Chapter 20 - Respirators

At some time during your work activities you may be required to wear a respirator while mixing or applying pesticides. A respirator is worn whenever airborne contaminants may affect your health or safety. The Personal Protective Equipment section of the pesticide label will dictate if wearing a respirator is required or recommended while mixing or applying that product. Sometimes, the label may only require or recommend the use of a respirator under certain circumstances. For example, the label may only require that you use a respirator while applying the product in a non-ventilated area. Remember, the label is the law and this includes the use of personal protective equipment. Under certain circumstances, you may prefer to use a respirator even though the label does not require it. For example, you may prefer to wear a respirator while working around blown insulation in an attic.

If you use a respirator, you must:

- Receive a medical evaluation to determine if you can wear a respirator
- Ensure that it fits correctly
- Know how to inspect and maintain the respirator
- Know how to clean the respirator.
- Know how to store the respirator

Medical Evaluation

Using a respirator stresses your body because breathing is restricted. All persons using a respirator must undergo a medical evaluation to determine if they are medically and physically able to use a respirator.

Ensuring the Proper Fit

All respirators will be issued to you by the company. Respirators will be cartridge type respirators that are the proper type for any work or situations that you will encounter (except fumigation) that requires the use of a respirator.

Your respirator must fit properly in order to work. Cartridge respirators come in different sizes and it is important that you use one that will seal completely on your face when adjusted. No air should escape around the edges of the face piece. Beards make a tight seal difficult and sometimes impossible. A fit test will be performed when a respirator is initially issued to you and at least once a year afterwards. A fit test should also be performed if you gain or lose weight or get dentures.

Each time you wear your respirator, conduct a quick seal test to check the fit. Seal tests can be positive pressure tests or negative pressure tests.

Positive pressure test – cover the exhalation valve with your hand. Press lightly and exhale gently. If the fit is correct, you should feel the face piece bulge slightly from trapped air. If air is escaping, refit and retest.

Negative pressure test – close off the intake openings by covering them with the palms of your hands. Then inhale gently so that the face piece collapses slightly, and hold your breath for ten seconds. If the face piece stays collapsed, and no air is leaking, the fit is correct.

Inspection and Maintenance

Check your respirator for wear and deterioration before and after each use. Give special attention to the rubber or plastic parts which can crack or lose flexibility. Follow these maintenance steps:

1. Check the face piece for dirt and grime, cracks, or tears. Make sure the shape of the face piece is not distorted from improper storage or from deterioration of the material.
2. Check the head straps for cracking, loss of elasticity, or broken buckles.
3. Remove the cover of the exhalation valve and check for dirt or debris under the valve seat. Look for cracks or tears in the valve material and cracks in the valve body. Make sure the valve is seated properly in the valve body.
4. Check the cartridges. Look for improper installation, loose connections, missing or worn gaskets. Check for cracks or dents in the outside case of the cartridge. Check the shelf-life date of the cartridge.

The cartridges and filters that protect you from inhaling vapors gradually lose their effectiveness. Their useful life depends on:

- The amount of particles in the air
- The concentration of vapor being filtered
- The amount of absorbent material that they contain
- The breathing rate of the wearer
- The temperature and humidity
- The length of time that they have been stored between uses.

Change cartridges after about 8 hours of use, if you smell pesticides, or if you are having trouble breathing through the respirator.

Chapter 20 - Respirators

Cleaning Your Respirator

Respirators should be cleaned frequently. Follow these steps to clean your respirator:

1. Clean your hands and use only clean cloths that have not been contaminated with pesticides.
2. Remove the filters and cartridges.
3. Wash the face piece in warm water with mild detergent. Do not use ammonia, hot water, strong cleaning detergents, or chemicals because they may damage respirator parts.
4. Rinse the respirator thoroughly in warm running water, and wipe dry with a clean cloth or hang to air dry.
5. Reassemble and test to make sure the respirator works and seals properly.

Storing Your Respirator

Store your respirator in an airtight container like a zip-lock plastic bag. Do not hang it from the mirror in your vehicle or from the door handle! Store your respirator where it is protected from dust, sunlight, extreme temperatures, moisture, pesticides, and other chemicals. Store your respirator so that it sits in a normal position to prevent distortion of the shape of the rubber or plastic parts. During the work day, after using it, do not simply throw your respirator into a service kit or the storage area of your vehicle. Check it for wear, place it in an airtight container, and put it in a clean, convenient location in your vehicle.

Chapter 20 - Respirators

TEST

1. Which of the following statements is true

    a. The Personal Protection Equipment section of the label will only recommend the use of a respirator. The use of a respirator is left up to the professional judgment of the technician.
    b. You should conduct a positive and negative pressure test for your respirator at least once a month
    c. Your respirator must be stored in an airtight container away from direct sunlight
    d. All of the above

2. As long as they remain unopened, respirator cartridges will always be good

    a. True
    b. False

3. Which of the following will affect the useful life of filters and cartridges

    a. Temperature and humidity
    b. Long periods of non-use
    c. The concentration of vapor being filtered
    d. All of the above
    e. A and C only

4. A positive and negative pressure test is required prior to being issued a respirator

    a. True
    b. False

5. Respirators must be used

    a. When treating or inspecting an attic
    b. When mixing and applying pesticides
    c. When the label requires it
    d. When products are dispersed into the air

Interoffice Memorandum

To: All General Managers, Service Managers, Office Managers

From: Suzanne Graham, Director of Government Affairs

RE: State Regulatory Interactions and Exposure Protocols

cc: Regional Managers, Regional Vice Presidents, Adam Jones, Jeff Buhler, QA

If any team member or management member interacts with an inspector from your State Department of Agriculture or Regulatory Agency, all communication, notification, and written documentation must be sent directly to your Region Manager, Tom Jarzynka, and myself within 24 hours. This includes Field Inspections, Service Center Audits/Inspections, Routine/Random vehicle stops, or Consumer Complaints. Absolutely no paperwork is to be sent to any state inspector directly. All paperwork requested must be sent to me for review. I will forward it to the inspector.

When a state agency calls to schedule an inspection. **Do Not Schedule the Inspection.** Notify your Regional Manager, Tom Jarzynka, and myself. **We will assist you in scheduling the inspection and arrange QA support to prepare for the inspection when possible.**

Reminder: Whenever your service center receives a call about a potential animal or human exposure to our products. Follow these steps.

1) Contact the customer to learn about the issue and provide assurance that our services and material selections are responsible and limit risk.
    a. Gather as much information as possible
        i. What materials were contacted
        ii. age, weight, and breed (if it is a pet)
        iii. How did the exposure occur
        iv. Take notes
        v. Pull the last three service reports, including any service requests
        vi. Have they visited Doctor or Vet?
    b. Send them or the medical care team copies of SDS when requested
    c. Immediately bring the Technician into the Service Center and write a detailed narrative describing the last service and any issues that could have contributed to the exposure
2) Dispatch a **manager** to the site to inspect, take pictures and remove any materials that could pose a risk
3) Report the incident as follows:
    a. Florida, Georgia and Alabama, Pest and Termite – Reid Ipser
    b. Texas, Louisiana, Tennessee, Oklahoma, Virginia, North Carolina and South Carolina, Pest and Termite – Pari Pachamuthu
    c. All GreenUp – Eric “Doc” Brown and Bill Cohn
    d. Copy me, Tom Jarzynka, and your regional manager, including the information listed above
4) We will contact the customer to provide additional assurance about our products and services and address any questions
5) All notes are to be copied into the customer’s Service Pro notes

WEEKLY TRAINING SESSION

2026 Renewal Reinstate Campaign

Every customer who cancelled our termite protection plans in 2025 needs termite protection on their home. We have the best guarantee in the industry. Termite and Bait renewals are the most profitable service we provide. We have not executed our termite renewal processing calendar to the best of our ability.

We have identified every Termite cancellation in 2025 that paid a renewal in 2024. We have also identified every Bait cancellation in 2025 that paid a renewal in 2024 and still has bait in the ground. These are organized by renewal month by Service Center.

The customers on our 2026 Renewal Reinstatement Campaign fit in the following criteria:

- They paid their 2024 Renewal.
- Bait stations were not removed after the program was cancelled.
- Cancellation reasons were not Transfer Service or Cycle Frequency Program Change.
- There is no active termite program on the account after the original program was cancelled.
- New Owner Transfer services will be included if the new owner has not paid the renewal.
    - If the new owner has paid the renewal, the account will not be on the list.

Each month you will receive a list of customers you will be responsible for calling to reinstate. You will communicate the need for termite protection, confirm our guarantee, collect the renewal, schedule the reinspection, and reinstate the customer.

The first list will incorporate customers who were due to renew in January, February, and March of 2025. These will be treated as if they renewed their protection in 2025, not as cancelled programs. Beginning in March and moving forward, the list will be for the following month (ex. April will be called in March, May will be called in April).

Outbound call activity and renewal reinstatements will be reported daily to each Regional Administrative Assistant and weekly to the operations executives.

Call Script

Hi Mrs. Smith, my name is _____ calling from Massey Services. I am showing it is time for you to renew your termite protection. (if there is no objection, collect the payment, follow the directions below and schedule the interior and exterior reinspection).

If the customer objects or says they cancelled:

I understand you cancelled your termite protection in 2025, leaving your home unprotected. Massey provides the best guarantee in the industry and allows you to have the peace of mind you deserve (ensure you provide appropriate information for their coverage). I will be happy to reinstate your account with payment of your 2026 renewal in the amount of $___ and get you on the schedule for your annual inspection (collect the payment and follow the directions below to schedule the reinspection and reinstate the account)

If the customer confirms they want to remain cancelled, note the account. If the cancelled program is bait, confirm the customer does not have bait coverage with another company and let the customer know we will be out to remove the bait stations. Schedule the bait station removal event in Service Pro.

WEEKLY TRAINING SESSION

2026 Renewal Reinstate Campaign

Service Pro Reinstatement Procedure When Payment Has Been Received

1. Navigate to the customer account in Service Pro.
2. Process the payment by doing the following:
    a. Click on Payments
    b. Click on the Prepay Programs tab
    c. Add the amount of the renewal payment on the cancelled program line
    d. Process the payment as normal (this will be applied to COP)
3. Click on the Termite or Bait program that will be reinstated.
4. Waive the 2025 Renewal by doing the following:
    a. Click the 'Edit' link on the 2025 renewal notice.
    b. Enter today's date in the 'Date Renewed' field.
    c. Enter '2026 Renewal Reinstate Campaign' in the 'Method Renewed' field
    d. Click Save.
5. Create the 2026 Renewal Notice by doing the following:
    a. Verify the Create Future Renewal Notice date on the program screen is in 2026.
    b. Navigate to the Renewal Notice area in the program screen.
    c. Click the 'Create a New Renewal Notice'
    d. Click OK on the next screen
6. For Termite programs click 'Reinstate This Program' then 'Finish'.
7. For Bait programs click 'Activate Site' then 'Finish'.
8. Schedule the Reinspection event for the agreed upon date and time.
9. Ensure future Reinspection events are aligned with the warranty and renewal month.
10. Ensure bait monitor events are no more than one year from the last monitor event.
11. Apply the COP to the newly created 2026 Renewal Notice by doing the following:
    a. Click the 'Show Program Balances' Link on the home screen
    b. Click the 'To Inv" link
    c. Click the Renewals Tab
    d. Check the 'Apply Existing Prepay' box
    e. Click on the 'cop' link for the value of the renewal'
    f. Click Save

Service Pro Reinspection Reinstatement Procedure Prior to Receiving Renewal Payment

1. Click on the Reinspection event on the cancelled program.
2. Click on the 'Edit' link on the event information future Svcs.
3. Add the date and time the customer agreed to for the inspection.
4. Click 'Reinstate this Event'
5. Ensure the future Reinspection is in 2027 and aligned with the warranty and renewal month (update this date if necessary)
6. Click 'Finish'

7. The Reinspection event will now be active with a schedule date and time
8. After payment is received, follow the **Service Pro Reinstatement Procedure When Payment Has Been Received** to reinstate the program
9. If payment is not received, click on the Reinspection event and cancel the event with today's date and the prior cancelation reason.

From: Jennifer Burger <jburger@masseyservices.com>
Sent: Monday, February 16, 2026 2:34 PM
To: Sean Clifford <sclifford@masseyservices.com>
Cc: Ingrid Litkenhus <ILitkenhus@masseyservices.com>
Subject: New VTM Needed

Hey there! Can y'all put this into this week's VTMs? Similar to the one we discussed earlier, but with minor changes. Tony would like it to go into his week's VTM so the GMs can discuss with their technicians ahead of time that their guarantees may be changing, and why.

Here's the body of the VTM, thank you!!! :

Every January, Payroll with analyze Technician guarantees based on the prior year's annual earnings for all commissioned Technicians who have worked for one year or more.

The calculation process will remain the same. Technicians are analyzed based on 80% of their average monthly earnings in the prior year. The results will be rounded down to the nearest $100.

The new guarantee will be adjusted up to a maximum of $3,300 per month effective February 1 of every year.

