

Tree Root Damage to Buildings and Foundations

Despite the fact that tree roots grow very slowly, they exert tremendous amounts of pressure on whatever they are growing through or near. As they move through the ground in their eternal search for water and nutrients, they displace the soil around them. Clay soils compact more tightly, while loose, dry soil in arid climates shifts and becomes inefficient at supporting a structural load. While the roots themselves aren't capable of causing direct damage to buildings and foundations, increasingly greater soil displacement can compromise the integrity of the soil the building sits on as well as its supporting structure. If soil moves, whatever is sitting on it moves, too. Older building materials that have deteriorated over time can rise or settle as the soil displaced by extensive tree root systems moves, and the structures may develop cracks that smaller tree roots may be able to penetrate.

Plumbing Damage

With the exception of garden sheds and treehouses, most buildings designed for human use or habitation have some sort of drainage system that disposes of water and sewage. By its very design, such a system is a powerful attractant to tree roots, particularly in areas that see little annual rainfall. Some species of trees, such as willows, maples and aspens, are particularly invasive, as their root systems can develop as far as they need to in search of water. Standard drainage-field pipes are perforated to allow for movement of wastewater from the building's interior plumbing to the ground. Roots are easily able to grow into these holes and in severe cases can completely block pipes to the point that they sometimes split and are no longer functional. Old clay pipes whose joints have deteriorated over time are also susceptible to invasion by nearby roots and eventually crack under the pressure they exert.

Landscape Damage

While trees are viable additions to the landscape, their roots can take over areas intended for other plants and ruin elaborate and expensive plantings. As some species of trees age, roots become visible through the surface of the soil, a process helped along by wind and erosion. Trees that grow closely together are sometimes forced to compete for limited water and nutrients, and gardening is limited in the spaces around and between them due to intertwined roots growing just beneath the surface of the soil. If put down too thinly over an area near or between trees, asphalt may buckle, bulge and eventually crack. While tree roots normally do not penetrate solid concrete, walkways and other paved areas may buckle due to soil movement the roots generate.

Considerations

Prevention is the key to avoiding costly tree root damage. This includes selecting only those types of trees and shrubs that pose the least threat to structural systems of any type. While there is no ironclad guarantee that a tree's roots won't someday make their way under a foundation or into a leach bed, planting trees at least 50 feet away from all structures or systems is a good start. As for established plantings that are causing problems, sometimes the only solution is to cut the tree down and remove as much of the root system as possible before making any repairs to damaged structures. As stated by the International Association of Certified Home Inspectors, there is no reliable way for homeowners to predict exactly how far a tree's roots will grow in search of water.