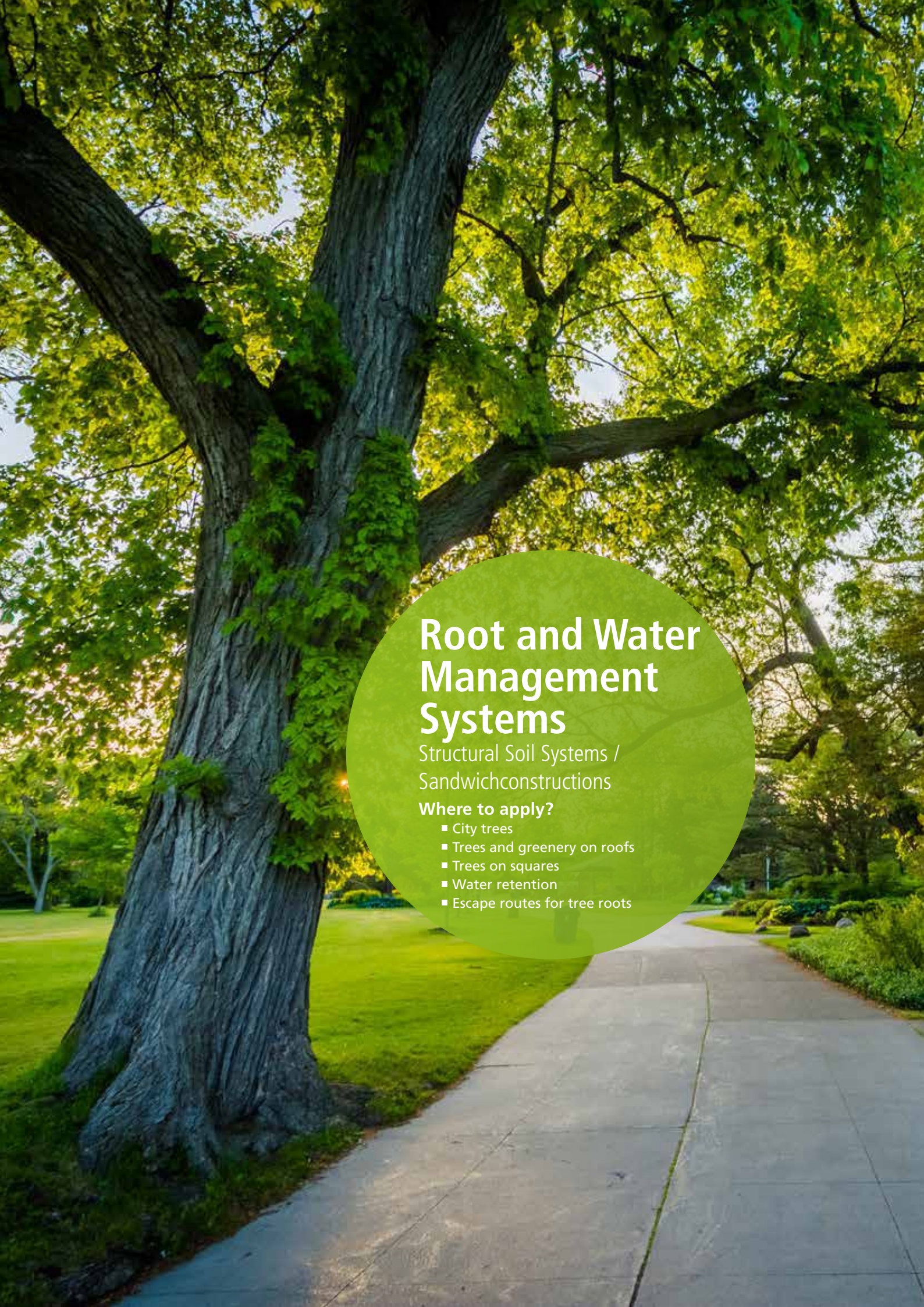


Root and Water Management Systems

Structural Soil Systems / Sandwichconstructions

Where to apply?