Example:

Annual pay divided by 12 = average monthly pay
$44,000 / 12 = $4,583

Average monthly pay x 80% for commissioned Technicians
$4,583 x 80% = $3,667
$3667 rounded to $3,600 = New Guarantee $3,300

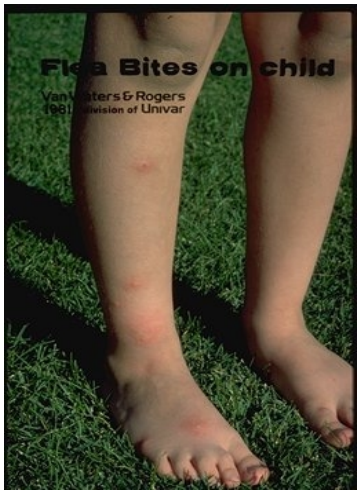
Sales Inspectors are not to be included in the above calculations.

Jennifer Burger
Executive Assistant to Tony Massey, President & CEO | Massey Services, Inc.
315 Groveland St. | Orlando, FL 32804
P 407-674-1212 | Internal Ext: 200272 | MasseyServices.com
Facebook | Instagram | LinkedIn

Identification

BIOLOGY

Fleas are one of the more important groups of insect pests. They cause discomfort by biting and have the ability to transmit disease such as plague and murine typhus. Cat fleas are the most common domestic flea. They are found throughout the world and are pests of both cats and dogs. Fleas are also a pest of humans.



Life cycle

Egg, Larva, Pupa and Adult

Egg

Eggs are smooth and unlike many insect eggs they are not glued to hairs or placed into protected areas. The female flea lays eggs on the body of the host as well as surrounding areas where the host frequents or sleeps. Eggs laid on the host (pet) will fall off during movement or when they shake. Hence eggs can be found throughout the area the host lives in but most frequently are found in floor coverings, cracks, crevices and bedding. Eggs are whitish about 1/64" long and usually hatch in about 2 days (range 1-12 days). Insecticides have little to no effect on flea eggs.

Larva

Flea larvae are usually found where animals sleep or frequent. Larvae do not bite but do have chewing mouthparts and feed on organic debris found in their environment. Much of the protein required for larval development is acquired from dried fecal matter of the adult fleas. Larvae easily desiccate requiring relatively high humidity to survive (45% to 95%). It may take as little as a week and up to several months for larvae to go through 3 growth stages (instars) prior to pupating. Flea larvae avoid light and migrate to the darkest parts of the room such as under the pet bed, under sofa pads, and under objects near where the pets sleep. It is extremely difficult to vacuum up larvae because they cling to objects with their many bristly hairs. After developing fully, the last instar larva spins a silken casing in which to pupate. This casing is camouflaged by debris found in the surrounding area.

Pupa

In the pupal stage the flea changes from the wormlike form of the larva into the six legged form of the adult. Under favorable conditions the pupal stage may last from 4 to 14 days. Under less favorable conditions this stage may take up to a year. A fully developed adult can remain in a stasis mode in the pupal casing for up to 20 weeks awaiting indicators (vibrations, movement) that a host may be nearby. Pupal casings are usually found near and where animals sleep or frequent and protect developing fleas from harsh environmental conditions as well as pesticides.

Adult

Adults are stimulated to emerge from the pupal casing (cocoon) by mechanical depression of the cocoon, increased temperatures, vibrations or movement near it. After emergence, usually 4-14 days, adults seek a blood meal. In the absence of a host they can live for several months on body fat that was stored during the larval stage and not used while pupating. Actively feeding adults typically live 25 days (+/-) but may live up to a year. Adult fleas are about 1/16th of an inch in length and are flattened from front to back which eases their movement between the hosts' body hairs. The flea body is hard and reddish-brown in color. Adults spend most of their time on the body of the host, feeding, mating, resting and (females) laying eggs. Although there is a preferred host (cats), fleas can bite and survive on many other warm-blooded hosts.

Flea Habits

It is not necessary to have pets (animals) in a building to have fleas. With the ability to jump 6 inches or higher fleas are good hitch hikers. Fleas are found where animals sleep or frequent; including along their travel paths. Outdoor originating fleas can easily jump onto on shoes, pants or legs and ride into buildings. Eggs, larvae and pupae are found both indoors and out, where adult flea fecal matter accumulates. Temperature and humidity will have an effect on flea larva development; they are unable to survive at temps below 55°F or above 95°F and humidity below 45% or above 95%.

Treatment

Flea Control

Flea control is a 4-part process

- Inspection
- Sanitation
- Pet Treatment
- Treatment of the premises

Inspection

Ask the home owner/tenant for permission to perform an inspection. This will serve to identify and confirm the presence of fleas as well as the areas where pets spend most of their time. It is important to concentrate on these locations at time of treatment. During the inspection of the house plan a strategy for treatment and calculate the square footage to be treated. This information will be used to plan the service and determine the volume of materials required to complete the service.

Methods to determine presence of fleas

1. Locate a pet resting area and lay a white cloth down and pat the floor; this activity will draw adults to the cloth.
2. Put knee-high white socks over your shoes while touring the house; adult fleas will be attracted to your movement and can be easily seen on white socks.
3. Inspect pet bedding. It is likely that one or more flea stages can be found.
4. Inspect contents of vacuum cleaner bag. All stages of fleas may be found in the bag contents.

Points to inspect when evaluating pet movements and habits:

1. Favorite resting or sleeping spots
2. Under, behind or on furniture
3. Warm areas, close to heating units, window sills or on carpeting where sun shines through windows.
4. Pet houses or bedding

5. Under porches, crawl spaces, runways, between the house and shrubs in shaded areas where pets rest.

After completion of the inspection the following should have been determined.

1. Flea existence
2. Source of infestation
3. Flea "hot spots" (pet bedding, sleeping spots)
4. Square footage to be treated
5. Strategy for treatment

Note: If after a thorough inspection is completed and no signs of fleas are observed, **FLEA TREATMENTS CANNOT BE PROVIDED.**

Prior to providing curative services for fleas Massey Services provides the homeowner/occupant information and instructions to guide them in preparing for treatment. This information includes the **Massey Flea and Tick Prevention Checklist** on the last page below. The following steps should be followed by the customer before any flea treatment is done.

Preparation/Sanitation

Sanitation plays an important role in the control of fleas. Vacuuming furniture, carpets, other fabric-covered surfaces and disposing of the vacuum bag is a common first step in flea control. Vacuuming only removes the eggs, adults and adult feces. Larvae and pupae remain.

Other steps include; removal of toys and pet dishes, fish tank covered and unplugged, air conditioner turned off, pet bedding removed and cleaned, mopping of all tile and vinyl floors, sweep all floors that cannot be mopped. Remove clutter and personal items from floor surfaces including closets, and under beds to allow access for treatment. Also if a family pet travels in the family vehicle it may be necessary to control fleas inside of the vehicle, but do not use chemicals for control in vehicles. Some of our products may damage interior vehicle plastics. Vacuuming can be used to control this population.

If these steps are not followed by the customer each time treatment for fleas is provided, there is a high probability of failure and customer dissatisfaction.

Affirm with the customer that all treated surfaces must be allowed to dry completely before people and pets can enter the treated areas. Arrangements must be made for

people and pets to be away following the completion of the service until all interior surfaces are dry.

Pet Treatment

It is the responsibility of our customer to treat or have their pet treated for fleas at the time of our service. Home or veterinary provided flea dips/baths are one method. Another is a once a month treatment for pets that will help keep fleas from re-infesting the home. If the animal is allowed outside the owner should take steps to remove fleas that were picked up before coming back inside. This can be done by brushing the pet or lightly spraying it with a flea spray before allowing the pet back inside. These preventive steps will eliminate fleas picked up by the pet while outside.

Treatment Protocol for Fleas Indoors

It should be expected that flea activity will persist at some level and follow up inspections and services will be required to complete the task.

Specific indoor areas will need to be treated with an adulticide and larvicide. This is best accomplished with a pressurized can of both of the materials together such as Alpine Flea. (Massey's treatment will kill the larvae, and only the last generation of pupae remain alive to emerge on a daily basis for a few weeks until all have emerged. Following the treatment, daily vacuuming and interior movements of humans and pets help the last of the pupae to emerge).

Start treatment in corners of the rooms and work your way backwards so that treated surfaces are not walked on. To maintain a consistent and effective spray pattern, apply per label directions.

While treating for fleas you will encounter a number of different surfaces. This following list makes recommendation on how to treat specific surfaces.

1. Apply on the carpets or rug with a directed mist release per label directions.
2. Hardwood floors, cement and/or linoleum/tile floors; spot treat only the cracks and crevices around the baseboard with a dust. The mist does not generally stain the finish but a test spot should be made if the top of the floor will get wet. Excess material should be wiped off of the floor. The mist should only be directed below or behind baseboards and in gaps where floorboards join the size of a credit card or wider.
3. Dirt floors; crawl space, use coarse fan spray from backpack or B&G.

4. Apply on durable sofas and chairs and under their pads, but be careful if the material is brightly colored or extremely thin and silky that water might stain.
5. Upholstered furniture; use pressurized material and treat only the underneath side on the un-upholstered material.
6. Window sills; these are favorite resting areas for cats, make crack and crevice applications.
7. Always carry a clean cloth with you during flea treatments to wipe off material that was applied or drips onto unintended surfaces.

DO NOT APPLY MATERIALS TO DELICATE WOOD OR LEATHER FURNITURE.

Flea infestations are very difficult to eliminate. Several follow up inspections and services may be required to fully eliminate the flea population. A Proactive Follow-up service should be scheduled no more than 7 days after the initial service and every 7 days thereafter until all activity has stopped. The growth regulator applied during the initial service will remain in the treated area for a minimum of 90 days. Encourage the owner/tenant to vacuum frequently to stimulate larva and adult flea movement through the residual materials and IGR. Vacuuming will not diminish the performance of the residual material or IGR.

Flea Control Outdoors

Controlling flea populations outdoors can be challenging. Usually treatment of the pet and our indoor flea treatment protocol is sufficient to gain control, but in some cases this is not enough if the major flea source is located outdoors. Treatment of this source is accomplished using a granular product or back pack sprayer. In some cases the population is high enough that back pack or granular treatments are not enough. In most residential situations, the foam application described below will efficiently treat the harborage areas. For very large areas, GreenUP is asked to treat using large volumes of liquid to penetrate ground cover to deliver insecticide to flea harborage points. There are challenges when GreenUP is involved in this type of treatment. Treatments have to be timed when a vehicle is in that location, mixing tanks must be clean to eliminate stain damage to home exteriors and GreenUP should be compensated for this application. The ideal way to approach this challenge is to give our pest prevention technician the ability to deliver a larger volume of liquid when treating fleas outdoors.

When GreenUP performs this treatment, the GreenUP Specialist must ensure that the drop tank is clean of any materials that may stain surfaces or damage shrubbery. One ounce of Bifenthrin is used per 4 or 5 gallons of water depending upon the vehicle

type. Outdoor flea harborage areas are treated. These areas include shaded areas of turf or open soil and the ground under shrubbery and between the shrubbery and the home. It is rare that fleas will be in high populations in open areas of full sun.

Foam Application of Insecticide

Pest Prevention Technicians treating larger areas outdoors will use foam and water as a carrier for our flea control product applied to outdoor flea harborage sites (lawn and shrub beds). Foam has a number of advantages as a carrier: it expands water used to a ratio of 1 to 10 for a better coverage, foam breaks down the external waxy layer of an insect causing absorption of insecticide quicker, foam and insecticide will control all stages of fleas (adult, larvae, pupa and eggs).

The application equipment we will use is the 96-ounce Power Foamer (Hose End) manufactured by NPD, which attaches to a standard garden hose. This equipment is composed of a 96 ounce bottle (for mixing and spraying), top used to apply the foam spray, quick disconnect gun with garden hose connector and back flow preventer.

The customer's water and hose can be used in this application procedure.

Mixing Instructions and Product usage

Before adding product fill the bottle to the 96 ounce mark with water, add 3 ounces of ProFoam Platinum and a residual material labeled for flea control for enough to treat 1000 sq. ft. Information for the proper amount of material to apply to 1000 sq. ft. can be obtained from product labels. 96 ounces of mixture is applied to 1000 sq. ft. of lawn and/or shrub bed.

Application Procedure



Determine the square footage of the area to be treated: (length X width = square feet).

1) Start at the far edge of the area to be treated
2) Pull the gun trigger to start liquid foam flowing from the nozzle; you will notice a stream of foam which will travel a distance of about twenty feet.
3) With the liquid foam flowing, move the Power Foamer in a side to side motion. Move slowly to get complete coverage of the area being treated.
4) Always move in a backward direction as you continue to treat desired area.
5) 96 ounces will cover 1000 sq. ft., so use all of the contents over 1000 sq. ft.

An outdoor flea population can be eliminated with one application when using this technique. The application equipment and product can be easily used by our pest prevention technician, eliminating the need to apply large amounts of granular insecticides or soliciting the help of GreenUP to apply a large volume of water and insecticide. It takes 20 minutes to measure, mix, and apply the product to 1000 square feet. Inform the customer that people and pets must stay off of treated areas until dry. Make sure to rinse out the foamer following every use, because if left unwashed overnight, a shellac-like coating inside forms and be extremely difficult to wash out.

