

3.3.1.4 Veolia Recycling and Energy Recovery Facility, Leeds

Completed in 2016, this is a Biotope Ltd hydroponic system which covers an area of 1,800m² [4]. At the time of completion, the south-facing living wall was believed to be the largest in Europe. The living wall enhances biodiversity in the area, creating a 'vertical woodland' (vertical field meadow, shrub mosaic and woodland edge) and consists of a mix of evergreen and deciduous shrubs relating to the surrounding area. The bespoke shrub boxes (planted inside and to the front of the box) and plants were first trialled at the nursery for over a year to demonstrate durability, which was a planning condition. Harvested rainwater is used to maintain the living wall.

The design intention was to provide a significant contribution to local urban biodiversity by focusing on the surrounding landscape character as indicated in the Leeds Unitary Development Plan Review, the Biodiversity Action Plan, Phase 1 Habitat Survey and the Proposed Landscape Masterplan. There are three planting 'layer areas' corresponding to the height of the walls, their varying microclimates and the predetermined locations of the shrub boxes. The plants are a mix of native, 'wildlife-friendly' and ornamental species of shrubs, perennials, grasses and bulbs suitable to site conditions. There are a number of habitat boxes incorporated throughout the wall in various areas including near the Visitor Viewing Area.

Planting Area A: Vertical Field Meadow

AREA - A	NAME
Shrub 1	Buddleja davidii (E)
Shrub 2	Corylus avellana (F)
Shrub 3	Cotoneaster dammeri (F)
Shrub 4	Olearia haastii (E)
Shrub 5	Rosa canina (F)
Front	Armeria maritima
Front	Carex oshimensis 'Evergold'
Side	Carex morrowii
Side	Iris foetidissima
Below	Vinca minor 'Bowles Purple'
Below	Vinca minor 'Gertrude Jekyll'
Matrix	Hedera helix
Matrix	Lonicera nitida 'Baggesen's Gold'
Matrix	Luzula nivea
Matrix	Lysimachia nummularia 'Aurea'
Matrix	Thymus vulgaris

Located at the top section of the living wall, this is where wind exposure is likely to be greatest (the tallest section is over 25m). The distribution of shrub boxes is discontinuous and numbers are lowest, with an understorey of low growing perennials and grasses. There is a higher concentration of evergreen species near the air intake zone.

Planting Area B: Vertical Shrub Mosaic

AREA - B	NAME
Shrub 1	Berberis thunbergii (C)
Shrub 2	Cotoneaster conspicuus 'Decorus' (D)
Shrub 3	Ilex aquifolium (C)
Shrub 4	Rosa rubiginosa (D)
Shrub 5	Viburnum opulus 'Compactum' (C)
Front	Carex oshimensis 'Evergold'
Front	Phyllitis scolopendrium
Side	Iris foetidissima
Below	Lithodora diffusa 'Heavenly Blue'
Side	Polystichum setiferum
Below	Vinca minor 'Bowles Purple'
Matrix	Euphorbia amygdaloides
Matrix	Hedera helix
Matrix	Hyacinthoides non-scripta
Matrix	Lonicera nitida 'Maigrun'
Matrix	Primula veris
Matrix	Viola odorata

Located in the mid section of the living wall, this area is a transition between the Field Meadow and Woodland Edge planting. The distribution of the shrub boxes is rather open and the planting is a mix of shrubs, perennials and bulbs with year round visual interest.

Planting Area C: Vertical Woodland Edge

AREA C	NAME
Shrub 1	Cornus sanguinea (A)
Shrub 2	Cornus alba 'Sibirica' (A)
Shrub 3	Cornus sericea 'Flaviramea' (A)
Shrub 4	Euonymus europaeus (B)
Shrub 5	Ligustrum vulgare (B)
Front	Bergenia 'Eroica'
Front	Pachysandra terminalis
Below	Campanula portenschlagiana
Side	Phyllitis scolopendrium
Below	Soleirolia soleirolii
Matrix	Euphorbia amygdaloides
Matrix	Hedera helix
Matrix	Persicaria bistorta
Matrix	Primula veris
Matrix	Viola odorata

Located on the lower section of the living wall, this is an area with the greatest number of shrub boxes, with a diverse mixture of evergreen and deciduous shrubs and a range of seasonal highlights from spring and summer flowering through autumn fruiting and leaf colour, to the mix of deciduous and evergreen effects over winter.

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