- City trees
- Trees and greenery on roofs
- Trees on squares
- Water retention
- Escape routes for tree roots

Urban Tree Systems

Which tree planting method makes the most sense?

Many solutions have been designed for decades, with different costs (for the customer) and results (for the tree and the pavement). All solutions to firstly combine civil and plant technical requirements.

First the Amsterdam structural soll was developed, but through experience, progressive insight, higher requirements and integration of other functions, these compromise solutions have been further developed into total solutions.

Many different products for planting urban trees are offered on the market. In order to compare the products, a subdivision has been made. Gravel based structural soil cannot simply be compared to an urban tree system, but gravel based structural soil can be compared with each other. This has resulted in an internationally recognized classification according to the functionality of the various products.

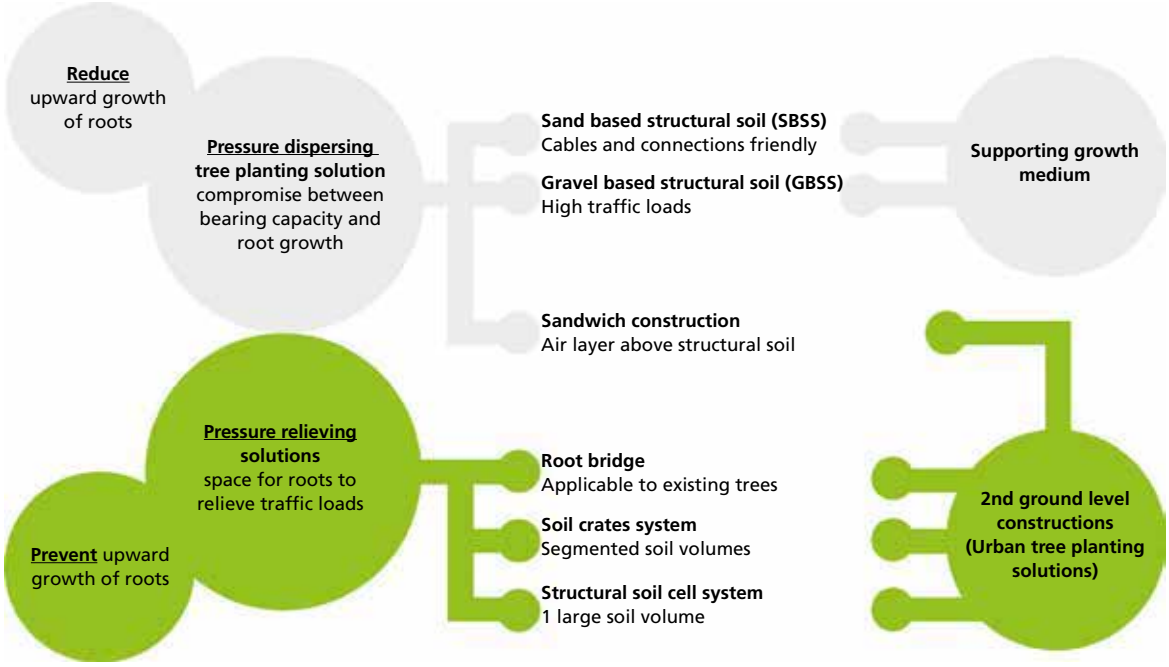
See table below:

All products give roots room to develop under the pavement. Different solutions are possible depending on the project conditions and objectives. GreenMax offers you the most complete advice for underground urban tree systems in paved areas. For the sole purpose of tree growth, the structural soil system performs best. However, there are so many more factors that partly determine the choice of growth place improvement. Our expert staff will be happy to advise you. With our broad knowledge of the various systems, we will work with you to find the most suitable one for your project.

In our range, we have, together with the various market parties, included the best products per category for you. For extensive information per category, please contact our subsidiary TreeBuilders b.v., which has taken on this specialization since 2017.

tree BUILDERS
Urban tree solutions

Improvement of growth area for trees in hard surfaces



Urban tree solutions

TreeParker®

Modular structural soil cell system including stormwater management

The strongest and most flexible system on the market.