Current Customers Needing Outdoor Flea Treatments

Pest customers, regardless of having our GU Lawn service, are treated for fleas free of charge indoors. If fleas are causing a problem from the outdoors, "hot spots" can be treated by the pest technician via backpack and/or granules at no charge with no outdoor guarantee. Should the customer want the entire yard treated, then we must upcharge at the rate card rate a single treatment with 30-day guarantee and use the foamer per the treatment protocol above. For multiple acres contact Technical for information about use of live flea-parasitic nematodes.

Weekly Training Topic — Jadera Scentless Plant Bugs

[excerpts from the Featured Creatures article by UF/IFAS]

Nymphs

Adult sucking a goldenrain seed

Adult Boxelder Bug

Introduction

When the Jadera scentless plant bug appears in large colonies in Florida yards and gardens people can become curious and alarmed. The boxelder bug looks like the Jadera bug and can also gather in masses outside homes north of Florida. The boxelder bug, illustrated above, is a different species in the same insect family. Boxelder bugs also cause concern when they appear in great numbers around homes in states to the north and west of Florida.

Mothers often become upset over their children's clothes being stained red from the squashed bodies of Jadera bugs due to their children playing on infested lawns. The bugs aggregate to feed on seeds that have dropped to the ground from trees overhead, especially from goldenrain trees, *Koelreuteria* spp., (Sapindaceae). They crawl over the entire yard and often on the outside of homes. They can occasionally enter homes through gaps in windows and doorways, but generally stay outdoors. Jadera bugs are nuisance insects across the deep south from Texas to Florida and S. Georgia. Boxelder bugs are common from Central GA to N. Texas and north to Canada.

Descriptions

Adult Jadera bugs: The Adult body length ranges from 9.5 to 13.5 mm and width of 3 to 4 mm. The length of the short-winged form usually is 7 to 8 mm long. Adult color is mostly black or brownish-black except for reddish eyes and their orbits, ocelli, shoulders, and border area of abdomen. The abdomen is reddish and sprinkled with darker red spots.

Nymphs: The nymphs are predominantly reddish in color, with the thorax, antennae, beak, and legs brown. Small dark setae (hairs) are nearly uniformly spaced over the whole body as revealed by a hand lens or microscope. The nymphs have the family characteristic of two abdominal scent glands lying so

[excerpts from the Featured Creatures article by UF/IFAS]

close together in the middle of the dorsal abdomen, that segment 5 is constricted at its midline.

Hosts

The Jadera bug feeds on a variety of plants but prefers balloonvine, *Cardiospermum* spp. (Sapindaceae) which grows in southern Florida. Additional hosts include other Sapindaceae, *Ficus* spp. (Moraceae) and *Althaea* spp. (Malvaceae). In some areas the bugs are observed feeding so often on goldenrain tree seeds, *Koelreuteria* spp., (Sapindaceae), that they are referred to as "goldenrain tree bugs." Boxelder bugs feed on boxelder and members of the maple family.

Survey and Detection

Examine ground areas under trees shedding seeds, particularly goldenrain trees, where bugs come to feed on the seeds. Look for the dark, red-shouldered 1/2 inch long adults primarily on leaves, stems, and ground areas. Nymphs are mostly a conspicuous red color.

Management

In most instances, no attempts to control Jadera bugs are necessary. Documentation is lacking as far as this being a plant pest of any consequence. A small concentration of these bugs on a plant often can be destroyed by hand removal. If the bugs are a nuisance in lawns or playgrounds, raking to remove the seeds that the bugs are feeding on should be helpful. To reduce or eliminate the bugs in a yard, all nearby goldenrain trees would also have to be sprayed entirely with a residual product. Massey is not equipped to spray trees 25 to 50 feet high. Entire ground residual liquid treatments will only reduce the numbers for a few days. It is best to recommend waiting until the population has fed on the seeds and dies out. Each generation will start depending upon weather conditions and availability of seeds. Boxelder bugs, on the other hand, can pose a threat indoors if homes have exterior gaps in the eaves or walls. Boxelder bugs enter these gaps in the fall months and overwinter within the walls but not breed within the walls and eventually enter indoors when the weather warms up in the spring. Wall dusting and crack and crevice injections are NOT recommended because large numbers of dead bugs in the walls will harbor carpet beetles and other insect eating insects. The best recommendation for control of boxelder bugs is to seal as many outdoor gaps around doors, windows and shingles as possible before the fall months.

Weekly Training Topic — Jadera Scentless Plant Bugs

[excerpts from the Featured Creatures article by UF/IFAS]

Name:_____ Date:_____

Pre/Post Test

1. Jadera bugs live on seeds of:
    a) Wild Cherry and Ficus
    b) Oak and Maple
    c) Sycamore and Hickory
    d) Chinaberry and Goldenrain trees

2. Nymphs of the Jadera bugs:
    a) can sting
    b) when squished against clothes can cause stains
    c) are often called berry bugs
    d) all of the above

3. Jadera scentless plant bugs:
    a) are strictly in Florida
    b) also live in Texas and Olkahoma
    c) live all across the deep southern United States
    d) live in the same geographical regions as the boxelder bug

4. Jadera bugs:
    a) can infest the entire yard
    b) mainly infest trees
    c) will never enter inside
    d) can carry Chagas Disease

5. Jadera bugs can be controlled by:
    a) a residual band treatment of a synthetic pyrethroid
    b) a broadcast granular treatment over the entire yard
    c) broadcast treatment of Niban bait
    d) No attempts to control this bug are necessary

[excerpts from the Featured Creatures article by UF/IFAS]

Answers: 1- d 2- b 3- c 4- a 5- d

WEEKLY TRAINING SESSION

Renovation Services and Plant Selection, Installation and Care

Topic Category: Lawn

Recordable Verifiable Training Hours: 1.0

Objectives: This lesson is designed to teach our Renovation Protocol and Plant Selection, Installation and Care.

Length of lesson: Approx 1 Hour.

Materials needed:

- Training Guideline
- Renovation Protocol found in G:\Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation.
- GreenUP Protocol Plant Installation and Care G:\Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation
- Pre- and Post- tests.

Training Guidelines:

- Make copies of the tests and training materials for all Team Members attending.
- Set up the training area in an area of the office that will minimize disruptions.
- Begin the meeting by defining the training topic and handing out the Pre-test
    - Allow a few minutes for Team Members to complete the Pre-test.
    - Collect the pre-test and hand out the Verifiable Training Record Form (VTRF)
- Distribute and review the training materials on Renovation Protocols
- Use the Training outline as a guide for key points.
    - Encourage active participation from all Team Members
    - Ask probing questions to develop key points
    - Encourage group reading
- After reading and reviewing all materials, ask questions to verify the lesson has been understood.
- Hand out the Post-tests. When complete, grade the tests and record the score on the VTRF.
- Collect tests and place with the verifiable materials in the Service Center Verifiable Training File.
- Make copies of the VTRF and place in each Team Member's training file.
- Complete all Weekly VTM's through Massey University.

WEEKLY TRAINING SESSION

Renovation Services and Plant Selection, Installation and Care

Name _____ Date _____

PRE & POST TEST

1. The best St. Augustine variety to install in full sun location is _____.
2. T or F Zoysiagrass is does not need as much water as St. Augustine to maintain a healthy appearance.
3. T or F A wider variety of weeds can be selectively controlled in Zoysia than in St. Augustine.
4. T or F Palmetto is the best St. Augustine variety in for shady locations.
5. _____ is a good suggestion for a customer who does not have adequate sunlight to grow turf or they simply want to reduce maintenance or add color.
6. T or F Italian Cypress are perfect shrubs to plant close to the home and on either side of a front door.
7. Trees or shrubs with _____ roots should not be purchased.
8. T or F Trees with two primary stems (trunks) will be a hazard in later years.
9. T or F Branches of trees should have wide angles of attachment.
10. T or F Fine fibrous roots that have grown around the perimeter of the pot should be shaved off before installation.

WEEKLY TRAINING SESSION

Renovation Services and Plant Selection, Installation and Care

PRE & POST TEST ANSWER KEY

1. The best St. Augustine variety to install in full sun location is ____Floratam_____.
2. T or (F) Zoysiagrass does not need as much water as St. Augustine to maintain a healthy appearance.
3. (T) or F A wider variety of weeds can be selectively controlled in Zoysia than in St. Augustine.
4. T or (F) Palmetto is the best St. Augustine variety in for shady locations.
5. _____Ornamental Ground Cover_____ is a good suggestion for a customer who does not have adequate sunlight to grow turf or they simply want to reduce maintenance or add color.
6. T or (F) Italian Cypress are perfect shrubs to plant close to the home and on either side of a front door.
7. Trees or shrubs with _____girdling_____ roots should not be purchased.
8. (T) or F Trees with two primary stems (trunks) will be a hazard in later years.
9. (T) or F Branches of trees should have wide angles of attachment.
10. (T) or F Fine fibrous roots that have grown around the perimeter of the pot should be shaved off before installation.

GREENUP SERVICE PROTOCOLS

Renovation Services

Objective

Renovation services provide us with a great opportunity to enhance the relationship we have with our customers, provides us with an additional revenue stream and provides the customer with a very beneficial service. If our company is involved in the installation of plant material, whether by us directly or by us subcontracting the work, the customer is paying for our expertise to ensure the right plant is being installed in the location, the structural growth of the plant will support long-term survival and the plants are installed properly to ensure establishment and long-term health.
The objective of the following information is to provide general guidelines for renovation of plant material.

Turf

General Guidelines: It is important that we only utilize turfgrasses that have a proven track record. "New" grass types should not be used until they have a proven track record of success. For example, Palmetto St. Augustine has been a difficult grass to establish, whether in full sun or shade. The grass type installed must be suitable for the growing conditions in which it will be planted. Turfgrass should not be planted in a location that does not receive a minimum of 5 hours of filtered sunlight. Turfgrass should not be planted in areas inundated with tree roots. Turfgrass should not be installed in areas of poor drainage that remain excessively wet. If an area of turf has declined due to foot traffic, suggest an alternative such as a rock pathway as opposed to replacing the area with more turf, which would suffer the same fate.

Full Sun Locations:

We have three options for replacement of turfgrass in full sun locations. They are Floratam St. Augustine and Empire Zoysia. Centipede is also an option in North Florida.

Floratam has been the primary grass type of Florida lawns for many years. Customers should be aware that it does require full sun and adequate soil moisture. Floratam will not withstand prolonged periods of drought without adequate irrigation. Floratam has a course leaf texture and a light green color.

Empire Zoysia is a relative new-comer to residential lawns in Florida. Zoysiagrasses are often marketed as being drought tolerant. It is very important to understand the difference between drought tolerance and drought resistance. Drought tolerant means that the plant can go into a drought situation and has a better chance of survival. Drought resistance means that the plant does not need as much water to maintain a healthy appearance. Zoysiagrass is not drought resistant, but it is drought tolerant once it has fully established. It will need as much or more water than the St. Augustine varieties to have a healthy appearance. However, an established Zoysia lawn will have a much better chance to survive drought conditions than a St. Augustine lawn. Under drought conditions, Zoysiagrasses will go into a semi-dormant state. Since Zoysiagrasses have rhizomes, which are underground, the rhizomes can remain alive on reduced soil moisture than would the stolons (above ground plant parts).

Benefits of Zoysiagrasses include finer leaf texture, chinch bug resistance, the ability to control a wide variety of grassy weeds and a wider variety of broadleaf weeds than in St. Augustine.

Turf for Shady Locations

The best turf to install in a shady location is Seville St. Augustine. Seville is a dwarf St. Augustine variety. It has a shorter leaf surface and tighter internodes than Floratam. Be very careful to ensure that there is adequate sunlight for the turf to flourish. Even Seville will require 4 to 5 hours of filtered sunlight to survive.

GREENUP SERVICE PROTOCOLS

Renovation Services

Ornamental Plant Selection

Selection of the right plant must meet the growing conditions for light and soil moisture. Additionally, the selection must also meet the cold hardiness zone for the location unless the customer fully understands that the plant is or may be an annual. Plants for Zone 7 (0 to 10 degrees Fahrenheit) or Zone 8 (10 to 20 degrees Fahrenheit) should be used in North and North Central Florida. Plants for Zone 8 or Zone 9 (20 to 30 degrees Fahrenheit) should be used in Central and South-Central Florida. South Florida may also use Zone 10 plants (30 to 40 degrees Fahrenheit), but should caution the customer on the potential of damage given an extreme cold event. A list of shrubs with their characteristics can be found in the G: Drive in Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation

Flowering Annuals

Annual plantings are a great way for a customer to add color to their landscape. Depending on the plant selected, annuals may be switched out two to six times per year. Plantings of Pansies, Snapdragons or Petunias work well for the winter. Various varieties of Begonias, Marigolds and Geraniums work well in the spring. Impatiens, Salvia, Coleus, and Pentas do well in the summer. There are many options from which to choose, but be knowledgeable of the light requirements for your plantings.

