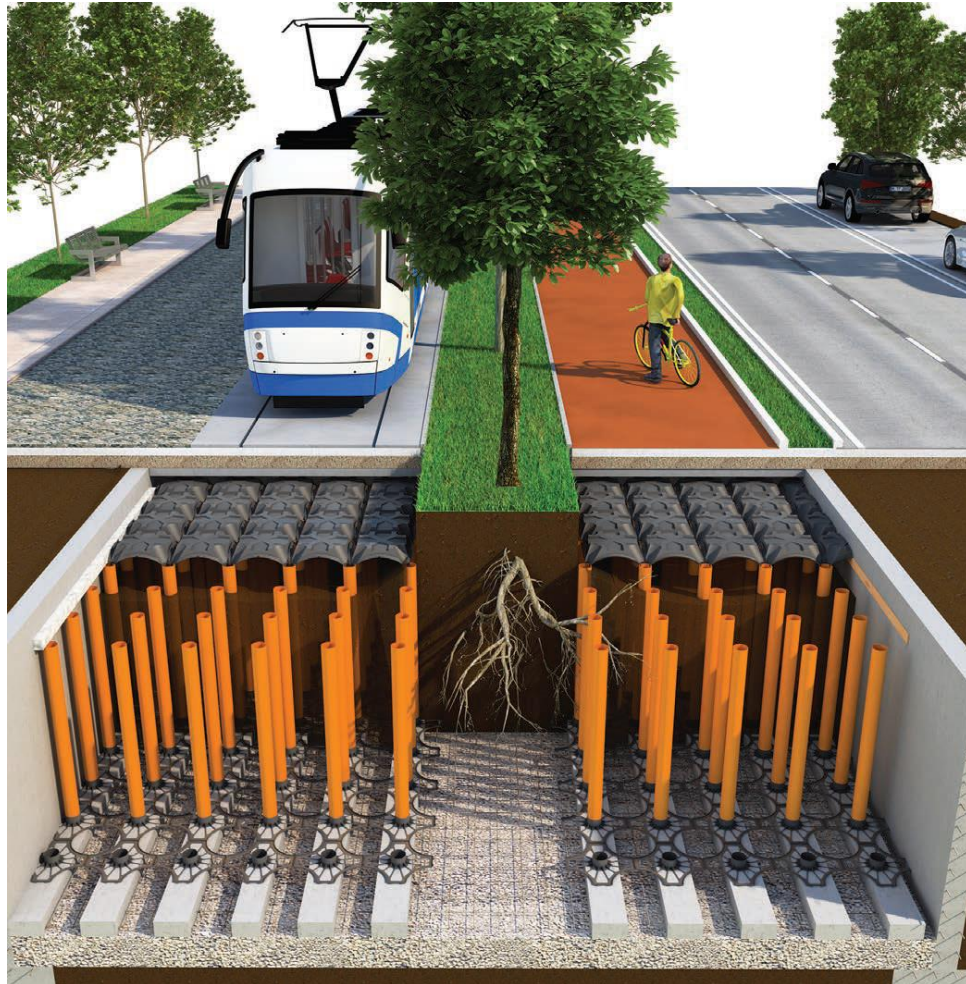


# NEW ELEVATOR

## ROOT PROTECTION



NEW ELEVATOR is used to create tree root protection in urban areas where very tight underground space and poor living conditions are a threat to the healthy growth of the tree. The rooting space is limited by, for example, cables, pipes, sewers and road foundations.

The system forms a r.c. slab resting on a matrix of pillars; the void created underneath the slab is filled with organic soil, and openings in the slab are left to for the trees to grow.

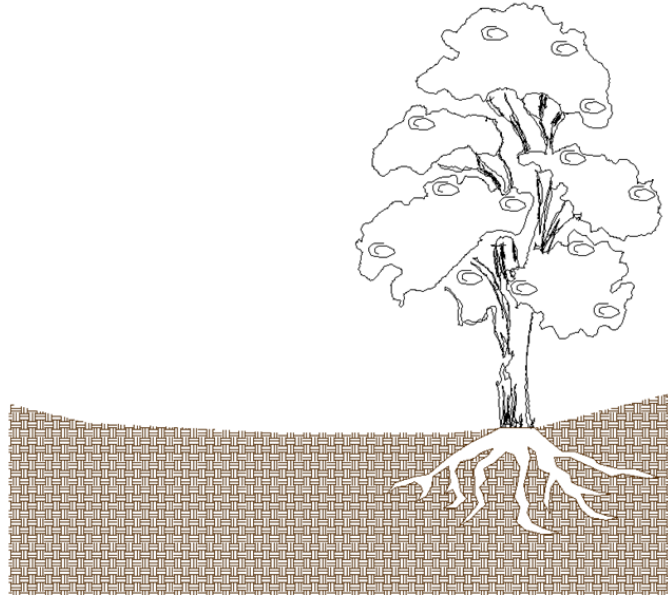
The traffic load is taken up by the concrete construction and not by soil package in which the tree is rooted; a few cm of air are left above the organic soil to protect the concrete from root damage.

