

DESIGN

10.0 PLANTING COMPOSITION ROOF TERRACE



DESIGN

10.1 PLANTING STRATEGY ROOF TERRACE

TREES

- T1 *Elaeagnus angustifolia*
- T2 *Prunus x gondouinii* 'Schnee'
- T3 *Rhus typhina*

SHRUBS

- B1 *Erica carnea*
- B1 *Fagelia murielae*
- B2 *Hippophae rhamnoides*
- B3 *Lonicera caerulea* var. *Kamtschatica* Anja E
- B4 *Prunus x gondouinii* 'Schnee'
- B5 *Ribes nigrum* 'Polar'
- B6 *Ribes rubrum*
- B7 *Syringa Josikaea* E

PERRENIALS

- P1 *Actaea racemosa* 'Cordifolia'
- P2 *Agastache* 'Blue Fortune'
- P3 *Aster amellus*
- P4 *Astrantia major* 'Shaggy'
- P5 *Bistorta amplexicaulis* 'Speciosa'
- P6 *Calamintha nepeta*
- P7 *Echinacea purpurea* 'Magnus'
- P8 *Echinacea purpurea* 'Rubinstern'
- P9 *Epimedium x rubrum*
- P10 *Fragaria vesca* var. *semperflorens*
- P11 *Geranium phaeum* 'Album'
- P12 *Geranium phaeum* 'Samobor'
- P13 *Helianthemum nummularium*
- P14 *Hyssopus officinalis*
- P15 *Knautia macedonica*
- P16 *Lavandula angustifolia*
- P17 *Phlox paniculata* 'Alma Jansson'
- P18 *Salvia rosmarinus*
- P19 *Salvia nemorosa* 'Caradonna'
- P20 *Sanguisorba officinalis* 'tanna'
- P21 *Sedum telephium* 'Matrona'
- P22 *Stachys byzantina* 'Big ears'
- P23 *Thymus vulgaris*
- P24 *Thymus vulgaris* 'Compactus'

GRASS

- G1 *Calamagrostis x acutiflora* 'Karl Foerster'
- G2 *Carex morrowi* 'Ice Dance'
- G3 *Deschampsia cespitosa* 'Goldschleier'
- G4 *Hakonechloa macra*
- G5 *Miscanthus sinensis* 'Kleine Fontäne'
- G6 *Miscanthus sinensis* 'Yaku-jima'
- G7 *Panicum virgatum* 'Heavy Metal'

LEEK

- L1 *Allium caeruleum*
- L2 *Allium* 'Mont blanc'
- L3 *Crocus speciosus* 'Artabir'
- L4 *Crocus tommasinianus*
- L5 *Scilla bifolia* 'Alba'
- L6 *Scilla bifolia*

CLIMBERS

- K1 *Actinidia kolomikta*
- K2 *Clematis armandii*
- K3 *Clematis vitalba*
- K4 *Humulus lupulus*
- K5 *Lonicera periclymenum*
- K6 *Passiflora* spp.



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10.2 PLANTING PLAN ROOF TERRACE

The roof terrace becomes a place where people in the building meet and where vegetation contributes to an environment rich in experiences and pleasant microclimate. Vegetation and water create a feeling of peace and security, which is used deliberately in line with the Evidence Based Design approach.

Rich vegetation of small trees, shrubs and perennial plants are planted in the edges and in islands on the open floor. By doing so different rooms and a sequence of experiences are created.

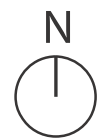
Plants with unique characters such as fragrance, taste, texture, colors and even sound are used to evoke the human senses. This contributes to a design rich in experiences, that all together contributes to a comfortable outdoor environment.

The selected plants are suitable for the harsh living conditions of the roof, where high exposure of wind, sun, rain has taken into consideration in order to create a long lasting, durable roof garden.

Furthermore, the plant selection also support ecosystem services such as local habitats, biodiversity, pollination and heat reduction.