Ornamental Ground Covers

Frequently, a customer will have an area that does not receive adequate sunlight for turfgrass to survive or they may simply want to do something different than turfgrass to reduce maintenance or to add color. Ornamental ground covers are great suggestions for these areas. Some options would include Dwarf Asiatic Jasmine, English Ivy, Mondograss, multiple varieties of Plantain Lilies, and many varieties of ferns. A list of ornamental ground covers with their characteristics can be found in the G: Drive in Share\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation

Woody Ornamentals and Trees

Woody ornamentals and trees are long-term investments in the customer's property. These plants appreciate in value for many years after installation. It is particularly important that woody ornamentals and trees have suitable moisture and light conditions as well as cold hardiness for the location in which they will be planted. Additionally, it will be important to ensure enough space is available to meet the needs of the plant at maturity. Consider the complete surroundings when installing trees and shrubs. Do not plant trees under power lines unless the tree will not reach a height where the power line will interfere with its growth. If the tree or shrub is near the driveway and the road, will it interfere with the view of the oncoming traffic when exiting the drive? Will the tree or shrub block a traffic sign? A list of trees with their characteristics can be found in the G: Drive in Share\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation

Will the roots of the mature tree damage the sidewalk, driveway or septic tank? These are factors that should be considered. An excellent website to help in the selection of all types of plant material can be found at www.backyardgardener.com and www.floridayards.org/fyplants/index.php.

GREENUP SERVICE PROTOCOLS

Renovation Services

Great attention must be paid the root structure of container grown trees and shrubs. Avoid plants with girdling roots or poor branch growth structure. Proper installation in terms of planting depth is also key to long term survival. See the protocol, “Plant Selection, Installation and Care” located on the G: Drive Share\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation.

Avoid installing trees and shrubs that have historically given us problems to maintain or are not long-lived. Below are some examples:

- Italian Cypress does not do well in a humid area such as Florida. They will do especially poorly when installed next to a structure, with limited light or in an area with limited air movement.
- Pittosporums are hated plants.
- Laurel Oaks are fast growing, but Live Oaks will live much longer and will perform much better under adverse soil conditions. Do not install Laurel Oaks in an area with extremely high moisture content; install Live Oaks instead.
- East Palatka Holly is very prone to Sphaeropsis gal (witches’ broom). Nelly Stephens Holly is darker green, more attractive and somewhat less susceptible to Sphaeropsis.
- Walters Viburnum is a good alternative to Ilex Shilling.

All Team Members should be on the lookout to help our customers with their renovation needs. The Specialist can either sell the service directly or provide the office with the lead. The lead will then be assigned to the appropriate inspector who covers that area.

Pricing is done by the Service Center and is based on availability and plant material cost. The manager has discretion for the charge to the customer, but it will be a minimum of two times the cost of material plus any delivery fee or in the case of subcontracted jobs, two times the total cost. For example, if a sod installation job costs us $0.65 per square foot, we charge $1.30 per square foot. Full sales commission is only paid on jobs that are correctly priced.

Accurate measurement of the areas to be replaced is of the utmost importance. Adding 10% to your measurements will give you a margin for error. Areas to be sodded must then be identified with marking paint. Contractors must be informed to remove and replace only the turf inside the painted area and leave the painted line. However, if areas beyond the white lines have been killed with Round-up over spray, the damaged turf should be replaced as well. Customers should be informed that some of the white line may remain after replacement.

After installation of plant material, an Inspector or Manager must perform a follow up inspection to ensure quality and customer satisfaction and have the customer sign a Renovation Completion Certificate.

Plant Selection, Installation and Care

Objective

Plant selection, proper installation and proper initial care after installation are keys to the ultimate satisfaction of the customer. If our company is involved in the installation of plant material, whether by us directly or by subcontracting the work, the customer is paying for our expertise to ensure the right plant is being installed in the location, the structural growth of the plant will support long-term survival and the plants are installed properly to ensure establishment and long-term health.

Plant Selection


Girdling Roots

Root Ball Inspection

Start with a visual inspection of the root ball. Container grown shrubs and trees are notorious for problems with girdling roots and/or “J” roots. Girdling roots and “J” roots occur in container grown trees and shrubs because the container obstructs where the roots need to grow. The primary tap root attempts to grow downward until it hits the bottom of the container. When this root hits the bottom of the pot, it will either circle around the bottom of the pot or make a “J” or “U”-turn upward. Perimeter roots initially radiate out from the trunk/root flare until they contact the container and begin to encircle the pot. The narrower the container, the more likely that girdling roots will occur. Girdling roots encircle the trunk. As the trunk and girdling root grow, eventually the girdling root will strangle the trunk. This process causes the primary phloem, which transports food from the leaves to the root system to be interrupted. When this happens, the root system will die of starvation and the upper portions of the plant will subsequently die.

If inspection of the root ball reveals girdling roots, the plant should be refused. If girdling roots are visual from the surface, they are also likely below the surface.

Trunk Inspection

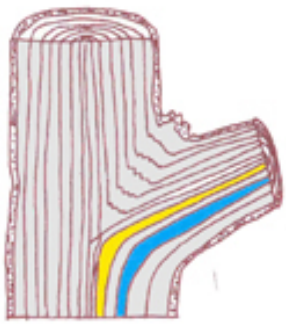
Inspect the trunk for defects. Trees should have only one trunk (primary stem). Trees with two primary stems (co-dominant stems) will be a hazard in later years. As the co-dominant trunks grow, they continue to push on each other until ultimately, one of the trunks will push over the other.

The trunk should be straight and free of cracks or wounds.

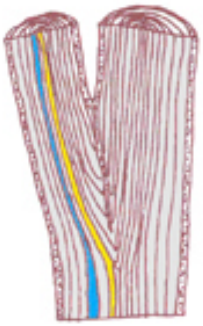
Plant Selection, Installation and Care

Proper Branch Structure

The branches of the tree should have wide angles of attachment to the trunk. Branches with narrow angles of attachment (less than 45 degrees) are structurally defective. Branches with narrow angles of attachment are weakly attached and can become a hazard in later years.



Strong Attachment



Weak Attachment

Insect and Disease Problems

Inspect for insect and disease issues. Shrubs and trees with disease symptoms should be refused. Shrubs and trees with insect problems should also be refused unless the issue is very minor and easily controlled. Insects such as aphids or lace bugs are easily controlled. If there has been no damage done to the tree or shrub, it is okay to keep. Trees or shrubs with scale insects or invasive pests should be refused.

Installation

Proper installation is key to long-term survival of landscape shrubs and trees.

- Dig the planting hole slightly wider than the root ball, but no deeper than the height of the root ball. This will help avoid installing the plant too deeply and keep the plant from settling after installation.
- Remove any container or other material that surrounds the root ball. Containers can be easily removed after tapping on the sides and bottom of the pot.
- Remove any soil that may be on top of the primary root flares.
- Shave off fine fibrous roots that have grown around the perimeter of the pot and loosen the root ball. This will encourage roots to spread outward instead of continuing to circle.
- Place the root ball into the hole and ensure the top of the root ball is roughly 10% above the soil grade.
- Push soil into hole around the root ball. Large trees should be “mudded” in by watering the soil as it goes back into the hole. This will ensure that no air pockets are present.
- Some may suggest that compost or organic fertilizer be added into the hole when it is being filled in. This is not a benefit for long-term establishment. The roots may do well in the organic material, but the surrounding soil will simply act as a larger pot as the roots flourish in the compost area.
- Mulch should be added around the root ball area, but very little if any should be on top of the root ball. Mulch will help keep weeds out of the area and will help regulate the soil moisture and temperature.
- A berm of soil around large trees is beneficial to help keep the water directed into the root ball. However, after establishment the berm must be leveled away from the root ball and not toward the trunk.

Plant Selection, Installation and Care

- Water the root ball of each plant directly to ensure the root balls are moist and then irrigate the entire bed to ensure the surrounding soil is moist.
- Fertilization is not typically needed for the first month after installation. If the plant appears healthy, it has probably had sufficient fertilizer at the nursery. When fertilizer is applied, it is only necessary and beneficial to apply fertilizer to areas where the root system has developed.

Care after Installation

Maintaining sufficient moisture for the plant until the root system has established is critical to the survival of the plant.

Be aware that if the growing media within the root ball is more course than the soil in which the plant has been installed, it will be difficult to keep proper moisture within the root ball. The problem here is that where there are distinct borders between course and fine soils, capillary action will move the moisture from the course material and into the fine material. This is one of the reasons that breaking-up the root ball and shaving off the fine fibrous roots at the time of installation is important.

Inform the customer that it is imperative that the root ball of each plant be hand watered as if the plant were still in a pot. This needs to be done a couple of times a week for the first few weeks after installation in addition to the regular irrigation of the planting bed. Periodic inspection of the plants should be done until they have fully established to ensure sufficient moisture in and around the root ball. A good rule of thumb to remember is that it will take one year for every one inch of trunk diameter for complete establishment of the plant.

One or two applications of 12-2-14 at a rate of 6 to 8 pounds per 1000 sq. ft. at monthly intervals will encourage establishment. Inspect and treat for insects and disease as needed.

WEEKLY TRAINING SESSION

Plant Selection, Installation and Care

Topic Category: Lawn

Recordable Verifiable Training Hours: 1.0

Objectives: This lesson is designed to teach our Renovation Protocol and Plant Selection, Installation and Care.

Length of lesson: Approx 1 Hour.

Materials needed:

- Training Guideline
- GreenUP Protocol Plant Installation and Care G:\Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation
- Pre- and Post- tests.

Training Guidelines:

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WEEKLY TRAINING SESSION

Plant Selection, Installation and Care

Name _____ Date _____

1. Trees or shrubs with _____ roots should not be purchased.
2. T or F Girdling roots kill trees or shrubs by interrupting the xylem layer and upward flow of water.
3. T or F Trees with two primary stems (trunks) will be a hazard in later years.
4. T or F Branches of trees should have wide angles of attachment.
5. T or F Planting holes should be dug 50% deeper than the height of the rootball.
6. T or F The top of the rootball should be installed 10% deeper than the top of the soil grade.
7. T or F Digging a wide hole and adding Black Cow around the outside of the rootball is beneficial.
8. T or F Large trees should be “mudded in” to remove air pockets.
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WEEKLY TRAINING SESSION

Plant Selection, Installation and Care

PRE & POST TEST ANSWER KEY

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Renovation Services

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GREENUP SERVICE PROTOCOLS

Renovation Services

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GREENUP SERVICE PROTOCOLS

Renovation Services

Great attention must be paid the root structure of container grown trees and shrubs. Avoid plants with girdling roots or poor branch growth structure. Proper installation in terms of planting depth is also key to long term survival. See the protocol, “Plant Selection, Installation and Care” located on the G: Drive Share\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation.

Avoid installing trees and shrubs that have historically given us problems to maintain or are not long-lived. Below are some examples:

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- Pittosporums are hated plants.
- Laurel Oaks are fast growing, but Live Oaks will live much longer and will perform much better under adverse soil conditions. Do not install Laurel Oaks in an area with extremely high moisture content; install Live Oaks instead.
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All Team Members should be on the lookout to help our customers with their renovation needs. The Specialist can either sell the service directly or provide the office with the lead. The lead will then be assigned to the appropriate inspector who covers that area.

Pricing is done by the Service Center and is based on availability and plant material cost. The manager has discretion for the charge to the customer, but it will be a minimum of two times the cost of material plus any delivery fee or in the case of subcontracted jobs, two times the total cost. For example, if a sod installation job costs us $0.65 per square foot, we charge $1.30 per square foot. Full sales commission is only paid on jobs that are correctly priced.

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After installation of plant material, an Inspector or Manager must perform a follow up inspection to ensure quality and customer satisfaction and have the customer sign a Renovation Completion Certificate.

Plant Selection, Installation and Care

Objective

Plant selection, proper installation and proper initial care after installation are keys to the ultimate satisfaction of the customer. If our company is involved in the installation of plant material, whether by us directly or by subcontracting the work, the customer is paying for our expertise to ensure the right plant is being installed in the location, the structural growth of the plant will support long-term survival and the plants are installed properly to ensure establishment and long-term health.

Plant Selection


Girdling Roots

Root Ball Inspection

Start with a visual inspection of the root ball. Container grown shrubs and trees are notorious for problems with girdling roots and/or “J” roots. Girdling roots and “J” roots occur in container grown trees and shrubs because the container obstructs where the roots need to grow. The primary tap root attempts to grow downward until it hits the bottom of the container. When this root hits the bottom of the pot, it will either circle around the bottom of the pot or make a “J” or “U”-turn upward. Perimeter roots initially radiate out from the trunk/root flare until they contact the container and begin to encircle the pot. The narrower the container, the more likely that girdling roots will occur. Girdling roots encircle the trunk. As the trunk and girdling root grow, eventually the girdling root will strangle the trunk. This process causes the primary phloem, which transports food from the leaves to the root system to be interrupted. When this happens, the root system will die of starvation and the upper portions of the plant will subsequently die.

If inspection of the root ball reveals girdling roots, the plant should be refused. If girdling roots are visual from the surface, they are also likely below the surface.