The slab is capable of handling high loads

### Advantages

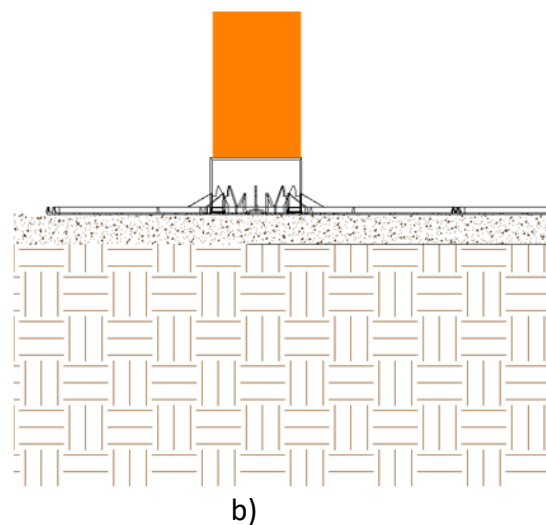
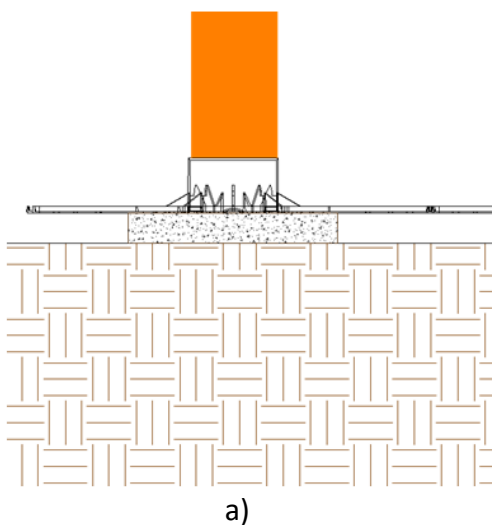
- Roots grow freely
- Soil compression avoided
- Elimination of root damage to paving
- Irrigation is efficient and inaccessible to vandalism
- System depth of up to 2.5 m
- Creates a structure with high load-bearing capacity, able handles dynamic load
- High job-site productivity
- Simple job-site logistics & handling
- Low concrete consumption
- Made with recycled material

1. Conduct a survey to determine the soil characteristics;
2. If necessary remove the sidewalk, street or other surface previously damaged;

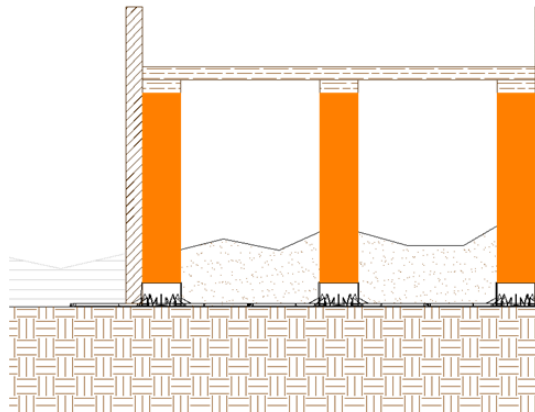


3. Dig a trench, if necessary remove the shallow roots that could interfere with the installation of the system;
4. Install the New Elevator grid on:
  - a. Precast concrete blocks
  - b. Or Gravel

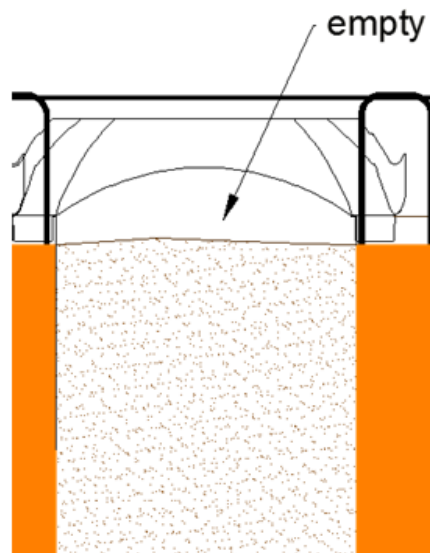
Dimension of the blocks or the gravel layer is decided according to the bearing capacity of the soil.



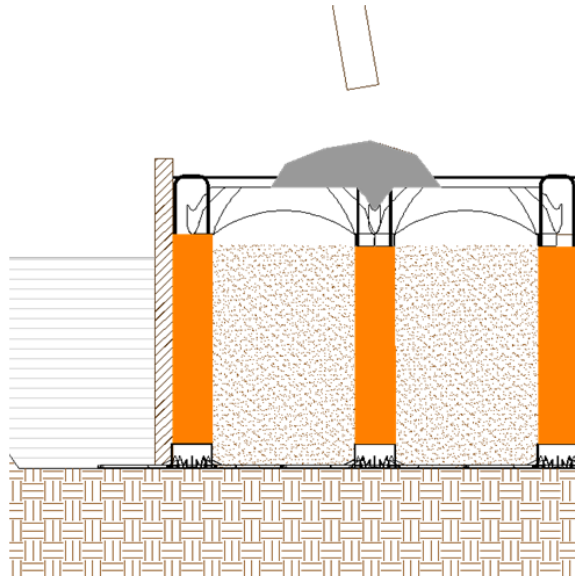
5. Place the PVC pipes that will support the New Elevator formwork;
6. Hold in place the pipes with the wood frame, the uprightness of the system is guaranteed by the grid;
7. Close the lateral space with XPS panels while compacting the lateral soil;