PLAN
1:400 @ A3

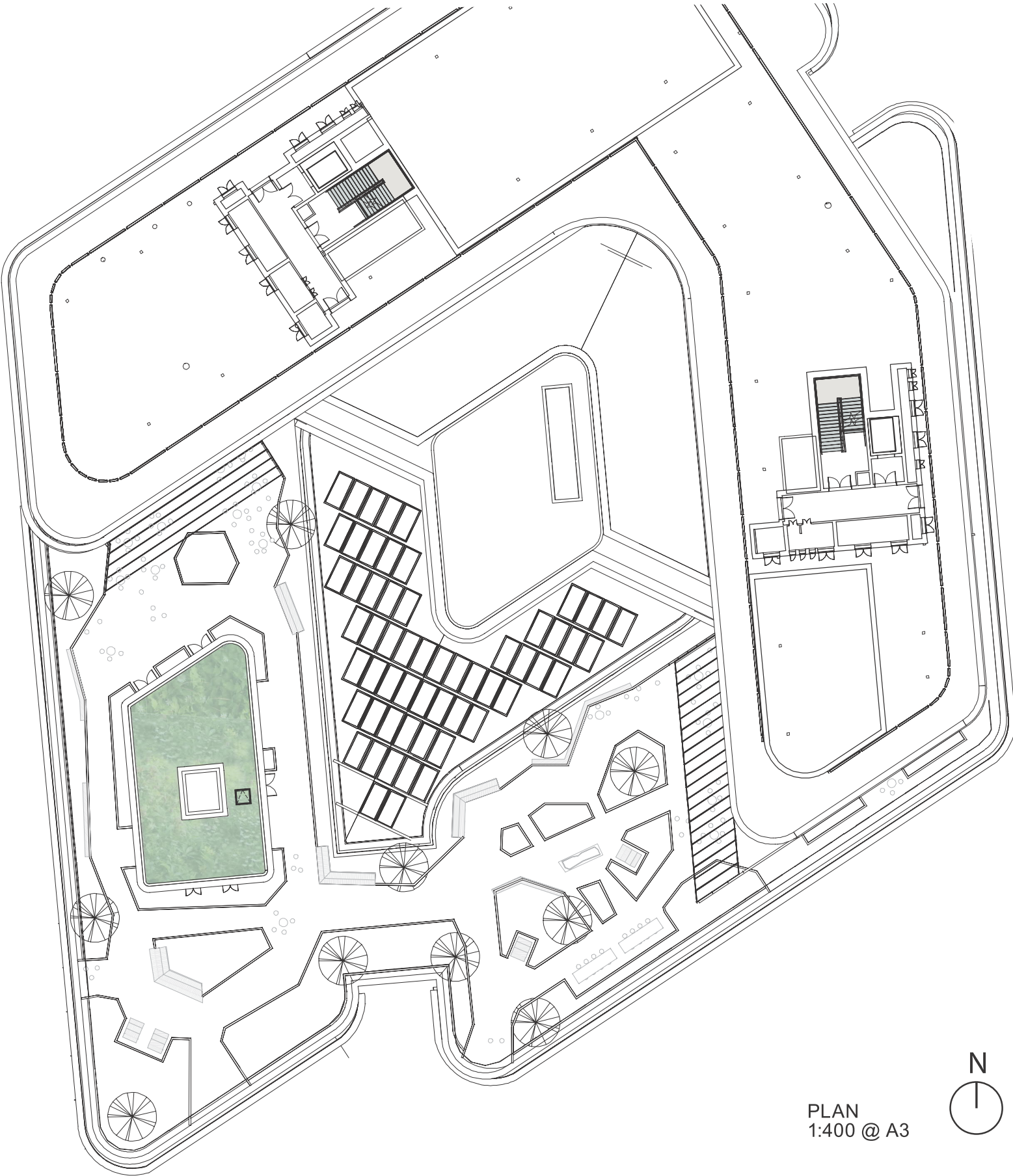


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10.3 PLANTING PLAN GREEN ROOF

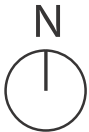
The elevator shaft in the west is covered with a brown roof with PV panels. The brown roof replicates biodiverse brownfield habitats, that can support diverse assemblage or invertebrates and rare birds. The brown roof is self-seeded, but in order to get quicker results, the roof can be pre seeded.