Trunk Inspection

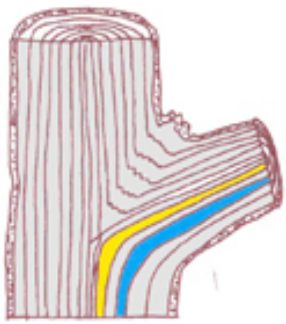
Inspect the trunk for defects. Trees should have only one trunk (primary stem). Trees with two primary stems (co-dominant stems) will be a hazard in later years. As the co-dominant trunks grow, they continue to push on each other until ultimately, one of the trunks will push over the other.

The trunk should be straight and free of cracks or wounds.

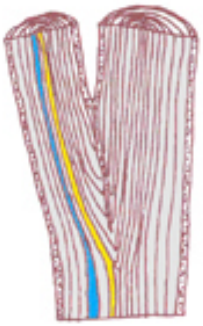
Plant Selection, Installation and Care

Proper Branch Structure

The branches of the tree should have wide angles of attachment to the trunk. Branches with narrow angles of attachment (less than 45 degrees) are structurally defective. Branches with narrow angles of attachment are weakly attached and can become a hazard in later years.



Strong Attachment



Weak Attachment

Insect and Disease Problems

Inspect for insect and disease issues. Shrubs and trees with disease symptoms should be refused. Shrubs and trees with insect problems should also be refused unless the issue is very minor and easily controlled. Insects such as aphids or lace bugs are easily controlled. If there has been no damage done to the tree or shrub, it is okay to keep. Trees or shrubs with scale insects or invasive pests should be refused.

Installation

Proper installation is key to long-term survival of landscape shrubs and trees.

- Dig the planting hole slightly wider than the root ball, but no deeper than the height of the root ball. This will help avoid installing the plant too deeply and keep the plant from settling after installation.
- Remove any container or other material that surrounds the root ball. Containers can be easily removed after tapping on the sides and bottom of the pot.
- Remove any soil that may be on top of the primary root flares.
- Shave off fine fibrous roots that have grown around the perimeter of the pot and loosen the root ball. This will encourage roots to spread outward instead of continuing to circle.
- Place the root ball into the hole and ensure the top of the root ball is roughly 10% above the soil grade.
- Push soil into hole around the root ball. Large trees should be “mudded” in by watering the soil as it goes back into the hole. This will ensure that no air pockets are present.
- Some may suggest that compost or organic fertilizer be added into the hole when it is being filled in. This is not a benefit for long-term establishment. The roots may do well in the organic material, but the surrounding soil will simply act as a larger pot as the roots flourish in the compost area.
- Mulch should be added around the root ball area, but very little if any should be on top of the root ball. Mulch will help keep weeds out of the area and will help regulate the soil moisture and temperature.
- A berm of soil around large trees is beneficial to help keep the water directed into the root ball. However, after establishment the berm must be leveled away from the root ball and not toward the trunk.

Plant Selection, Installation and Care

- Water the root ball of each plant directly to ensure the root balls are moist and then irrigate the entire bed to ensure the surrounding soil is moist.
- Fertilization is not typically needed for the first month after installation. If the plant appears healthy, it has probably had sufficient fertilizer at the nursery. When fertilizer is applied, it is only necessary and beneficial to apply fertilizer to areas where the root system has developed.

Care after Installation

Maintaining sufficient moisture for the plant until the root system has established is critical to the survival of the plant.

Be aware that if the growing media within the root ball is more course than the soil in which the plant has been installed, it will be difficult to keep proper moisture within the root ball. The problem here is that where there are distinct borders between course and fine soils, capillary action will move the moisture from the course material and into the fine material. This is one of the reasons that breaking-up the root ball and shaving off the fine fibrous roots at the time of installation is important.

Inform the customer that it is imperative that the root ball of each plant be hand watered as if the plant were still in a pot. This needs to be done a couple of times a week for the first few weeks after installation in addition to the regular irrigation of the planting bed. Periodic inspection of the plants should be done until they have fully established to ensure sufficient moisture in and around the root ball. A good rule of thumb to remember is that it will take one year for every one inch of trunk diameter for complete establishment of the plant.

One or two applications of 12-2-14 at a rate of 6 to 8 pounds per 1000 sq. ft. at monthly intervals will encourage establishment. Inspect and treat for insects and disease as needed.

WEEKLY TRAINING SESSION

Renovation Services and Plant Selection, Installation and Care

Topic Category: Lawn

Recordable Verifiable Training Hours: 1.0

Objectives: This lesson is designed to teach our Renovation Protocol and Plant Selection, Installation and Care.

Length of lesson: Approx 1 Hour.

Materials needed:

- Training Guideline
- Renovation Protocol found in G:\Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation.
- GreenUP Protocol Plant Installation and Care G:\Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation
- Pre- and Post- tests.

Training Guidelines:

- Make copies of the tests and training materials for all Team Members attending.
- Set up the training area in an area of the office that will minimize disruptions.
- Begin the meeting by defining the training topic and handing out the Pre-test
    - Allow a few minutes for Team Members to complete the Pre-test.
    - Collect the pre-test and hand out the Verifiable Training Record Form (VTRF)
- Distribute and review the training materials on Renovation Protocols
- Use the Training outline as a guide for key points.
    - Encourage active participation from all Team Members
    - Ask probing questions to develop key points
    - Encourage group reading
- After reading and reviewing all materials, ask questions to verify the lesson has been understood.
- Hand out the Post-tests. When complete, grade the tests and record the score on the VTRF.
- Collect tests and place with the verifiable materials in the Service Center Verifiable Training File.
- Make copies of the VTRF and place in each Team Member's training file.
- Complete all Weekly VTM's through Massey University.

WEEKLY TRAINING SESSION

Renovation Services and Plant Selection, Installation and Care

Name _____ Date _____

PRE & POST TEST

1. The best St. Augustine variety to install in full sun location is _____.
2. T or F Zoysiagrass is does not need as much water as St. Augustine to maintain a healthy appearance.
3. T or F A wider variety of weeds can be selectively controlled in Zoysia than in St. Augustine.
4. T or F Palmetto is the best St. Augustine variety in for shady locations.
5. _____ is a good suggestion for a customer who does not have adequate sunlight to grow turf or they simply want to reduce maintenance or add color.
6. T or F Italian Cypress are perfect shrubs to plant close to the home and on either side of a front door.
7. Trees or shrubs with _____ roots should not be purchased.
8. T or F Trees with two primary stems (trunks) will be a hazard in later years.
9. T or F Branches of trees should have wide angles of attachment.
10. T or F Fine fibrous roots that have grown around the perimeter of the pot should be shaved off before installation.

WEEKLY TRAINING SESSION

Renovation Services and Plant Selection, Installation and Care

PRE & POST TEST ANSWER KEY

1. The best St. Augustine variety to install in full sun location is ____Floratam_____.
2. T or (F) Zoysiagrass does not need as much water as St. Augustine to maintain a healthy appearance.
3. (T) or F A wider variety of weeds can be selectively controlled in Zoysia than in St. Augustine.
4. T or (F) Palmetto is the best St. Augustine variety in for shady locations.
5. _____Ornamental Ground Cover_____ is a good suggestion for a customer who does not have adequate sunlight to grow turf or they simply want to reduce maintenance or add color.
6. T or (F) Italian Cypress are perfect shrubs to plant close to the home and on either side of a front door.
7. Trees or shrubs with _____girdling_____ roots should not be purchased.
8. (T) or F Trees with two primary stems (trunks) will be a hazard in later years.
9. (T) or F Branches of trees should have wide angles of attachment.
10. (T) or F Fine fibrous roots that have grown around the perimeter of the pot should be shaved off before installation.

GREENUP SERVICE PROTOCOLS

Renovation Services

Objective

Renovation services provide us with a great opportunity to enhance the relationship we have with our customers, provides us with an additional revenue stream and provides the customer with a very beneficial service. If our company is involved in the installation of plant material, whether by us directly or by us subcontracting the work, the customer is paying for our expertise to ensure the right plant is being installed in the location, the structural growth of the plant will support long-term survival and the plants are installed properly to ensure establishment and long-term health.
The objective of the following information is to provide general guidelines for renovation of plant material.

Turf

General Guidelines: It is important that we only utilize turfgrasses that have a proven track record. "New" grass types should not be used until they have a proven track record of success. For example, Palmetto St. Augustine has been a difficult grass to establish, whether in full sun or shade. The grass type installed must be suitable for the growing conditions in which it will be planted. Turfgrass should not be planted in a location that does not receive a minimum of 5 hours of filtered sunlight. Turfgrass should not be planted in areas inundated with tree roots. Turfgrass should not be installed in areas of poor drainage that remain excessively wet. If an area of turf has declined due to foot traffic, suggest an alternative such as a rock pathway as opposed to replacing the area with more turf, which would suffer the same fate.

Full Sun Locations:

We have three options for replacement of turfgrass in full sun locations. They are Floratam St. Augustine and Empire Zoysia. Centipede is also an option in North Florida.

Floratam has been the primary grass type of Florida lawns for many years. Customers should be aware that it does require full sun and adequate soil moisture. Floratam will not withstand prolonged periods of drought without adequate irrigation. Floratam has a course leaf texture and a light green color.

Empire Zoysia is a relative new-comer to residential lawns in Florida. Zoysiagrasses are often marketed as being drought tolerant. It is very important to understand the difference between drought tolerance and drought resistance. Drought tolerant means that the plant can go into a drought situation and has a better chance of survival. Drought resistance means that the plant does not need as much water to maintain a healthy appearance. Zoysiagrass is not drought resistant, but it is drought tolerant once it has fully established. It will need as much or more water than the St. Augustine varieties to have a healthy appearance. However, an established Zoysia lawn will have a much better chance to survive drought conditions than a St. Augustine lawn. Under drought conditions, Zoysiagrasses will go into a semi-dormant state. Since Zoysiagrasses have rhizomes, which are underground, the rhizomes can remain alive on reduced soil moisture than would the stolons (above ground plant parts).

Benefits of Zoysiagrasses include finer leaf texture, chinch bug resistance, the ability to control a wide variety of grassy weeds and a wider variety of broadleaf weeds than in St. Augustine.

Turf for Shady Locations

The best turf to install in a shady location is Seville St. Augustine. Seville is a dwarf St. Augustine variety. It has a shorter leaf surface and tighter internodes than Floratam. Be very careful to ensure that there is adequate sunlight for the turf to flourish. Even Seville will require 4 to 5 hours of filtered sunlight to survive.

GREENUP SERVICE PROTOCOLS

Renovation Services

Ornamental Plant Selection

Selection of the right plant must meet the growing conditions for light and soil moisture. Additionally, the selection must also meet the cold hardiness zone for the location unless the customer fully understands that the plant is or may be an annual. Plants for Zone 7 (0 to 10 degrees Fahrenheit) or Zone 8 (10 to 20 degrees Fahrenheit) should be used in North and North Central Florida. Plants for Zone 8 or Zone 9 (20 to 30 degrees Fahrenheit) should be used in Central and South-Central Florida. South Florida may also use Zone 10 plants (30 to 40 degrees Fahrenheit), but should caution the customer on the potential of damage given an extreme cold event. A list of shrubs with their characteristics can be found in the G: Drive in Shared\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation

Flowering Annuals

Annual plantings are a great way for a customer to add color to their landscape. Depending on the plant selected, annuals may be switched out two to six times per year. Plantings of Pansies, Snapdragons or Petunias work well for the winter. Various varieties of Begonias, Marigolds and Geraniums work well in the spring. Impatiens, Salvia, Coleus, and Pentas do well in the summer. There are many options from which to choose, but be knowledgeable of the light requirements for your plantings.

Ornamental Ground Covers

Frequently, a customer will have an area that does not receive adequate sunlight for turfgrass to survive or they may simply want to do something different than turfgrass to reduce maintenance or to add color. Ornamental ground covers are great suggestions for these areas. Some options would include Dwarf Asiatic Jasmine, English Ivy, Mondograss, multiple varieties of Plantain Lilies, and many varieties of ferns. A list of ornamental ground covers with their characteristics can be found in the G: Drive in Share\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation

Woody Ornamentals and Trees

Woody ornamentals and trees are long-term investments in the customer's property. These plants appreciate in value for many years after installation. It is particularly important that woody ornamentals and trees have suitable moisture and light conditions as well as cold hardiness for the location in which they will be planted. Additionally, it will be important to ensure enough space is available to meet the needs of the plant at maturity. Consider the complete surroundings when installing trees and shrubs. Do not plant trees under power lines unless the tree will not reach a height where the power line will interfere with its growth. If the tree or shrub is near the driveway and the road, will it interfere with the view of the oncoming traffic when exiting the drive? Will the tree or shrub block a traffic sign? A list of trees with their characteristics can be found in the G: Drive in Share\GreenUp Reference Materials\GreenUp Protocols\Individual Protocols\Renovation

Will the roots of the mature tree damage the sidewalk, driveway or septic tank? These are factors that should be considered. An excellent website to help in the selection of all types of plant material can be found at www.backyardgardener.com and www.floridayards.org/fyplants/index.php.