8. Fill the space between the pipes with topsoil till the top of the pipe;
9. Remove the wooden frame and place the New Elevator domes;
10. Take care of leaving an empty space of few cm under the dome; the air ensures that the root system can never grow upwards;



11. Reinforce the slab with welded mesh as per design and insert the “U” shaped fork in the pipes;
12. Cast the concrete slab as per design;



13. Realize the sidewalk, road or other surface



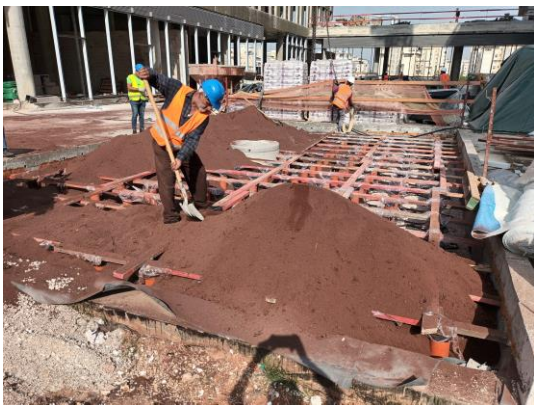


Building beyond together





Building beyond together



### FILL VOLUME

| h    | Fill volume                       | Concrete consumption                   | h    | Fill volume                       | Concrete consumption                   |
|------|-----------------------------------|----------------------------------------|------|-----------------------------------|----------------------------------------|
| [cm] | [m <sup>3</sup> /m <sup>2</sup> ] | n<br>[m <sup>3</sup> /m <sup>2</sup> ] | [cm] | [m <sup>3</sup> /m <sup>2</sup> ] | n<br>[m <sup>3</sup> /m <sup>2</sup> ] |
| 80   | 0.564                             | 0.078                                  | 170  | 1.464                             | 0.167                                  |
| 90   | 0.664                             | 0.088                                  | 180  | 1.564                             | 0.176                                  |
| 100  | 0.764                             | 0.098                                  | 190  | 1.664                             | 0.186                                  |
| 110  | 0.864                             | 0.108                                  | 200  | 1.764                             | 0.196                                  |
| 120  | 0.964                             | 0.118                                  | 210  | 1.864                             | 0.206                                  |
| 130  | 1.064                             | 0.127                                  | 220  | 1.964                             | 0.216                                  |
| 140  | 1.164                             | 0.137                                  | 230  | 2.064                             | 0.225                                  |
| 150  | 1.264                             | 0.147                                  | 240  | 2.164                             | 0.235                                  |
| 160  | 1.364                             | 0.157                                  | 250  | 2.264                             | 0.245                                  |

\*h = inner depth of the system

\*\* "fill volume" is the volume up to the top of the PVC pipes

### LOAD CHART

| Eurocode category | Imposed + permanent loads<br>[kg/m <sup>2</sup> ] | Slab<br>[cm] | Lean mix<br>[cm] | Pressure on the ground<br>[kg/m <sup>2</sup> ] | Reinforcement | Cover (min.) |
|-------------------|---------------------------------------------------|--------------|------------------|------------------------------------------------|---------------|--------------|
| Cat. A - General  | 1,000                                             | 4            | -                | 3.44                                           | Ø6/20x20      | 20mm         |
|                   |                                                   |              | 5                | 1.49                                           | Ø6/20x20      | 20mm         |
|                   |                                                   |              | 10               | 0.82                                           | Ø6/20x20      | 20mm         |
|                   |                                                   |              | 5                | 0.52                                           | Ø6/20x20      | 20mm         |
|                   | 1,800                                             | 5            | -                | 5.68                                           | Ø6/20x20      | 25mm         |
|                   |                                                   |              | 5                | 2.45                                           | Ø6/20x20      | 25mm         |
|                   |                                                   |              | 10               | 1.36                                           | Ø6/20x20      | 25mm         |
|                   |                                                   |              | 5                | 0.86                                           | Ø6/20x20      | 25mm         |
| INDUSTRIAL        | 5,000                                             | 7            | 10               | 0.67                                           | Ø8/20x20      | 25mm         |
|                   | 10,000                                            | 10           | 15               | 0.87                                           | Ø8/20x20      | 25mm         |

reference standard for accidental loads is Eurocode.

### DETAILS

Fig. 1 – Polystyrene filler strip along perimeter wall.

Fig. 2 – cut form supported by wood panelist along the perimeter wall

Fig. 3 – pillar reinforcement