Bio solar roofs with PV-panels create different microhabitats upon the roof, with both sun and shaded areas. A mix of grasses and herbaceous species represent a planting list suitable for biosolar roofs. At the same time, plants lower the temperature close to the solar panels and therefore increasing the solar panel efficiency.



Brown roof with PV's

PLAN
1:400 @ A3



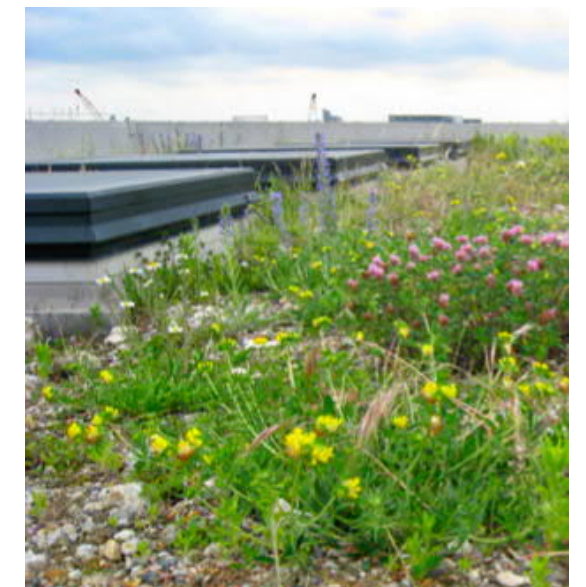
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10.4 PLANTING STRATEGY GREEN ROOF

The following lists are suggestions of both grasses and herbaceous plants to be used for pre seeding the brown roof.

SUGGESTIONS SPECIES BIOSOLAR ROOF

Agrimonia eupatoria
Agrostis capillaris
Ajuga reptans
Calendula Cyanus
Campanula glomerata
Centaurea cyanus
Centaurea nigra
Cynosurus cristatus
Erysimum sp.
Festuca rubra
Gallium verum
Leontodon hispidus
Liastris spicata
Linaria maroccana
Linaria purpurea
Lotus corniculatus
Lunaria annua
Myosotis arvensis
Origanum vulgare
Poa nemoralis
Poa pratensis
Poa trivialis
Prunella vulgaris
Stachys officinalis
Vicia cracca



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11.0 LIGHTING ROOF TERRACE

The lighting design strategy for the roof terrace aims to create attractive and flexible spaces that welcome visitors to experience “the walk of senses” and the beautiful skyline of London at night.

The lighting subtly highlights architectural features and vegetation, integrates in seating zones and marks access points to support orientation and wayfinding.