GREENUP SERVICE PROTOCOLS

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Plant Selection, Installation and Care

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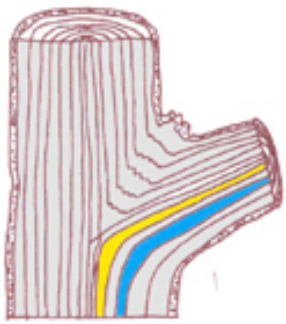

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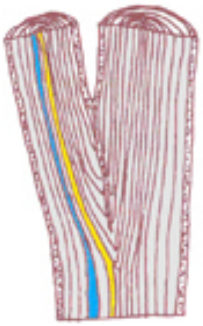

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Plant Selection, Installation and Care

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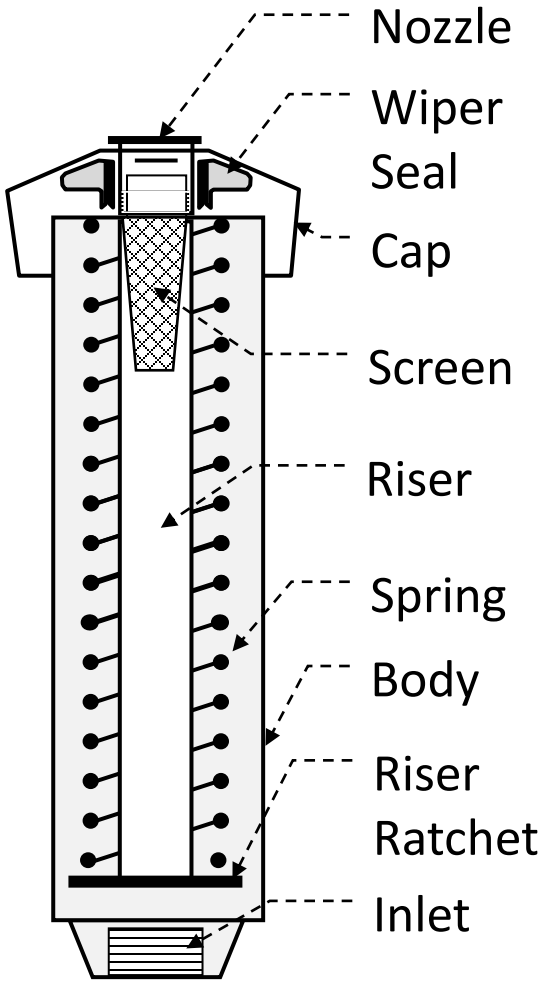
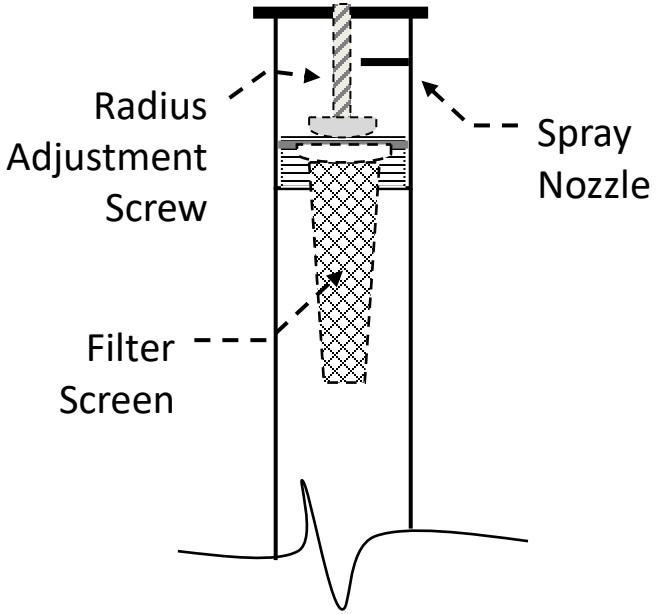
Sprinkler System Components

- Sprinklers & Valves

Parts of a Spray Sprinkler





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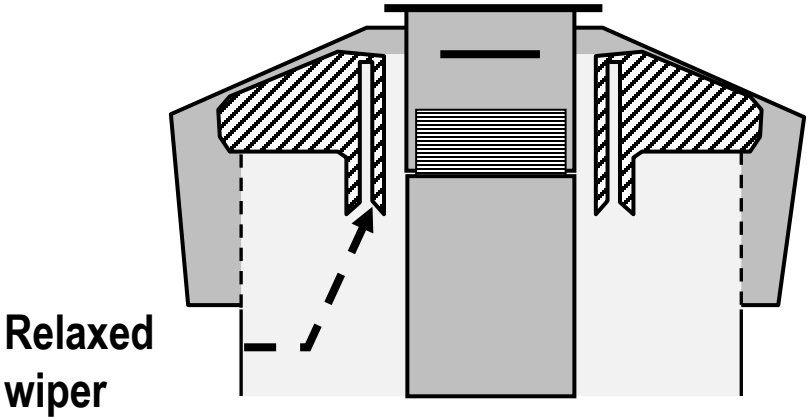
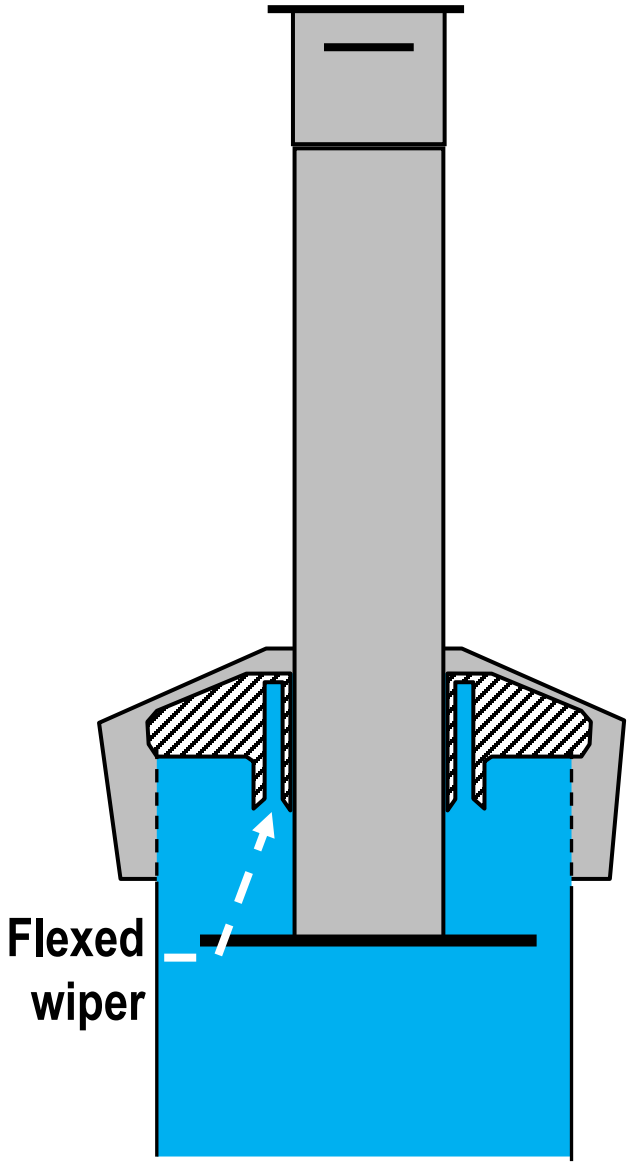
GreenUP Landscape Services

Operation of a Spray Sprinkler





MASSEY
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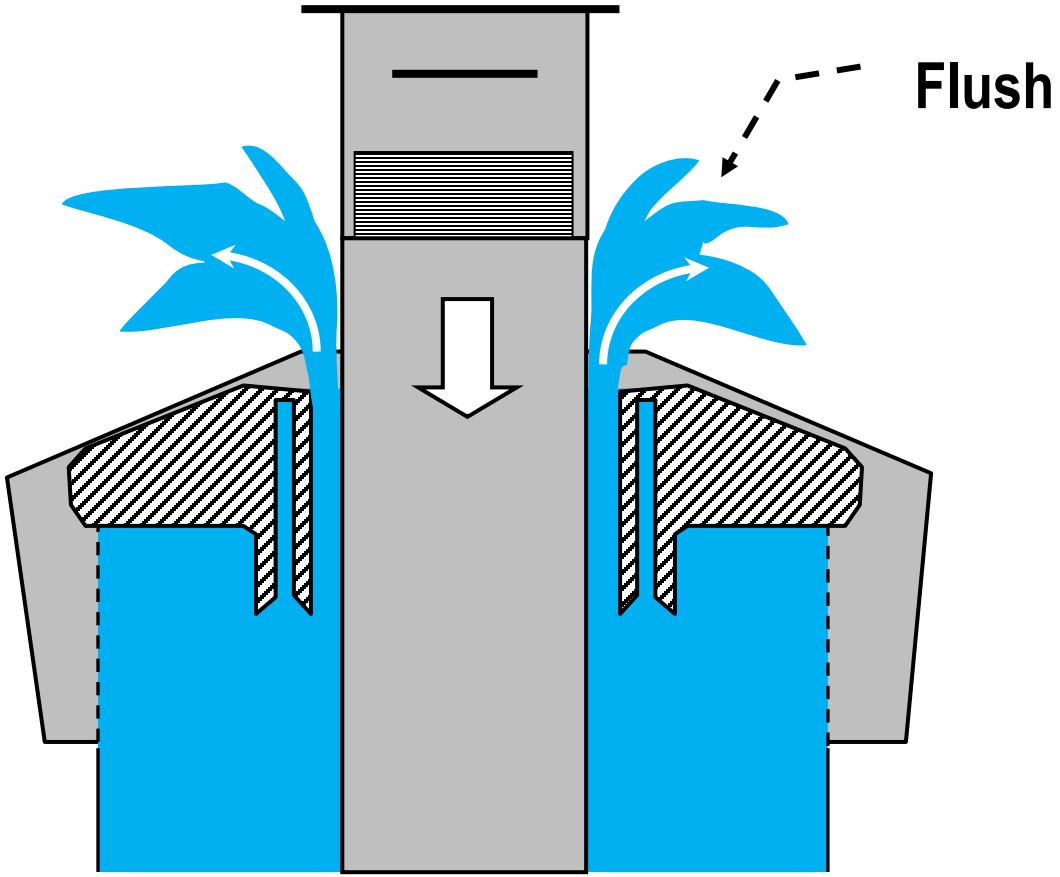

MASSEY
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Pop Up Sprinklers

- Spray Body
  - 4”, 6”, 12”
- Spray Adapter
- Check Valve
- Pressure Regulator
- Side Inlet On Some Models

MASSEY
GreenUP Landscape Services

Spray Nozzles

- Fixed Arcs
- Adjustable
- Bubblers
- Multi-Stream

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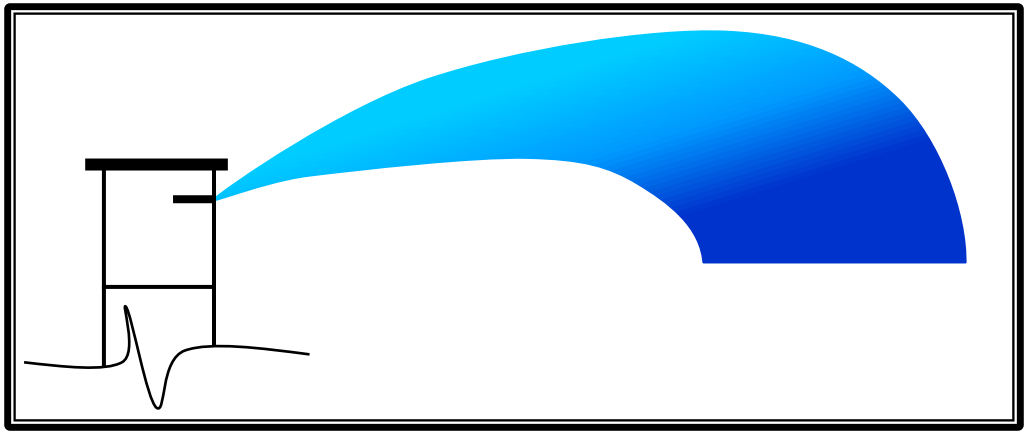
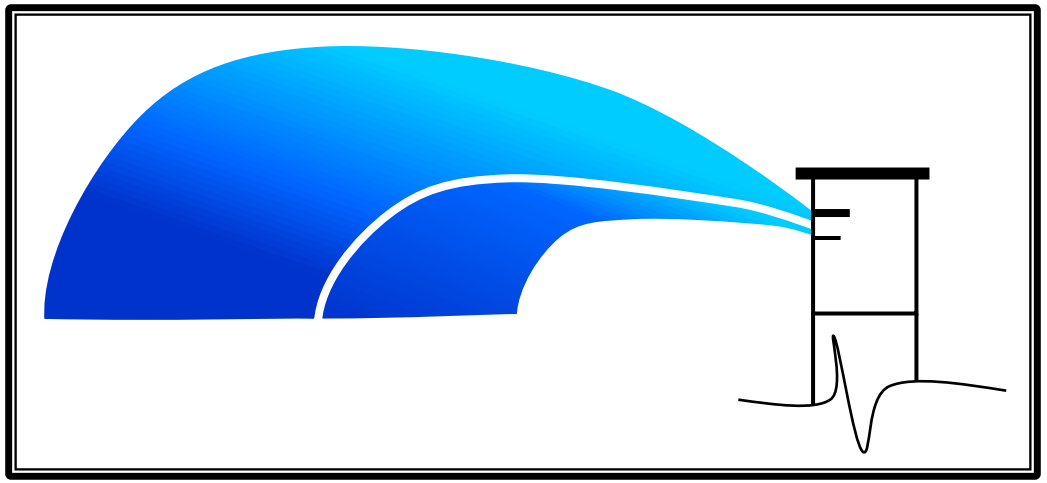
GreenUP Landscape Services

