RESEARCH LABORATORY TECHNICAL REPORT

BARTLETT TREE EXPERTS
SCIENTIFIC TREE CARE SINCE 1907

Vent Installation

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A vent system through asphalt is a technique we have used with success in San Antonio, Texas. The system can be installed in concrete, but it is twice the cost. The following is a step-by-step procedure of how we install the system in asphalt.

The asphalt needs to cure about 4 weeks before you attempt to drill or it will crumble and cave. All underground utilities must be located before drilling to avoid damage or personal injury.

Calculate the number of vents that will be required for the job. Spacing can be from 6 ft. to 10 ft. apart. Generally, it is of no benefit to space closer than 6 ft. or more than 10 ft. The ideal spacing is 8 ft. but many factors must be considered, such as are there any roots, underground utilities, and the amount of money a client is willing to spend.

Once the spacing has been determined, the inner ring of vents and the outer ring of vents should be laid out first. Start your spacing 6 ft. from the outer edge of the remaining soil, not from the curb. Space the vents from that point according to the selected distance. Determine the proper distance by pacing; measuring each location is very time consuming.

Next, lay out the outer ring of vents. These are placed at the drip line or just beyond. This is a judgment call; if every root has been cut, then going beyond the drip line is not necessary. Again, start the outer ring 6 ft. from the edge of the remaining soil (if any) and space accordingly. The middle rings are filled in as necessary. Spacing distance must be adjusted to fit the pattern and can be quite variable.

Once the entire pattern has been laid and adjusted, mark the location of each vent with chalk. Marking is very necessary; the air hose will move the tops, the locations, and any car traffic will require constant movement. There will be lots of dust and dirt so mark them well.

Connect the hose to the compressor and the rock drill. All connections must be safely wired. There is also a gasket in each connection that is often defective or missing from rental equipment so be certain to get extra ones with equipment. Connect the stem or steel to the drill and screw the bit onto the end of the stem (reverse thread).

Depending on the type of drill, there will either be one three-position lever switch or two switches. The switches allow the drill to be off, blow air, or turn the bit while blowing air.

To start a hole, position the bit between your feet at your heel in such a way that you are holding the bit in place and allowing it to turn. You need to hold it while turning for 5-10 seconds while it starts the hole. Then, you can step away assuming a comfortable, steady position. The less the drill bounces, the better it drills. You will need to blow the hole out 2-4 times while drilling a 12 inch hole or the bit will be difficult to remove when the hole is complete.

When the hole is complete, use the scoop shovel to remove the pile of dirt around the hole. Insert a 12" sleeve and push it in as far as it will go. Often the sleeve has to be hammered into place. You should not strike the sleeve with a sledgehammer with any force. If the sleeve mushrooms into the opening, your vent top will not slide in or if the fitting becomes tight due to rust, it will be difficult to remove the top during future liquid application operations. Use a pounder. The sleeve should be seated just below the level of the parking lot. Place the top in the sleeve unless a liquid application is being done shortly.

It is possible to do the first liquid application with Boost. Typically though, the parking lot is so compacted that the first application may not penetrate well. Hold the soil injector in the hole for 10 seconds; though most of the liquid will likely run out on the parking lot. Alternatively, sub-contracting with Rapid Gas costs less and is effective for 30 to 45 days. This could be followed 30-45 days later with an application of Boost. The following applications are generally easier and most of the material percolates into the ground.

When the tree is irrigated and fertilized, be certain to root invigorate all soil areas around the trees and vents.

Clean up the mess, return the vent tops to their sleeves, and gently tap down on bubbled edges.

Vent Installation Materials, Equipment and Procedures

Materials and Equipment

- Air Compressor (80-100 CFM)
- Broom
- 50 ft. hose
- Sledge Hammer
- Rock Drill
- Scoop Shovel
- Stem or Steel (18" to 24")
- Blower
- 2 1/2" Starbit
- Ear Protection
- Pliers
- Eye Protection
- 2- Large pipe wrenches
- Work Gloves
- Pounder
- Marking Chalk
- Vents
- Water Hose
- Mattock Pick
- Safety Wire

Procedures

1. Set up compressor, drill
2. Lay out pattern for vents
    a. lay inner circle- space from soil not from curb
    b. lay outer circle- drip line or just beyond
3. Drill Holes
    a. Start bit
    b. Blow out hole, move up and down
    c. 12" or pulling out soil- clean around hole
4. Insert Pipe
    a. use pounder to set in hole
    b. Irrigate and fertilize, Invigorate- let it run
5. Clean

Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.