The TreeParker® system represents the most innovative product within the suspended pavement systems. The system is applicable in all situations and also provides secondary functions, such as rainwater collection, etc.

TreeParker® has been developed based on the experience gained through trials, projects and discussions with all actors. In addition to the primary functions, such as carrying heavy traffic loads and providing unhindered root growth, the secondary factors are of great importance. Some important secondary factors are: the need for simple design, fast installation, sustainability, integration of existing / new cables and pipes, variable installation depth and a high percentage of soil in the system. TreeParker® offers you all these benefits.

Material

- Very high carrying capacity, highest traffic load possible
- A large soil volume, smallest opening is about > 900 cm2, suitable for thick tree roots
- Made from recycled material
- System provided with sustainability label
- Can be installed both linkably and as a standalone unit
- TreeParker® can be installed parallel to curves up to a radius of 5 m1, without additional facilities
- Integrate cables and pipes without problems, partly due to the stand-alone installation and the large openings
- Low installation costs, “stupid proof”, quick installation and easy to fill with any type of soil
- Height of the system is variable between 40 and 150 cm
- Long lifespan (at least 100 years)
- Ideal to catch rainwater as well into the system, up to 25% of the volume available for water Infiltration

Dimensions

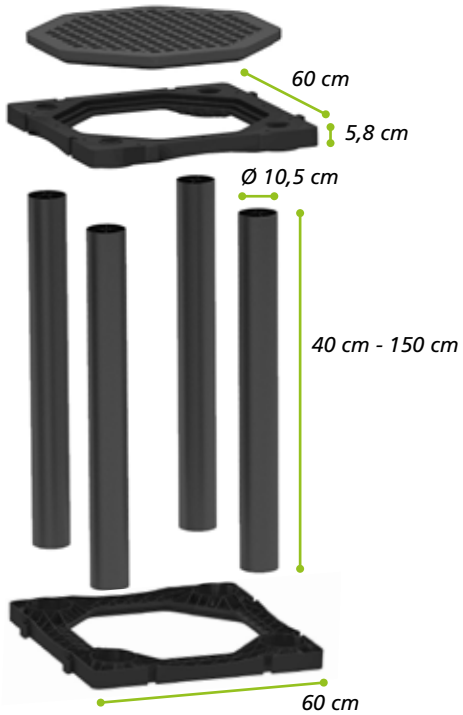
TreeParker® unit; (H) variable x (W) 60 x (L) 60 cm

Height variable between 40-150 cm
Standard heights in stock:
40, 50, 60, 80, 100 and 120 cm

NL Greenlabel A+

Royal Haskoning DHV developed a method for NL Greenlabel that gives information about the integral sustainability score of a product, material, plant or area. This score is translated into a label and displayed in a sustainability passport.

One of the many TreeParker® references



TreeParker® unit exploded view

Comparison of a TreeParker system to structural soil

2 years after installation

4 years after installation

Following the construction of various tree planting solutions in an arbitrary arrangement, six Liriodendron trees were planted for each solution. The provisional results show that the trees in the most efficient solution perform best. From this it is possible to assume that soil volume calculations must always be based on soil efficiency (net available soil) instead of surface area or product volume alone.

Research: Comparative research for tree planting solutions in hardened areas, Bartlett Tree Laboratories, Dr. Tom Smiley 2015.

TreeParker® is easy to install, even around cables and pipes.

For more information, see manual 'cables & pipes TreeParker® in the city'