Spray Nozzle Types





Rotators

- Hunter MP Rotator

Rotators

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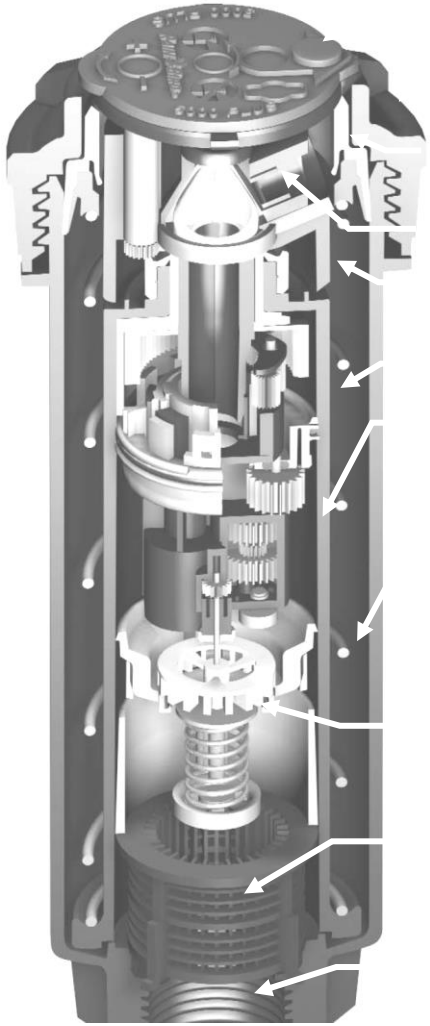
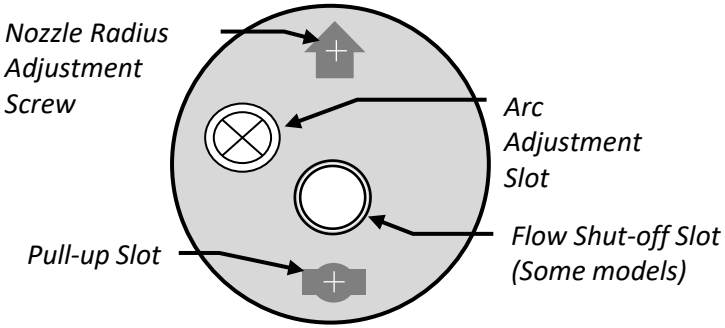
Parts of a Gear Rotor Sprinkler



Rubber Cover
Cap
Wiper
Seal
Nozzle
Nozzle
Turret
Riser
Gear Box
Body
Spring
Stator
Filter Basket
Inlet



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Operation of a Gear Rotor

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PGJ Short Range Rotor

- Discharge rate - 0.64 to 5.3 GPM
- Radius - 15' to 37'
- Recommended pressure range - 30 to 50 PSI
- ½” FIPT Inlet
- Part Circle only
- Drain check valve for up to 7' elevation change

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PGP-ADJ Medium Range Rotors

- Discharge rate - 0.5 to 14.1 GPM
- Radius - 22' to 52'
- Recommended pressure range - 30 to 70 PSI
- Drain check valve for up to 10' elevation change
- PGP Ultra model has many of the same features as I-20 Ultra

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PGP Nozzles

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I-20 Ultra Medium Range Rotors

- Discharge rate - 0.36 to 9.8 GPM
- Radius - 17' to 46‘
- Pressure - 30 to 70 PSI
- ¾” FIPT Inlet
- Both Part Circle and Non-reversing Full Circle
- Non-Strippable Gears Box
- Automatic Arc Return
- Drain check valve for up to 10' elevation change
- 5 Year Warranty

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Sprinkler Repair & Maintenance

- General
  - Proper Pressure
  - Tilted Sprinkler
  - Spray Deflection
  - Sunken Sprinkler
  - Arc/Nozzle Misalignment
  - Plugged Nozzle
  - Low Head Drainage
  - Leaky Seals
  - Clogged Filter/Screen
- Spray Heads
  - Radius Adjustment Screw
  - Flex Pipe Connection
  - Riser Stays Up
- Gear Rotors
  - Does Not Rotate
    - Obstructed Stator
    - Broken Reversing Mechanism
  - Incorrect Nozzle
  - Break-up Screw

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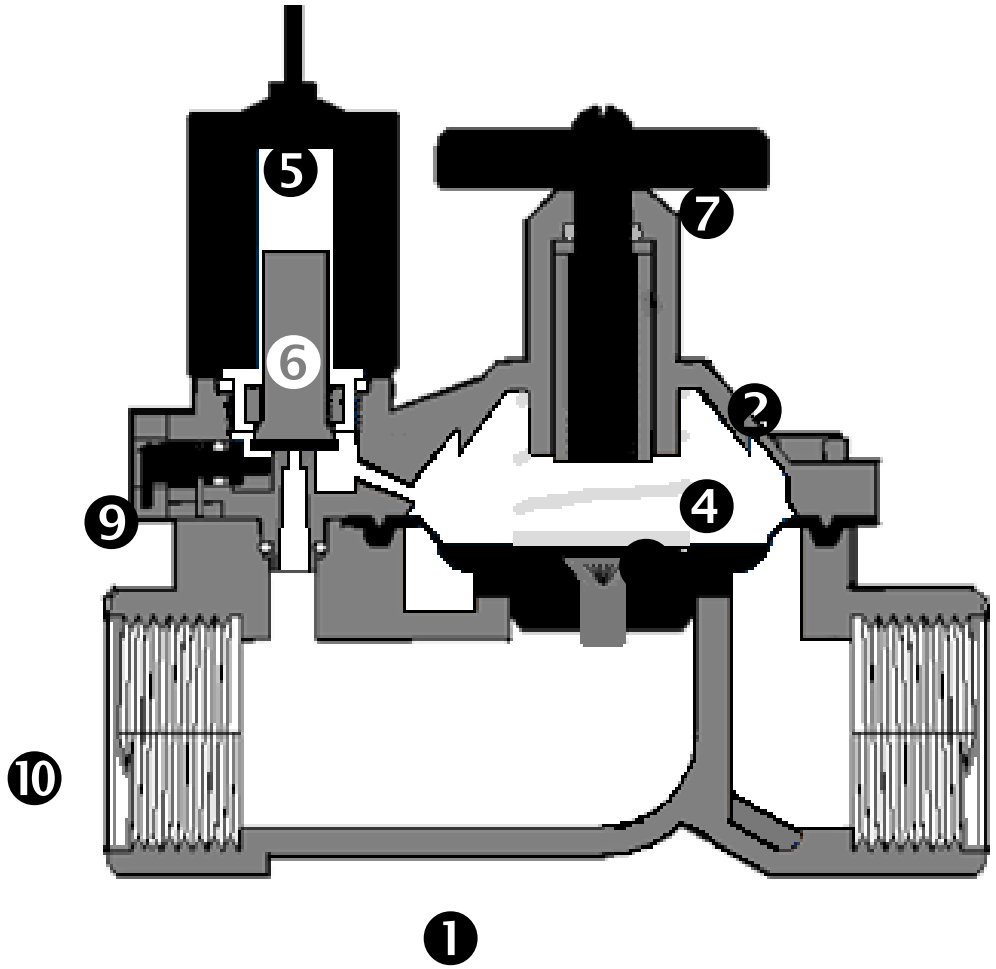
Parts of a Valve

1. Body
2. Bonnet
3. Diaphragm
4. Diaphragm Spring
5. Solenoid
6. Armature (Solenoid Plunger)
7. Flow Control Handle
8. Flow Control Stem
9. Manual Operator (Manual Bleed)
10. Inlet



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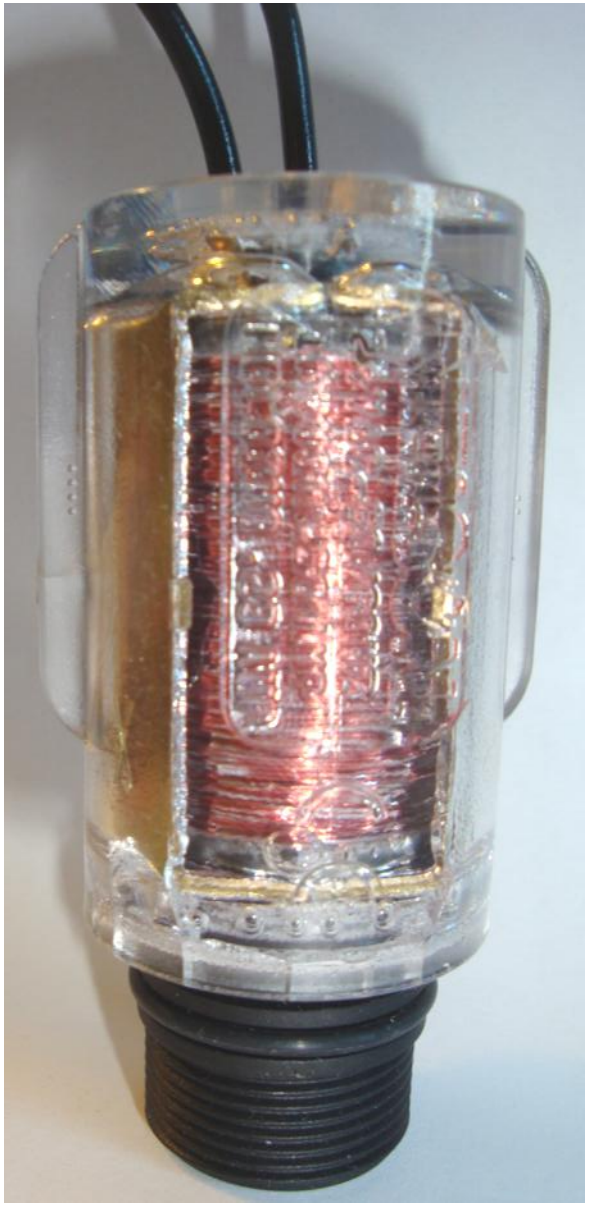
Parts of a Valve



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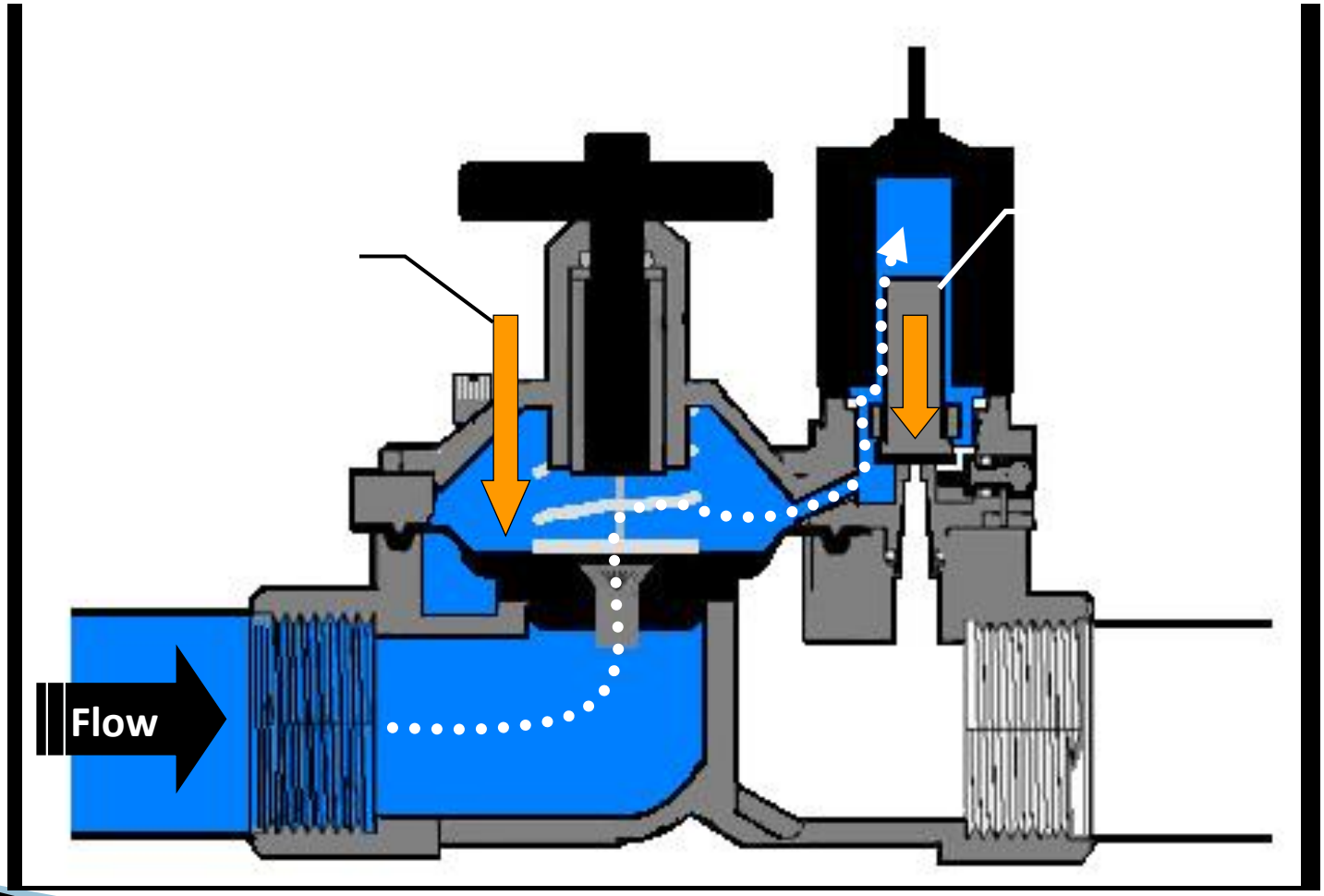
Forward Flow Valve - CLOSED



