can carry serious diseases. They have extremely fast life cycles that can complete in 5-7 days.

Other Flies

Other possible flies could include little house flies, blow flies, flesh flies and bottle flies, depending on the type of decaying organic material (food) found in the commercial location.

IV. SANITATION

Determine the level of sanitation.

The facility should have a regular daily cleaning schedule of cleaning counters and mopping floors. During cleaning, food debris should not be washed or allowed to collect under equipment or tables. Garbage containers should have lids and plastic bag liners with liners replaced daily and removed to outside receptacles. Food and liquids should not be left in open containers but stored in coolers or sealed containers.

V. EXCLUSION

Air curtains should be installed over doors to help keep flies from entering when doors are opened. Screening should be in place and



doors and windows should remain closed. Cracks and crevices should be repaired and sealed where food debris can accumulate to prevent breeding sites. On the exterior, dumpsters should have lids that close securely and be at least 100 feet away from building entries.

Create a graph of the facility that documents the inspection and notes in-place control measures as well as areas that will require improvement. Note areas that may need mechanical controls such as fly traps. (If in a larger facility, break areas down into zones).

VI. DETERMINATION OF A CONTROL PROGRAM, EQUIPMENT & PRODUCT

Setting up a Fly Control Program with Nisus Products.

Equipment needed:

- TrueTech™ Sprayer, Foamer, Mister:

TrueTech spray, foam and misting equipment is designed to provide the pest management industry with maximum flexibility and effective application and treatment options. Applicators can choose from dry foam, wet foam and liquid spray applications with most units. Equipment is available as a portable hose-foaming unit as well as one-, two-, four- and seven-gallon units, some with utility carts and compressors.



- Extended Wand:

The specially designed treatment wand allows the applicator to stand while directing foam into the drain, or it can be used for spray applications into hard-to-reach areas.



- Drain Foaming Tip:

The foam tip is designed to allow foam to be directed into the drain.

- Crack and Crevice Foaming Tip:

This specially designed tip allows the foaming solution to be directed into cracks, crevices and hard-to-reach areas.



Note: Additional tips are included for direct spray applications.

- Drain Cap:

This cap fits over the drain opening to aid in forcing the foam solution deep into the drain.



Products needed (always refer to label directions before application):

- Nibor-D® Insecticide:

Nibor-D is a versatile borate compound formulated for use as a dust, liquid, foam or mopping solution. It is used as a crack, crevice, void, spot treatment and drain treatment. It controls small flies, flies, cockroaches, ants and other insects.

Nibor-D packaging includes a 1.6 oz. scoop.

For drains: 8 oz. packet (or 5 scoops) for a 5% solution

For other areas: Three 8 oz. packets (or 15 scoops) for a 15%



solution.

Nibor-D can be mixed in a separate container or added to the spray or foamer tank. If mixed in tank, make sure the solution is thoroughly mixed by stirring or shaking to get a uniform solution (approximately 4-5 minutes). **Important: Make sure tank, hoses and strainer filters are completely washed with water and cleaned of any residues at end of every work day or residues may clog hose lines and spray tips. Borate residues may show a stronger presence when mixing Nibor-D in water with a higher mineral content.**

- *ProFoam® Platinum:*

ProFoam Platinum is a unique blend of foaming agents used with foaming equipment to aid in the transportation all types of products to remote areas such as drains, wall voids, cracks and crevices and other areas. The foam is non-repellant and is Prop 65 exempt in California.

- *Nisus DSV™:*

DSV is a broad spectrum disinfectant, sanitizer, deodorizer and fungicide. It is also labeled as a contact pesticide to kill small flies and larvae in drains and other areas, and can be used in conjunction with Nibor-D for larvae drain treatments.

- *Bac-Azap®:*

Bac-Azap is not a control product, but rather a special blend of billions of microorganisms that work to consume organic matter in drains and in other areas. Bac-Azap is also well known for its odor control abilities. The microorganisms in Bac-Azap are uniquely formulated to work in conjunction with the Nibor-D control product when both are applied to drains.

- *Foam Fresh™:*

Foam Fresh is also not a control product, but is a bio-remedial odor control foam that eliminates organic odors and removes grease build-up in drains. It is perfect for allowing customers to quickly target filth area like sink drains, bar mats, mops, garbage cans and areas under stainless steel equipment.

