Trees obtain nutrients from soil via the roots, but the roots also need the oxygen and water that occupy voids between soil particles. In uncompacted soil, voids are abundant. For trees in hard surfaced areas, a fundamental conflict exists between maximising the soil volume available for tree rooting while also providing a stable base for roads and pavements. If soil is treated as a structural material and required to bear the load of pedestrians, building and roadways, it will be consolidated to the point that air and water are excluded and insufficient space is available for roots to grow.

Trees growing in typical urban ‘tree boxes’ are usually surrounded by compacted soil. This often leads to the roots seeking out the space between the compacted soil and the overlying pavement, where air and water are present, which then causes footpath heaving.

‘Strata Cell®’ represents the latest generation of root cell and has been developed and patented globally by CityGreen® Systems. Strata Cell® builds on the experience gained through trials, projects and collaborations with industry innovators. The main drivers have been the need for lower installation costs, higher strength, reduced transport costs and maintenance of large spaces for root growth.
Structural Root Cells

Structural root cells are modular units that assemble to form a skeletal matrix, situated below pavement level, to support the pavement load while providing a large volume of uncompacted soil within the matrix structure for root growth.

Industry professionals are increasingly insisting on the use of structural root cells. They recognize that while structural root cell technology builds upon the earlier structural soil concept, it is clearly superior in performance. Not only is vastly more soil made available to the tree, installation is straightforward and avoids the need for the extensive calculations and testing required for the use of structural soil.

Design features

The fifth generation root cell provides very generous apertures for root growth without sacrificing the structural integrity of the matrix. Strata Cell® apertures are large enough to permit common conduits, service pipes, and aeration systems to be incorporated within the structure.

The open skeletal structure of the Strata Cell® matrix provides an optimal growth zone for tree roots. Due to the advanced engineering design of these modern structural modules, more than 94% of the total volume of the root cell is available for tree root growth. Strata Cell® structural modules are made from 100% recycled polymers.

Assembly

Strata Cell® has been designed to achieve major reductions in installation costs. Units snap together quickly and easily, with labour times being drastically reduced. Positive and secure connectors are a feature of the Strata Cell® patented design both vertically and laterally. Strata Cell® modules are simple and fast to click together, producing an integrated matrix.

LEED Credits

Using Citygreen Strata Cell® Modules can help clients earn additional points in the categories of: creating sustainable sites, water efficiency, energy and atmosphere, material and resources, indoor environmental quality, neighbourhood pattern and design, and green infrastructure and buildings.