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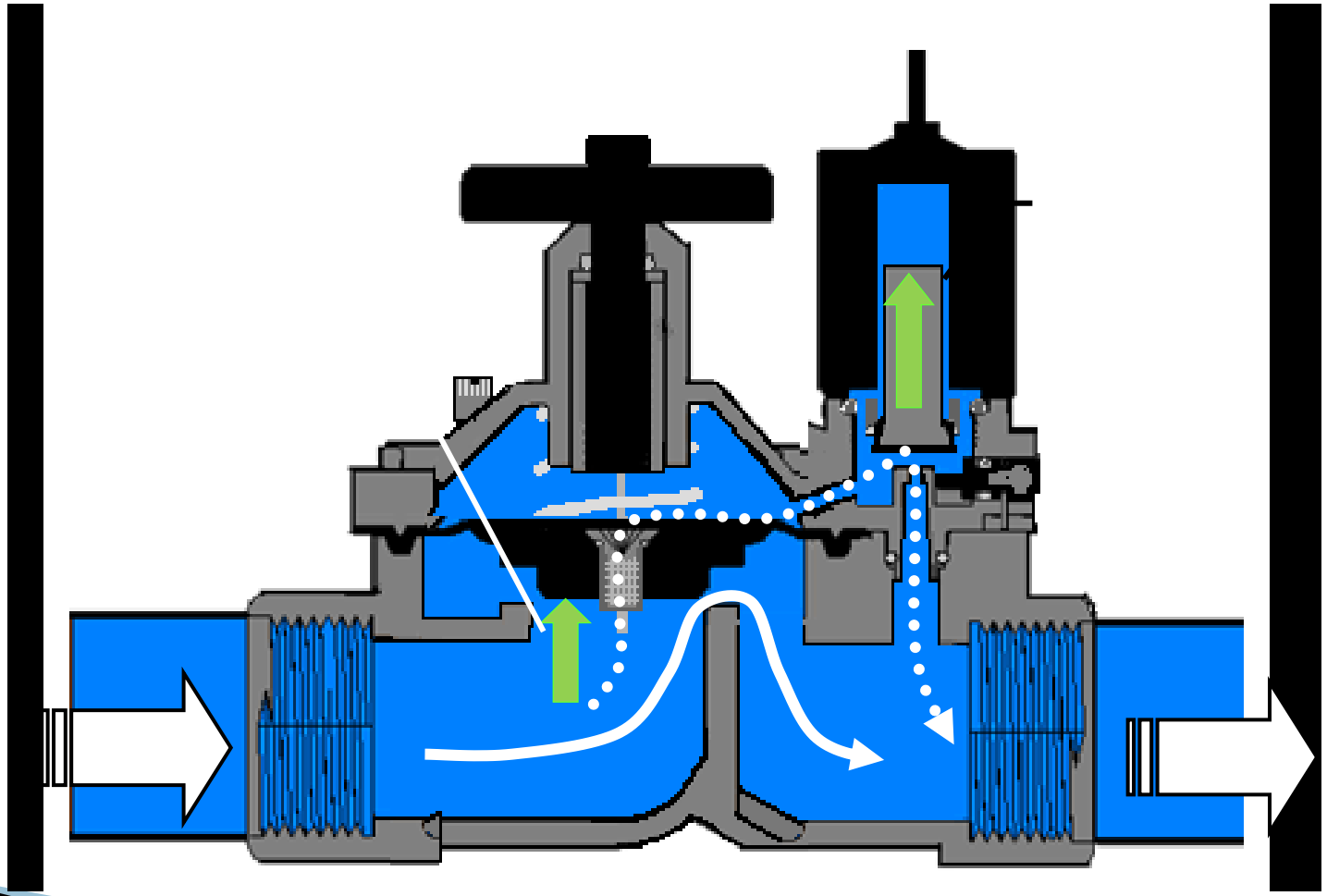
Forward Flow Valve - OPEN



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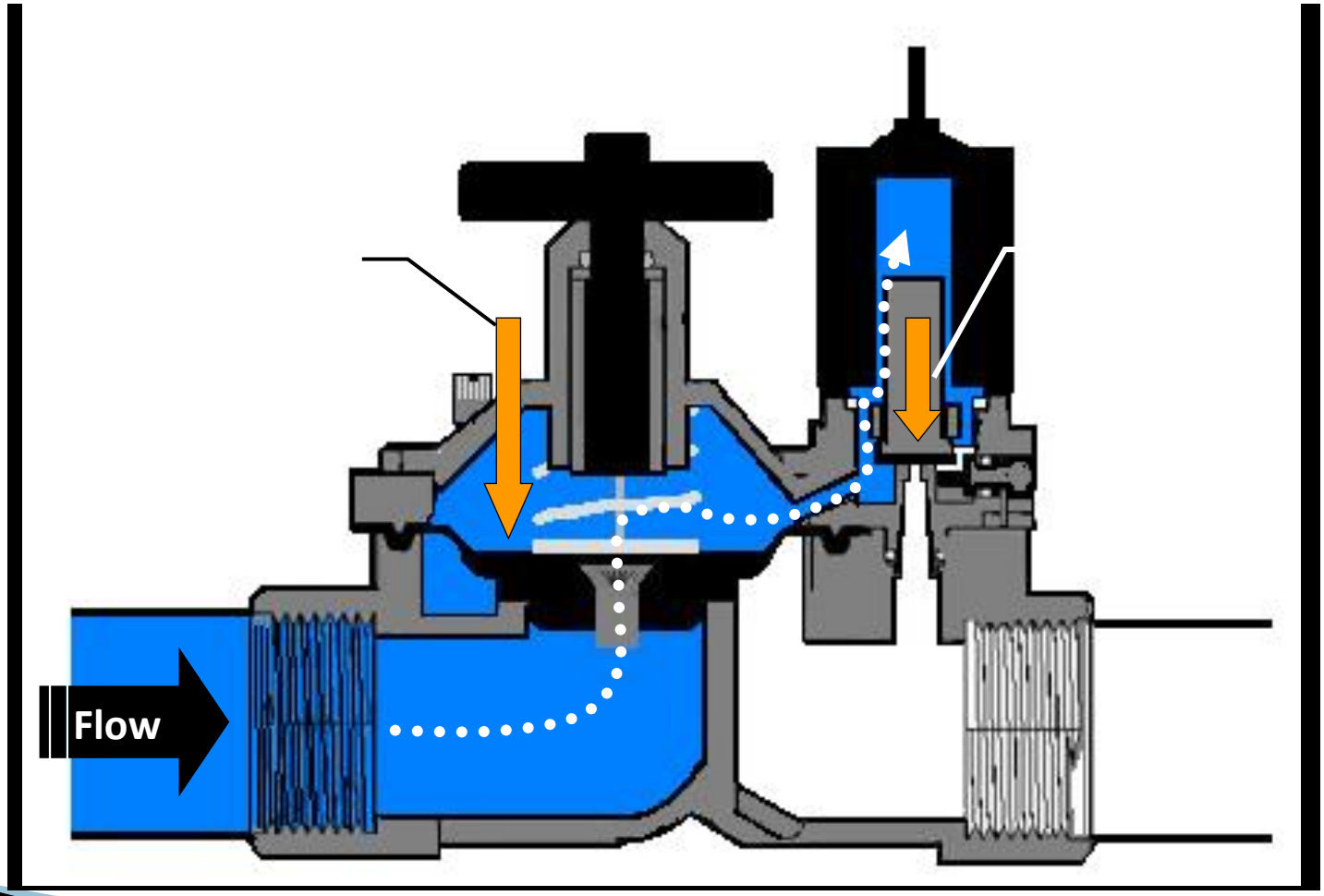
Forward Flow Valve - CLOSED



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SRV Valves

- SRV-100G
  - 1" plastic globe valve
- SRV-101G
  - 1" plastic globe valve with flow control
- SRV-100G-S
  - 1" plastic globe valve, slip inlets
- SRV-101G-S
  - 1" plastic globe valve with flow control, slip inlets
- Flow: 1 to 30 GPM
- Pressure: 20 to 150 PSI

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PGV Valves

- 1” Plastic
  - FC, w/o FC
  - Globe, Angle, Jar Top
  - Threaded or Male Barb
- 1½” & 2” Plastic
  - Globe/Angle
- Flow: 0.2 to 120 GPM
- Pressure: 20 to 150 PSI

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PGV Valve Configurations

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4000 Series Indexing Valve

- ABS Polymer Construction
- Available in 4 and 6 Outlet Models
- 10 GPM
- 25-75 PSI

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6000 Series Indexing Valve

- Metal Die-Cast Body-Double
- Available in 4 and 6 Outlet Models
- 15 GPM
- 25-150 PSI
- Built-in Atmospheric Vacuum Breaker

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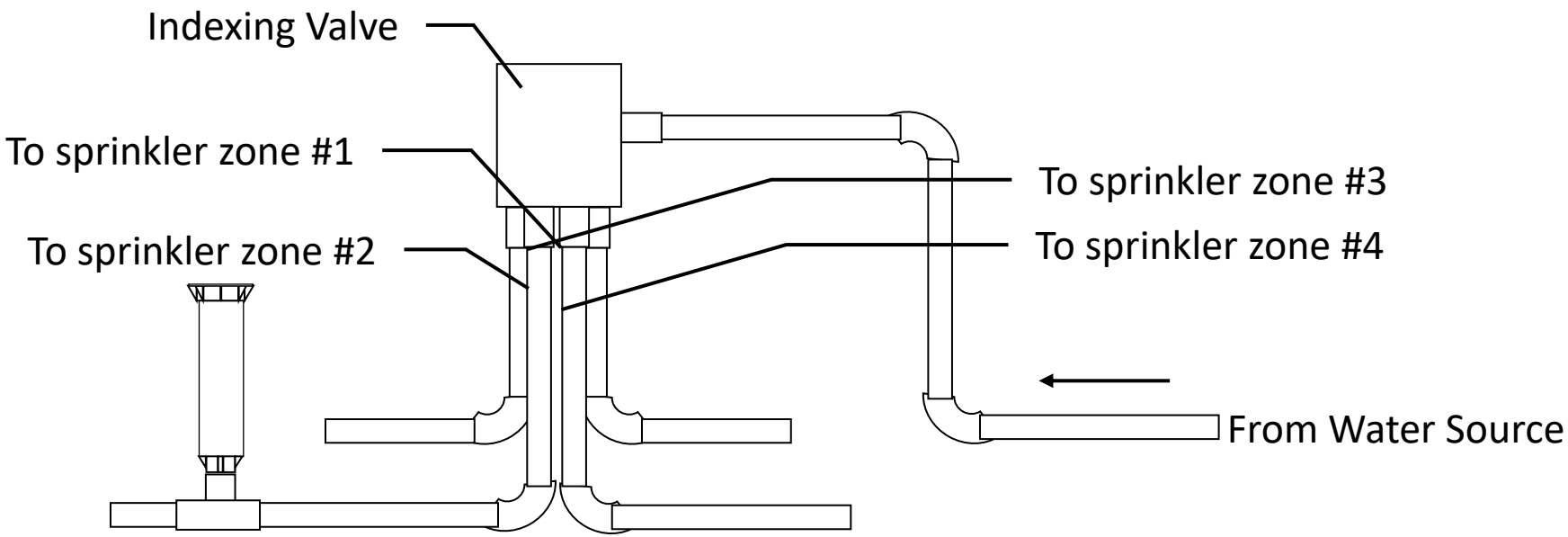
Indexing Valve Application



Manuals Valves

- Hose Bibs
- Ball Valves
- Gate Valves
- Quick Coupling Valves
  - Key
  - Hose Swivel

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