Application as a bioretention system

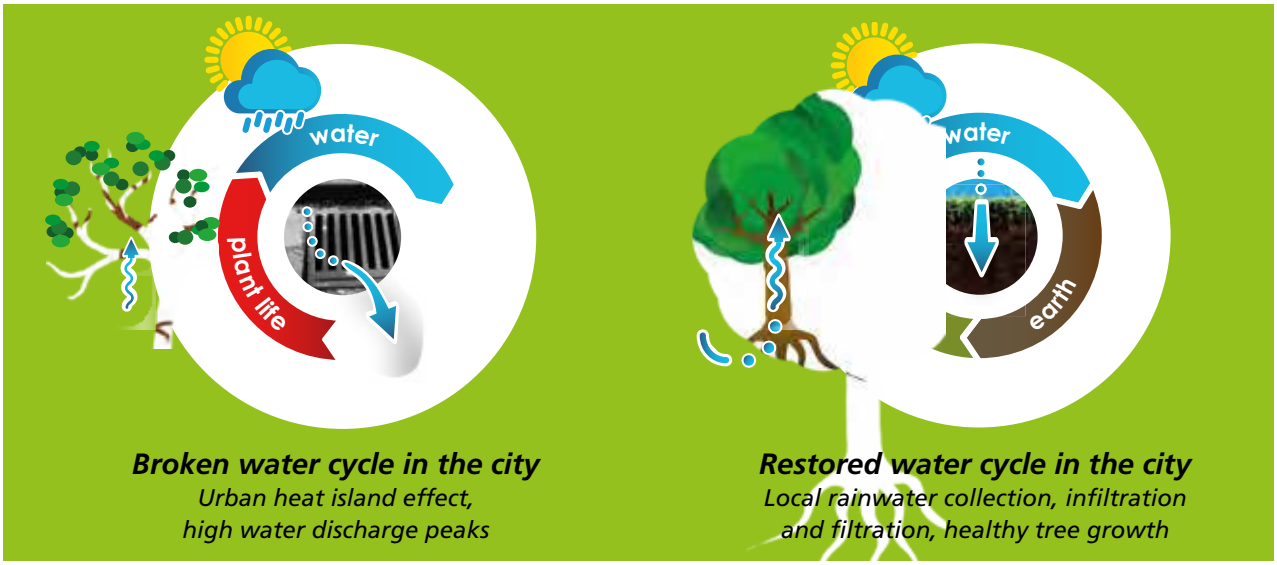
Trees are still often seen as a problem during the design phase in the vicinity of rainwater collection and infiltration facilities.

The growing place of the tree is increasingly being combined with rainwater collection and filtration. With little extra costs, the standard growing place can be changed into an underground bioretention system.

TreeParker® is designed to combine these two disciplines to create a healthy water cycle in the city. Water first goes to the growing site, where it infiltrates the non-compacted soil.

Pollution is broken down by nature - soil life - so only clean water can flow to the groundwater.

Link rainwater into the system



Broken water cycle in the city
Urban heat island effect, high water discharge peaks

Restored water cycle in the city
Local rainwater collection, infiltration and filtration, healthy tree growth

For more information about bioretention options, see the catalog:
"TreeParker® Bioretention and Structural soil cell system"

TreeParker®

Installation overview

1

Place the frames around the treepit opening

2

Attach the posts and top frames

3

Fill the system with bioretention soil / tree bunker soil

4

Fill / compact around the system

5

Install (deep-) aeration / irrigation systems

6

Closing the system with decks

7

Apply geotextile and fill with mixed granulate

8

Vibrate, pave, ready!

Urban tree solutions

SandwichPanel 74/130

Highest pressure class, easy to customize

Material

- Drainage plate for horizontal and vertical infiltration and drainage
- Three-dimensional flowable / rootable
- Integrated coupling system on all sides to create large one-piece surfaces
- Material: recycled PP, extra reinforced against extreme pressure forces, 100% recyclable

Sandwichpanel 74

- Infiltration speed: 189 liters / min / m^2
- Dimensions (8 units): 1040 (l) x 960 (w) x 52 (h) mm
- Nominal weight: 4.49 kg / m^2
- Load capacity: approx. 740 kN / m^2

Sandwichpanel 130

- Infiltration speed: 189 liters / min / m^2
- Dimensions (8 units): 1040 (l) x 960 (w) x 51 (h) mm
- Nominal weight: 4.58 kg / m^2
- Load capacity: approx. 1300 kN / m^2

Sandwichpanel 74 is the product where it all started (1990).

