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Anchoring options & Sport surfaces:

(All of the below mentioned information are based on extremely strict European Union safety norm EN:16:630 & they may vary based on your geographical location, especially outside of the EU.) Anchoring is a substantial part of every installation and determines the overall functionality and safety of every park. RVL13 has the best interest in educating its distributors. If you find yourself hesitating over any aspect of the street workout business – Don't hessitate to ask!

There are 2 main options:

1) Concrete footings + loose material (bark mulch, wood chips, sand, gravel…)
2) Concrete slab + liquid epdm

Other types of installation not suitable /recommendable for publicly accessible parks:

3) Concrete slab + rubber desks 15mm
4) Concrete footings + grass (grass lock or original surface)

1) Concrete footings + loose material

Benefits:	**Drawbacks**:
Cheaper than concrete slab + epdm	Suitable only for smaller parks
	worse for the sportsmen
	Big pressure on perfect leveling

Concrete

- Each park and element has a special technical document for concrete footings. If you can't find it, let us know and we will prepare it asap.
- The footings in general are 390 x 390mm (so the gap between 2 pillars with 1400mm bar is 1110mm! (14000 – 2*1/2*390)
- The concrete footings should always reach in non-freezing depth, which in central European conditions means around 60cm

Technical documentation:

- General technical drawings for concrete footings are available in your Drop Box in the Construction data folder:
  - https://www.dropbox.com/sh/gan48pe9xmaggwr/AADqxfFwKQnhW5gNHyxernwpa?dl=0
- The plan for concrete footings of each item are in their respective folders. For example, you will find the plan for concrete footings for Nippur S+ in the following folder:
  - 5. RVL13 World\1. Products\1. Outdoor\2. Nippur\02 Nippur S plus 2016

Loose material

Below, you can see a table of recommended types of loose material and the depth into which it has to reach in order to provide the necessary protection against free fall:

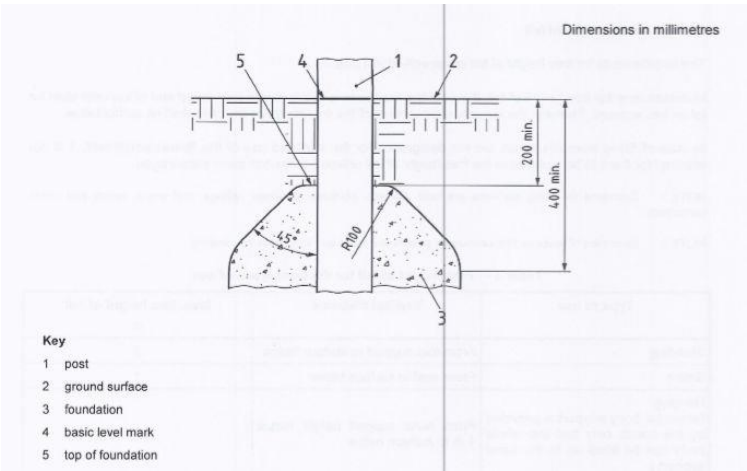
Table 3 — Types of ground, depending on the permissible free height of fall

	Ground material[a]	Description	Minimum layer depth[a] mm	max. height of fall mm
01	Concrete/stone	—	—	≤ 1 000
02	Bitumen-bonded surfaces	—	—	≤ 1 000
03	Topsoil	—	—	≤ 1 200
04	Lawn	—	—	≤ 1 500
05	Bark mulch	Crushed bark from conifers, 20 mm to 80 mm grain size	200	≤ 2 000
			300	≤ 3 000
06	Woodchip	Mechanically crushed wood (no wood-based materials), without bark or foliage, 5 mm to 30 mm grain size	200	≤ 2 000
			300	≤ 3 000
07	Sand [b, c]	0,2 mm to 2 mm grain size	200	≤ 2 000
			300	≤ 3 000
08	Gravel [b, c]	2 mm to 8 mm grain size	200	≤ 2 000
			300	≤ 3 000
09	Other materials and other layer depths	In correspondence with HIC test (see EN 1177)		Critical height of fall as tested

[a] For loose fill material, add 100 mm to the minimum layer depth.
[b] No silty or clayey particles, grain size may be identified by use of a sieve test in accordance with EN 933–1.
[c] Not suitable for equipment which requires firm footing positioning of the user.

The most common solution is combination of concrete footings with 30cm of sand, bark or wood chips. These, however, aren't the best for the users as street workout combines exercises on bars and ground & the above mentioned substances are not very comfortable for bare hands. It is always better to consider the following solution which is slightly more expensive but will satisfy even the most demanding visitors.

For this solution, we add extra 20cm to all pillars so it is vital that you inform us about your installation choice prior to the production!