Nibor-D Treatments for Flies in Kitchen Environments

- *Purpose of treatment:*

The treatment allows the Nibor-D to coat organic debris areas in which flies may breed and develop. The Nibor-D will diffuse into the slime coating of the drain (the area where the larvae [maggots] are feeding) and contaminate their food source, making the food material toxic to the larvae as they try to feed. This action kills them and stops the continuing life cycle that produces the adult populations. This treatment also applies to cracks and crevices in walls and tile grout where organic food particles may collect.

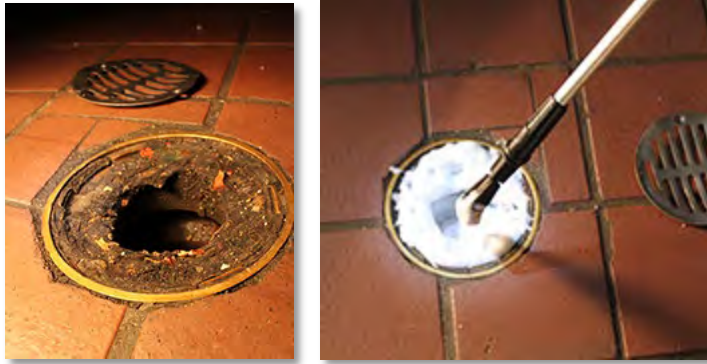




- **Nibor-D Drain Treatment for Flies:**

- ✓ Mix 2 ounces of ProFoam Platinum into the Nibor-D solution and pour solution into the TrueTech foaming device.
- ✓ Mix 8 ounces of Nibor-D by weight (one 8 oz. packet or 5 scoops) per gallon of water. Mix well to make certain all Nibor-D has dissolved into the solution. This creates a 5% solution as listed on the label for fly control into drains.
 - *Dry Foam:* 20:1 Ratio (20 parts foam to 1 part liquid) Example: 20 oz. foam and 1 oz. liquid
 - *Wet Foam:* 10:1 Ratio (10 parts foam to 1 part liquid) Example: 10 oz. foam and 1 oz. liquid
- Note:* Calibrate your foaming device so you know how much foam is being applied for a specific time. Test by applying foam into a measured container and time the application. (Example: Applying the foam into a pint container may take 5 seconds. You now know for every 5 seconds you will be applying one pint of foam into a drain or void area.)
- ✓ Attach hose to the "foaming" connection on the device. If device has a dry foam or wet foam option, select the foam option desired for your application. Wetter foam may work better in seldom used drain systems and dryer foam may work better in drains used often that have more moist environments.
- ✓ Select foam application tip. Use the larger tip for drains.
- ✓ *Drain Treatment:* Insert foaming tip into the drain grate and begin to foam. It is a good idea to use a drain cap in conjunction with the tip to force the foam deep into drain line. If foam begins to leak out around the cap, it may indicate the drain is clogged and needs cleaning. If you had previously calibrated the foaming time, you will know how much product you are applying into the drain.





• **Application Tips:**

- ✓ Many times, the fly populations are developing deep in the drain, so treat accordingly. Apply according to label and do not apply more than one quart of “pure liquid” solution into a drain.
- ✓ In areas where drains cannot be capped while foaming, try using a long foaming tube to insert down into the drains and foam while withdrawing the foaming tube out of the drain.

Nibor-D with Nisus DSV for Faster Kill:

Nibor-D can be combined with DSV to give a faster contact kill for flies in drains. Simply add 2 oz. of DSV to the Nibor-D solution. Add an additional 2-3 oz. of ProFoam Platinum to this solution to get the proper foaming ratio. The Nibor-D will continue to penetrate the organic layer in the drains to kill developing larvae.

Nibor-D with Bac-Azap for Drain Cleaning and Fly Control:

Bac-Azap is a microbial cleaning and odor control product that is specially formulated to work with and not be affected by Nibor-D when used in conjunction with a control application. When it is combined with Nibor-D, you not only get fly control in the drains, but you also get the microorganisms in Bac-Azap that begin to consume the slime layers in the drain to eliminate those organic materials.