This type of sandwich panel was first used as a pressure-distributing construction under pavement and above a rootable zone. The first application of the sandwich construction was in 1990. This construction is now for sale at GreenMax with the name sandwichpanel 74. The rock-solid design of this product has never been changed and is still the standard for a sandwich construction with a load capacity of over 740 kN / m2.

Why a low panel?

In places in the Netherlands with high groundwater levels, it might be difficult to find sufficient space for the tree roots. Amsterdam tree sand offers a solution for these locations, although the capacity of this tree sand is often not high enough for local traffic. With a pressure-distributing sandwich construction, the dynamic pressure loads are distributed over a larger area. The higher the sandwich construction, the more this is at the expense of the total volume of tree sand (root space). A low panel means more rootable volume per m2. This means that in case of existing trees with low construction, the ground level needs to be raised less. Or that fewer roots need to be removed to be able to apply the construction without raising the ground level.

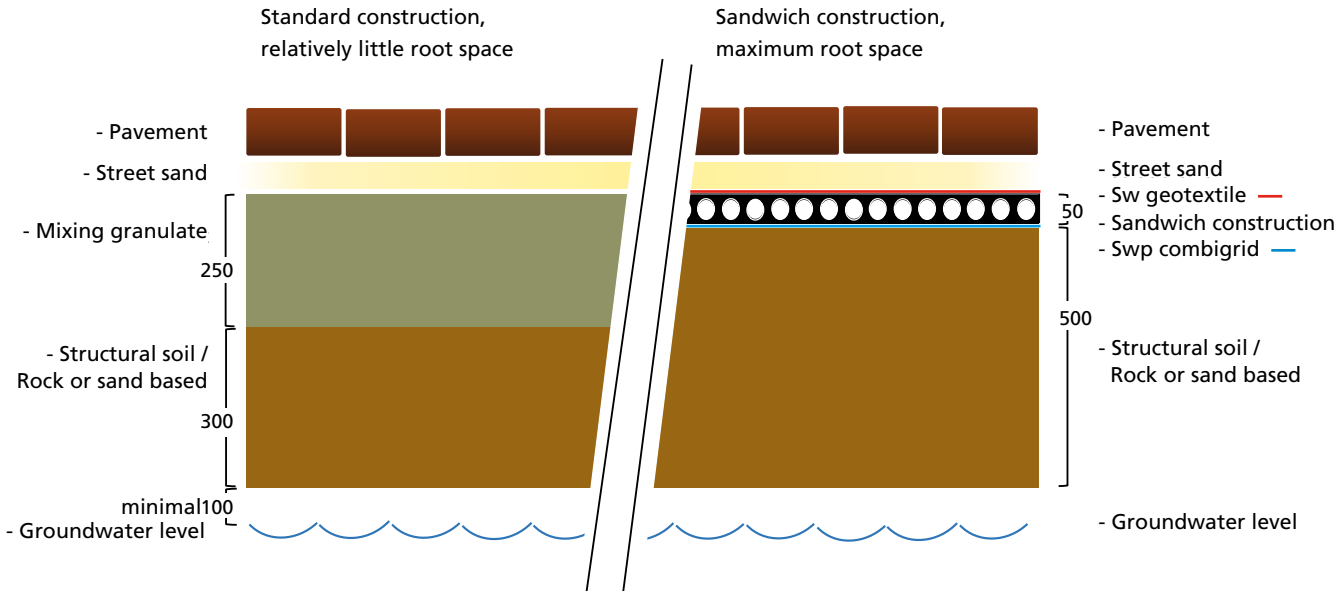
Install everywhere and quickly.

The sandwich panels are not only low, but also consist of just one part. This makes the construction extra strong, up to 1300 kN / m2. The panels are there for almost twice as strong as the other sandwich constructions and also suitable for places with intensive traffic. The panels can be cut to any size without loss of construction strength. The panels are linked together with an integrated conical connection. No loose connectors are required, making the installation extremely fast.

Applications

In addition to the application as a root-resistant and pressure-distributing construction on top of a load-bearing substrate, the sandwich panels are also used as:

- Surface water storage under pavement
- Water reservoir under a growing place
- Horizontal and vertical drainage etc.



Very easy to install