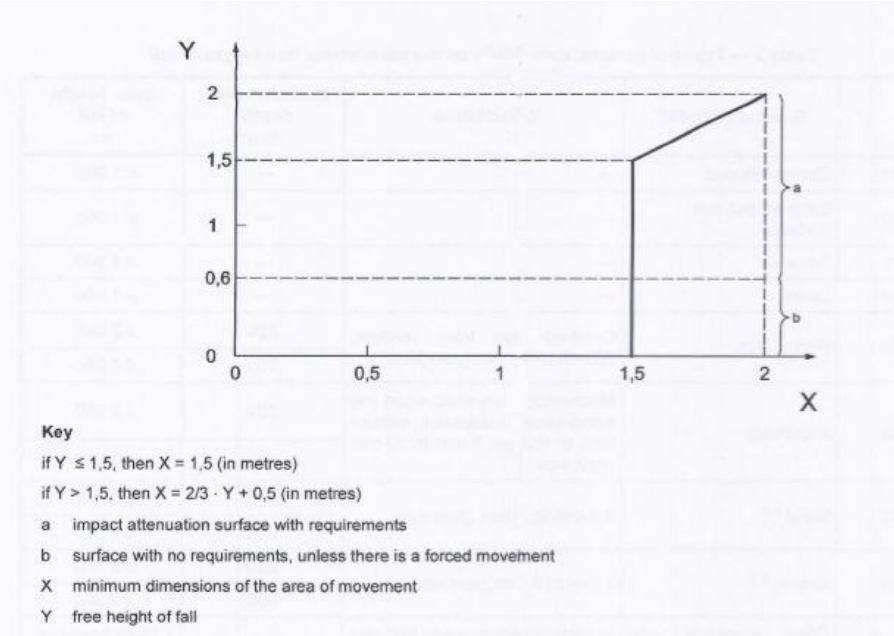


2) Concrete slab + liquid EPDM

Benefits:	**Drawbacks**:
Best solution on the market today	Higher price
Great looking surface	
TOP protective qualities	
Straightforward installation	

Concrete

- Each park and element has a recommended safety area. It is necessary to follow the EN:16:630 rules regarding their safety spacing. For the calculation of necessary safety area, there is a special formula in place:



- In most projects, there are multiple elements included on one slab. In these cases, you can still use the above mentioned formula, but we recommend asking for our help with the calculation – at least at the beginning of our cooperation.
- The concrete slab matures for about 4 weeks, unless special additives are used
- The minimal thickness of recommended concrete slab is 15cm
- It is always necessary to take in account the following elements:
- Thickness of the rubber surface -> influences height of the curb
- Size of the slab -> influences the inclination of the desk for water fallout

Technical documentation:

- General technical drawings for concrete slabs are available in your Drop Box in the Construction data folder:
  - https://www.dropbox.com/sh/gan48pe9xmaggwr/AADqxfFwKQnhW5gNHyxernwpa?dl=0
- The safety area of each item is in their respective folders. For example, you will find the plan for safety zone for Nippur S+ in the following folder:
  - 5. RVL13 World\1. Products\1. Outdoor\2. Nippur\02 Nippur S plus 2016 OR the info is also available on our website (in data sheet of every product)

Rubber flooring

Liquid rubber flooring is currently the best solution for street workout parks. The solution consists of rubber granulate and binding glue. The granulate can be distinguished in 2 categories:

1) SBR which is a secondary granulate, made of recycled rubber particles – usually made of tires. It has always only black color. It is much cheaper than EPDM and for that reason it's always used for the thicker, underlay layer.
2) EPDM is primary granulate – made especially for the sport surfaces. It comes in various colors, it is UV resistant and thus it is more expensive. EPDM is usually used only for the top 1cm layer.

We would recommend to outsource the rubber surfacing to a 3rd party as the installation itself requires special tools and skills. However, if you decide to learn how to lay liquid rubber, we will be happy to provide pricelist for the raw materials from our suppliers.

The thickness of the rubber surface depends solely on your provider's certificate for different free fall heights. Most of our parks are 3m tall for which you will need a surface that can absorb a fall from 2m (you can deduct 1m due to the fact our bars are used in hanging position). Usually 5 to 7cm of rubber are necessary for such park.

Useful information:

For 1 m2 of 150mm concrete slab, you will need: 0,15m3 of concrete
For 1 concrete footing 390 x 390 x 600mm you will need: 0,092m3 of concrete
For 1m2 of liquid EPDM (4cm SBR and 1cm EPDM) you will need: 0,04m3 of SBR and 0,01m3 of EPDM

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Pictures from installation

(concrete footings + loose material)

Concrete footngs - ready for loose mat.

Final park with concrete footings + sand

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Pictures from installation

(concrete slab + liquid rubber surface)

Concrete slab prepaired for Liquid EPDM

Finished park with 5cm rubber surface

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