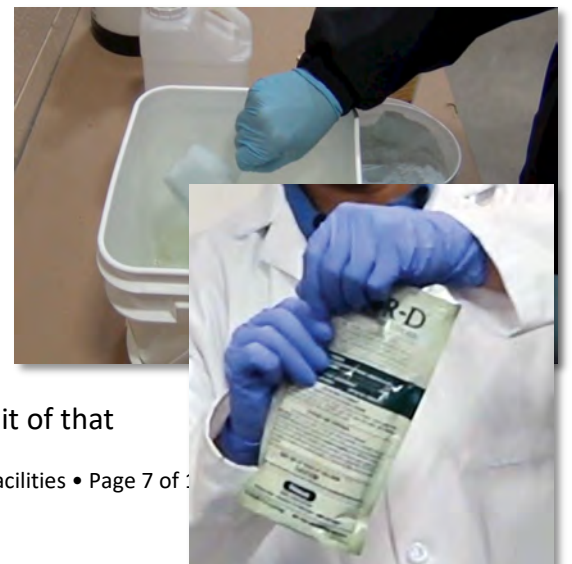
Note: Bac-Azap and other microbial products used alone are only drain cleaning agents, and no claims can be made for fly control.

For drains, mix 3/4 gallon (3 quarts) water with 1 quart Bac-Azap to make one gallon. Add 8 oz. by weight (one 8 oz. packet or 5 scoops) of Nibor-D to solution. Add 2-3 oz. of ProFoam Platinum to solution. Place solution into TrueTech foaming machine to foam drains.

Note: Nibor-D is also labeled for use in conjunction with insect growth regulators

Nibor-D Liquid Application for Flies by Mopping Floors:

The same 5% Nibor-D solution can be used as a liquid mopping solution on kitchen floors for small fly control. This solution will diffuse into the cracks in the grout where food materials and organic matter will accumulate creating a toxic bait of that



material and stop fly development. One quart of mopping liquid solution can also be poured into each drain.

Nibor-D 15% Solution for Fly Control in Other Areas:

To control flies in other areas, a 15% Nibor-D solution can be used. In food areas, it is applied as a crack and crevice treatment only. (Refer to label for specific instructions.)

• *Creating a 15% Nibor-D Foam Solution:*

First add 2-3 oz. of ProFoam Platinum to the solution. Then mix 1.5 lbs. by weight (three 8 oz. packets or 15 scoops) of Nibor-D per gallon of water. Mix and stir solution until all powder has dissolved.

• *Foaming into cracks and crevices:*

A 15% solution of Nibor-D can be applied into cracks and crevices as foam to treat areas where small flies can develop. Dry (20:1) foam may be better in these areas to get back into the horizontal and vertical areas where the food material has been deposited. Again, the Nibor-D treatment will diffuse into this food material, creating a toxic food source for the developing larvae, and providing a long-term control measure. Remember, in food areas this is a crack and crevice treatment *only*, so any treatment material that stays on the surface and is not in the crack or crevice must be cleaned up.

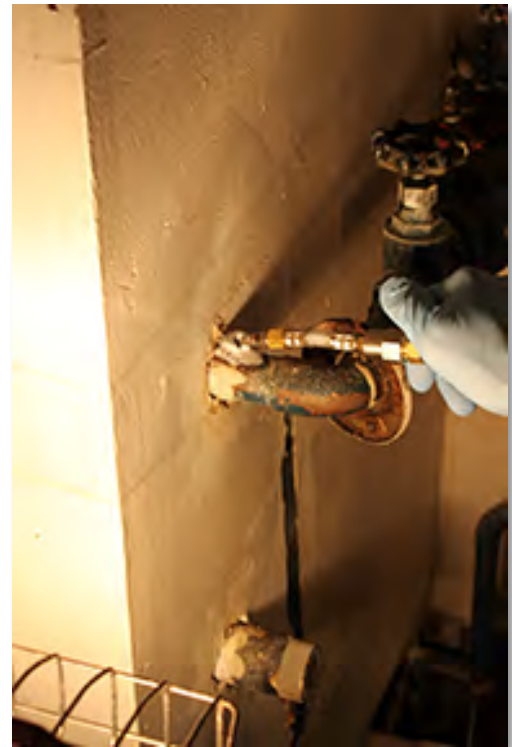
• *Foaming into wall voids, behind and under equipment.*

A 15% solution of Nibor-D can be applied into walls as foam for control of developing fly populations. Again, the Nibor-D will treat the food sources that allow the development of fly populations. (*Note:* This application will also control cockroach populations that may be developing in the wall area.)

Note: Nibor-D can also be used in conjunction with a contact emulsifiable insect adulticide.