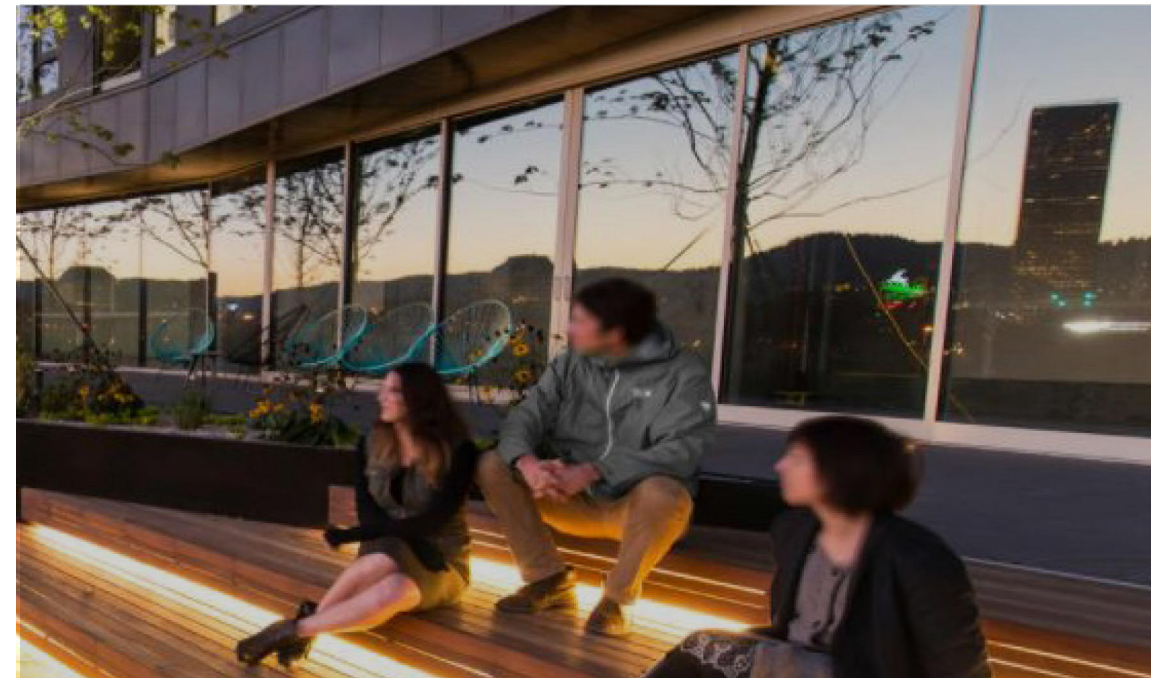
In order to avoid obstructing the view over London and to support the human scale of the roof terrace, in general, all lighting is placed in a low position.

The pergola is illuminated with a more festive gesture of light through a catenary system with decorative lights.

All lighting will be at a soft diffuse level to avoid glare.



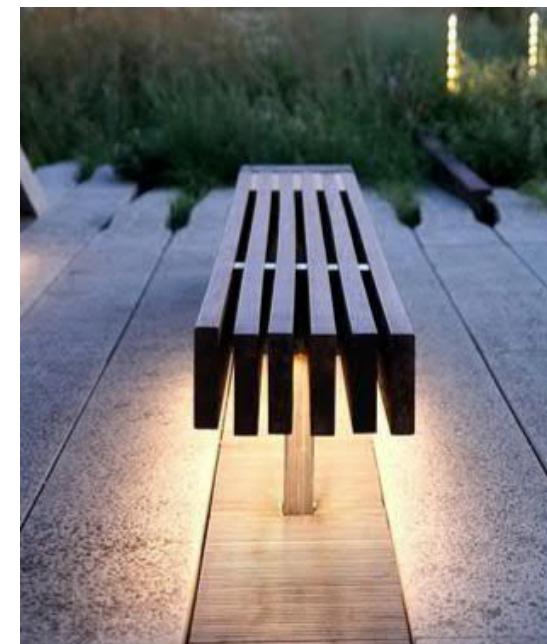
Lighting fixtures inside planters illuminate vegetation and catenary light illuminates the pergola



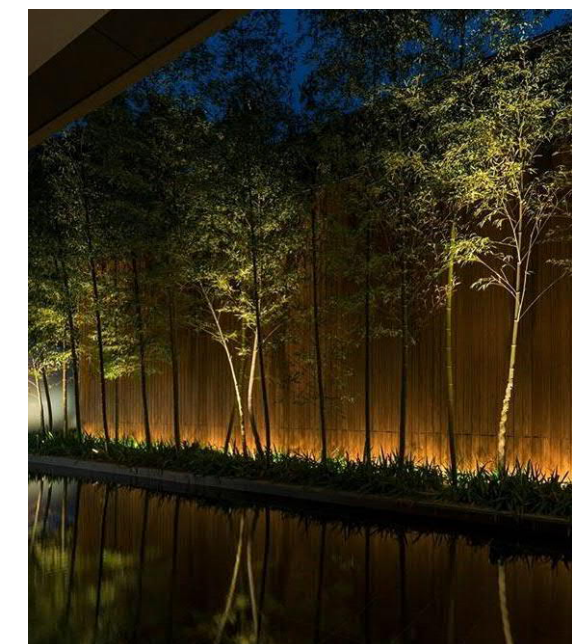
Low placed linear lights are integrated in the wooden sitting deck



