



# Engineers Rayan Sazeh



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### **Roof Garden** – The Ideal Multifunctional Build-up for Soft and Hard Landscaping on Rooftops

The “Roof Garden” green roof system is a multifunctional green roof build-up with high water storage. It allows for the realisation of a variety of design concepts, even waterfeatures. It is suitable for lawns, perennials, and with deeper system substrate, for shrubs and trees. Integration with hard landscapes, for example, walkways, terraces, driveways or play areas, etc. is also possible.

Within the roof garden, it is useful to store as much rainwater as possible to reduce the need for additional watering. The Floradrain® FD 60 neo drainage element allows very high water retention suitable for all aspects of diverse roof gardens. The water is stored across the roof area and reaches the plants by capillary action and diffusion. Water storage and irrigation from underneath, a so-called dam up irrigation can also be easily achieved by installing roof dam elements above the roof outlets. A roof laid at 0° fall is required to include this feature, along with a suitable waterproofing membrane. Inspection chambers allow for examination and maintenance of the roof dam elements at any time. With automatic irrigation machines, the water level of the dam up irrigation can be maintained even in periods of drought.

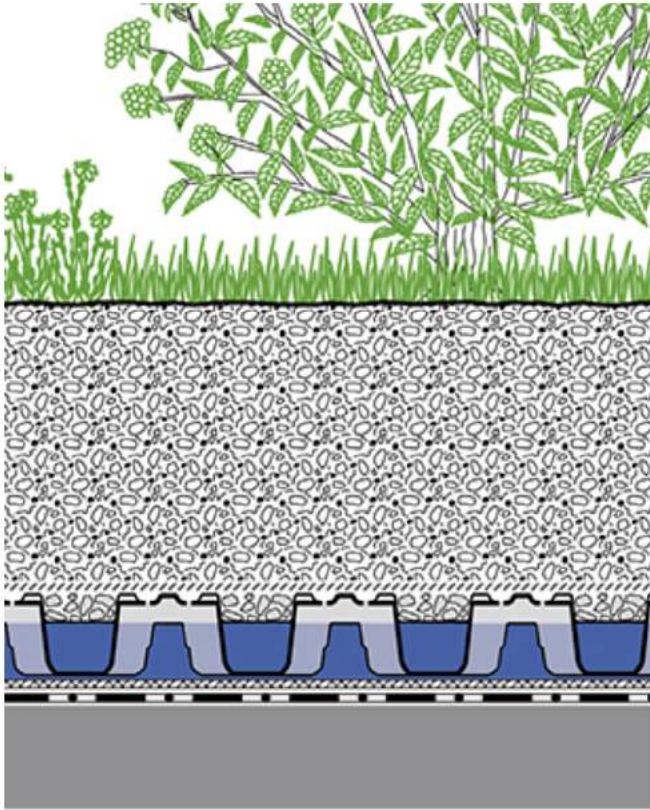
Floradrain® FD 60 neo can also be used as a shuttering for concrete to create foundations for supporting structures without penetrating the roof membrane or impeding water drainage. The drainage capacity is tested according to EN ISO 12598.







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Lawn&perennials; with a deeper  
substrate level,bushes and small trees

System Substrate"roof garden"  
≥200mm

Filter Sheet SF

Floradrain FD 60 neo with

Zincolit Plus infill

Protection Mat ISM 50

Roof Barrier WSB 100-PO,

if water proofing is not root-resistant







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## **ARE THERE BUILDING REGULATIONS FOR ROOFTOP GARDENS?**

Most flats are subject to strict covenants and regulations that must be adhered to.

New roof gardens are often seen to be an extra floor, and if you live in a conservation area or in a listed building, you'll need to check any plans with the local authority. Even if a roof terrace is already authorised for garden use, many structures need permission from the property management company or local authority. Balconies are also under strict controls – some councils won't even allow the railings to be painted a different colour. Check your title deeds or tenancy agreement for clarification or visit [planningportal.co.uk](http://planningportal.co.uk) for more information.

## **PLANNING ACCESS AND SAFETY OF YOUR ROOFTOP GARDEN**

Access is another key factor that will affect what you can do with a rooftop space.

You'll probably need to bring materials and plants up in a lift and perhaps through the house, so always measure stairwells, corridors and doorways to check that you can easily manoeuvre plants and materials. Hoists, particularly cranes, are often expensive – so bear this in mind if your budget is tight. If access is really tight, you might have to tease apart trelliswork temporarily.