• *Foaming Garbage Cans and Dumpsters*

Fly populations can develop in garbage receptacles such as trash cans and dumpsters. If not regularly cleaned or treated, these areas provide enormous potential for fly development in and around a commercial restaurant. Garbage cans should have plastic bag liners, but fly species can develop in these cans indoors where organic debris and juices collect at the bottom of the container if the liners are ruptured. House flies can develop on the interior of outside



dumpsters where they will feed and develop on the organic debris and liquids, then enter the building through open doors or windows.

If garbage receptacles cannot be washed and cleaned on a regular basis, then a 15% solution foam or liquid treatment with Nibor-D can be used to treat and penetrate the organic food sources and create a toxic mix that will kill the developing population. For garbage cans, install plastic bag liners after the foam has dissipated.



The Nibor-D protection will remain until the receptacle is thoroughly washed out. Keep dumpsters away from buildings and not in a direct line out from doors and windows.

- *Wet Foaming or Liquid Treatment of Smaller Trash Receptacles:*

A 15% Nibor-D gallon solution can be mixed with 1-2 ounces of ProFoam Platinum to create a foaming treatment. This slightly wetter foam may be better to coat the sides and bottom of the receptacle. Only apply enough foam material to lightly coat the surfaces. A 15% liquid spray can also be used for this treatment.

- *Wet Foaming or Liquid Treatment of Dumpsters and Larger Refuse Containers*

A 15% Nibor-D gallon solution can be mixed with 1-2 ounces of ProFoam Platinum to create a foaming treatment. Slightly wetter foam may be better to coat the sides and bottom of the dumpster to coat the organic food sources. Foam will help hold the Nibor-D on the surfaces longer to give better penetration into the organic material. Apply at a rate not to exceed the rate of 12-20 liquid ounces of Nibor-D per 250 square feet of dumpster surface. A 15% liquid Nibor-D spray can also be used for the treatment (not to exceed the application rate).

Bac-Azap can be mixed with Nibor-D and foamed or applied as a liquid spray into the dumpster and other garbage receptacles. The Nibor-D will still create a toxic bait of all the organic material while the Bac-Azap will break down and consume the organic material and also reduce odors in these locations.

VII. SETTING UP A FLY CONTROL PROGRAM INVOLVING MANAGEMENT

Sanitation is the key to a long-term control program. Work with the management of the facility to create a program where management trains personnel on the need for good sanitation and cleaning practices to help reduce fly populations. A checklist helps to educate and remind management and staff about daily procedures to prevent fly problems. This checklist can be posted in strategic areas of the facility. An example reminder list could include:

Fly Prevention Program for Employees

1. Keep doors and windows closed.
2. Empty garbage containers daily and deposit materials into exterior dumpsters.
3. Wash indoor garbage containers daily.
4. Apply Foam Fresh into empty garbage receptacles at closing.
5. Mop floors and clean counters and areas around dishwasher daily.
6. Do not allow food debris to accumulate under equipment and counters.
7. Store food and liquids in coolers or sealed containers – do not leave out.
8. Clean grease spillage around grease traps and exterior grease receptacles.
9. Spray Foam Fresh in sink drains and on bar mats at closing.