Lighting inside planters



Soft light integrated under stand alone benches



Grazing light on higher walls behind vegetation

SUSTAINABILITY

12.0 STREET LEVEL

The outdoor spaces are designed with a strong identity and in harmony with the nature, based on a biophilic design approach. The outdoor environment contributes to the synergies between the qualities of the project and the surrounding urban nature. The tree is a well-known symbol of life and at the same time an exceptional producer of the valuable ecosystem services, such as storm water management, carbon dioxide reduction, biodiversity and recreation. Therefore trees and wood are used exclusively in the outdoor space, both in plantings and as material in paving and furniture. It is light and easy to transport, and it captures carbon dioxide. It is also renewable and recyclable, and altogether the use of wood contributes to the project's overall sustainability goals and to decrease the CO2 footprint.

STORM WATER MANAGEMENT

The storm water management consists of a series of green solutions allowing for as much of the storm water as possible to be retained locally in the soil.

Firstly, the storm water is retained on the green roofs. When the plants on the roof have reached their capacity, the rest is retained on the roof terrace garden where it becomes a valuable resource for the vegetation.

On the street level storm water is led to the plants and the trees where possible. Permeable pavement is also a big part of controlling storm water runoff. Structural soil combined with biocole is used for the trees on the street level, ensuring good conditions for the trees and at the same time allowing pavement with full carrying capacity. Where trees are planted close to each other, the structural soil should be shared by the trees.

By leading the storm water to the structural soil, the water can be retained in a sustainable way at the same time as the plants using the water to produce ecosystem services such as lowering the temperature and clean the air. This is a win-win situation, that uses the natural water cycle in an innovative way.



Structural soil ensures trees get the sufficient volume for their root system



SUSTAINABILITY

12.1 ROOF TOP

To increase the biodiversity of the site and to strengthen local habitats, a series of artificial habitats for birds, bats and insects are installed on the brown roof.

BIRD BOXES:

- Two swift boxes or house sparrow terraces.
- One black redstart box.

BAT BOXES:

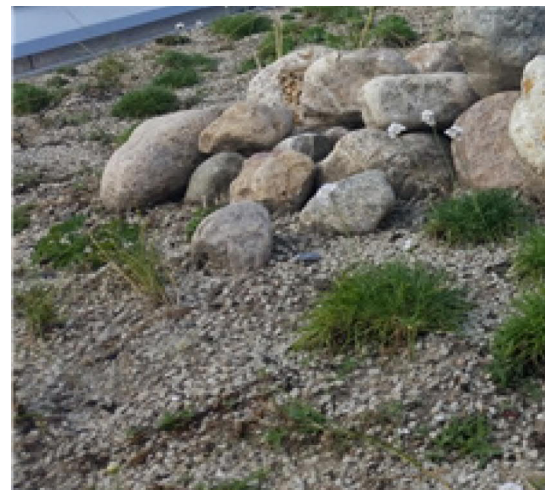
- Three bat boxes which are suitable for pipistrelle bats and other small bat species e.g. Schwegler 1FF Bat Box
- Two tree mounted noctule bat boxes.

INSECT NESTS:

- Two dead wood piles within the brown roof, preferably from trees taken down within the project area.
- Two sand/pebble mounds within the brown roof
- Five insect refugia



Insect refugia



Sand/pebble mounds



Bee bricks



Bee posts



Insect hotels



Swift boxes



Dead wood piles



Bat boxes

URBAN GREENING FACTORS

CALCULATIONS

The Urban Greening Factor (UGF) has been calculated for the Proposed Development, based on the development boundary shown in Figure 1, with a footprint of 8093.7m². A factor has then been given to the different measured surfaces (including sealed surfaces, permeable paving, trees, planting, green roof, etc.).