Safety is of course paramount, so avoid hanging anything over the edge or placing pots on ledges, unless they're firmly secured. Do check with your local authority though – some won't allow you to do this. Pergolas, trellis, wirework or shade sails should be fixed securely, with the fixings easily accessible so that they can be tightened regularly. The balcony needs to be in good condition too – by law, the sides must measure at least 1100mm high, so you can't fall over the edge.

## **FACTOR IN WIND WHEN DESIGNING A ROOFTOP GARDEN**

Wind is a common problem in rooftop gardens. Many plants can cope with it, but you might need some shelter if you want to enjoy the space all year. Unless there is protection from surrounding buildings, solid windbreaks aren't a good idea as they block out the view, plus the wind stress on fixings is high. Instead, choose permeable trelliswork, hit-and-miss cedar battens arranged horizontally, or perforated sailcloth that filters the wind so only a subtle breeze is felt on the leeward (downwind) side.

Glass is commonly used as a balustrade and wind buffer on roof terraces as it provides uninterrupted views. Don't site it across prevailing winds unless there are a few holes in it, otherwise turbulence will smack over the top and down on you with great force.

Don't put yourself at risk by teetering over high edges to fix screening – call in a specialist builder or a rope access company to tackle it for you.







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## CHOOSING A ROOFTOP GARDEN DESIGN SCHEME

Sleek and simple is the golden rule when designing a rooftop garden.

Cottage or rustic themes rarely work. Go for a simple, linear layout with contemporary materials such as polished stone, rendered walls, Cor-Ten steel or concrete, or traditional ones such as woven hazel and clay pavers using them in a modern way. Choose materials to complement patterns or colours in the surrounding landscape or adjacent buildings so the design blends in.

Whatever layout you choose, take account of the view. Eyesores like gas towers and motorway flyovers will need to be subtly screened, but if you have a sea view or attractive cityscape, make the most of it in your design. Organise your area to maximise good views, maybe framing them with tall container plants or pencil junipers.

Outdoor lighting can be a very effective addition to a rooftop garden design scheme. Plan your lighting with the specifics of the rooftop location in mind, avoiding designs that are lightweight and flimsy, as they will most certainly be ripped off by strong winds. Consider built-in wall lights instead; if you still want the dreamy ambience of fairy lights, choose ones that are on the heavier side, and position them in a sheltered corner above seating, or attach them to a wall.





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## **CHOOSING THE BEST FLOORING MATERIAL FOR A ROOFTOP GARDEN**

Choosing the flooring material for your rooftop garden can be approached in much the same way as choosing flooring for other outdoor spaces; the choice should be dictated by the size and style of the space, as well as your personal preference. Stone or terracotta paving will work in smaller spaces – tiles are your best bet for ease of transporting on to the roof and installation.

Decking is a good choice for a roof terrace or balcony because it's warm underfoot, easy to work with and lightweight for carrying up several flights. Any joists can be fixed to surrounding walls so the weight gets distributed to the walls and not solely to the roof itself. Choose western red cedar or hardwoods such as ipe or balau (from a sustainable source). They retain their colour, last much longer than softwood decks and look better too.

## **CHOOSING A PLANTING SCHEME**

Plants will have to be very tough to cope with difficult conditions. They'll probably have to be tolerant of high winds and drought as well as strong sunshine or deep shade, depending on the aspect. Dense evergreen plants are good for year-round interest and most have thick, glossy leaves, which prevent them from drying out quickly. Griselinia, Garrya, Viburnum tinus, Escallonia, Euonymus, Fatsia and dwarf fan palms are ideal and provide shelter for colourful-but-tough perennials such as globe thistles, day lilies and Heuchera tucked underneath them.

On open roof terraces, plants must be able to cope with blazing sunshine.

Choose plants such as thyme, lemon balm, sage, lavender, Potentilla, Olearia, Caryopteris, Californian lilac and dramatic Yuccas and Agaves. Grasses like hot conditions so they're a good option as they create subtle texture. Miscanthus (try 'Morning Light' or 'Flamingo') are robust and stand tall; or for very exposed sites, choose Carex and Festuca varieties which form tight, low clumps.

Dwarf conifers, like pencil junipers and Pinus mugo 'Mops', tolerate hot, exposed sites too and couldn't be better suited to roof terraces or balconies.

Alpines, whose natural habitat are clifftops and mountains, need little water and can bear extreme exposure to intense sunshine and strong winds. Place rows of terracotta bowls full of carpeting Sedum and Houseleeks – elegant and effortless.