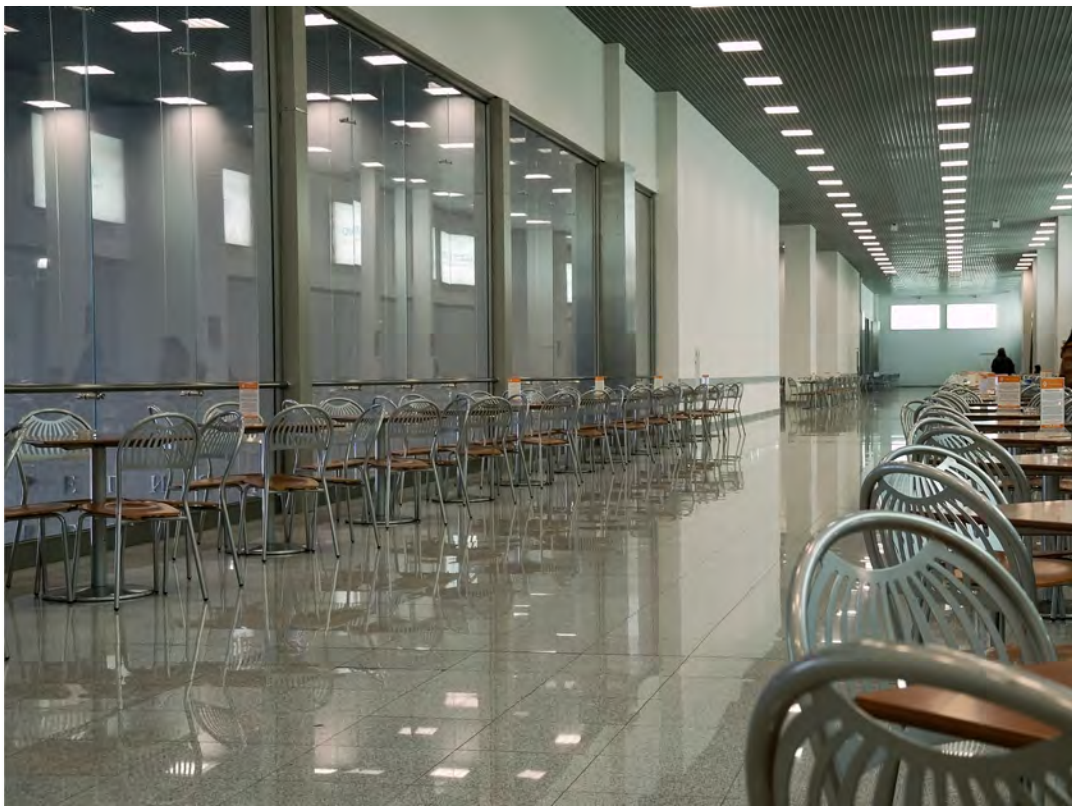
Finally, provide a report to the facility management based on service inspection to make recommendations on repair of areas and the progress of the in-house sanitation program.





VIII. MONITORING, COMMUNICATION AND FOLLOW-UP

Always keep close communication with the facility management team to make sure sanitation and other in-house control measures are followed. If fly problems persist, re-inspect to determine missed harborage sites and revisit in-house control procedures, additional exclusion requirements or other potentials (for example, fly traps can help to monitor activity after you have initiated a control program).



Remember, successful fly control in a commercial food facility involves a number of control and prevention strategies that include a partnership between the pest management professional and the management of the facility. It is an ongoing process that will create and maintain a healthy environment.

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TRUETECH®

SPRAYERS • FOAMERS • MISTERS

DRAIN FOAMING: MIXING INSTRUCTIONS FOR DRY FOAM

Use on visits 1 & 4. Creates residual bait & disinfects.	Water	ProFoam	Nibor-D (5%)	DSV*
	1 gal.	approx. 7 oz.	one 8 oz packet (or 5 scoops)	2 oz.
Use on visits 2 & 3. Creates residual bait & reduces buildup.	Water	ProFoam	Nibor-D (5%)	Bac-Azap
	3/4 gal.	2 oz.	one 8 oz packet (or 5 scoops)	1 qt.
Kills pests & creates residual bait.	Water	ProFoam	Nibor-D (5%)	
	1 gal.	2 oz.	one 8 oz packet (or 5 scoops)	
Disinfects & sanitizes. Controls small flies in drains. Small fly ovicidal treatment.	Water	ProFoam		DSV*
	1 gal.	approx. 4 oz.		2 oz.
Reduces buildup.	Water	ProFoam		Bac-Azap
	3/4 gal.	1 oz.		1 qt.

NOTE: Make sure the check screen has been removed when foaming. The TrueTech 2000 Power Cart will dispense a gallon of these solutions in approximately 10 minutes, producing 20 gallons of foam at a 20:1 expansion ratio. When using an IRG, add up to 12 oz. of ProFoam Platinum.

*DSV creates a slight de-foaming action. Gradually add ProFoam up to the recommended amount until you achieve the correct consistency.

TRUETECH®

SPRAYERS • FOAMERS • MISTERS

DRAIN MAINTENANCE PROTOCOL



First Visit

1. Spray Nisus DSV™ solution directly into the drains.
2. Clean out gross soils and clean drains with a drain brush (dip or spray drain brush with DSV solution while cleaning).
3. Foam drains with Nibor-D®, DSV and ProFoam® Platinum solution.

Second Visit

1. Inspect drains for build-up and clean if necessary using brush dipped in DSV solution.
2. Foam drains with Nibor-D, Bac-Azap® & ProFoam.

Third Visit

1. Foam Drains with Nibor-D, Bac-Azap & ProFoam.

Fourth Visit

1. Inspect drains for build-up and clean if necessary using brush dipped in DSV solution.
2. Foam Drains with Nibor-D, DSV & ProFoam.

Repeat pattern on weekly or monthly service.



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