To calculate the overall UGF score, the factor for each surface cover within the site is multiplied by its area. This generates a number of figures which are then added together. The new total is divided by the overall site area to give a UGF score.

According to the Intend to Publish, new draft London Plan (December, 2019), the recommended target score is 0.4 for developments that are predominately residential, and 0.3 for predominately commercial development. The draft new London Plan does not provide a target for clinical, research or education facilities, and thus the Proposed Development has been compared against the predominately commercial development target.

The UGF score for the Proposed Development is 0.18. The UGF score is below the target for predominantly commercial development. The Proposed Development boundary has a limited extent at ground level and is constrained by existing buildings and roads surrounding it.

Access and health and safety requirements to plant at roof level also limit the ability to provide additional areas of green roofs. The UGF calculation does not currently include the six proposed trees on St Pancras Way, located at the edge of the Proposed Development. If these trees were to be included, the final score would increase to 0.25.



Figure 1 Ground floor plan

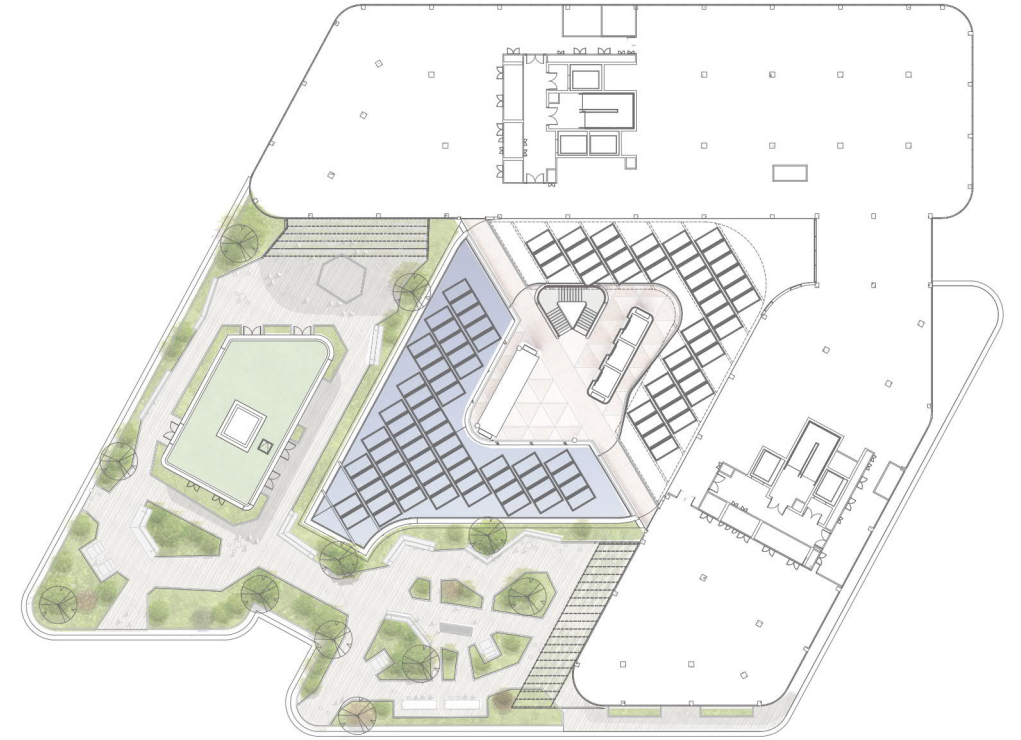


Figure 2 Roof terrace plan

SURFACE:	UGF FACTOR:	AREA(m2):	SCORE:
Standard trees	0.8	647	517.6
Intensive green roof	0.8	582	465.6
Flower-rich perennial planting	0.7	70	49
Extensive green roof (brown roof)	0.7	171	119.7
Climbers rooted in soil	0.6	278	166.8
Water features	0.2	2.2	0.44
Permeable paving	0.1	1295	129.5
Sealed surfaces	0	5051.322	0
Total area/score:		8093.7	1448.64
FINAL SCORE:			0.17898365



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