

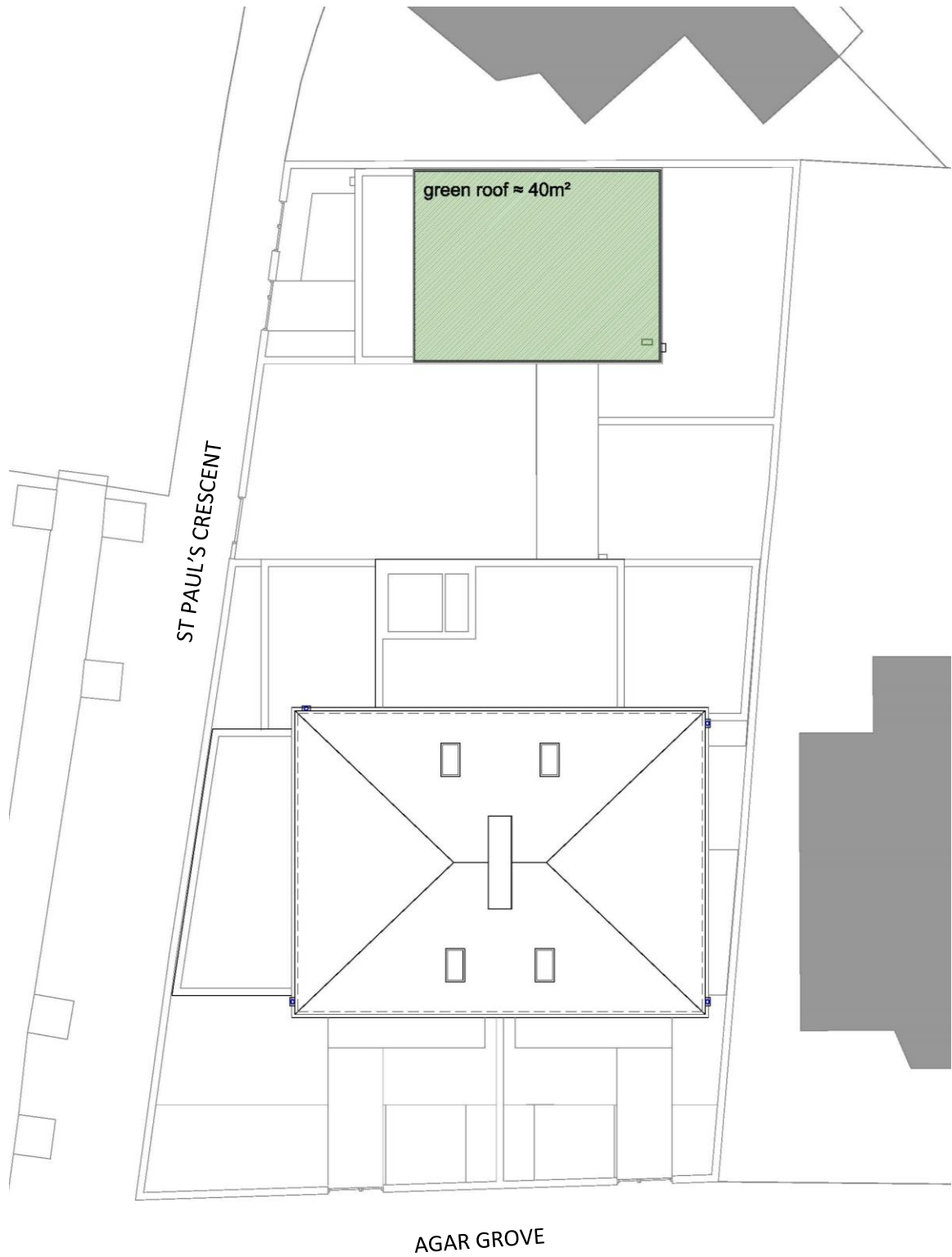
Document name: **328 CITE/HA CON12 Rev. B**

Issue date: 20/10/16

'Prior to the first occupation of the building fronting onto St Paul's Crescent a plan showing details of a green or brown roof including species, planting density, substrate and a section at scale 1:20 showing that adequate depth is available in terms of the construction and long term viability of the green or brown roof, and a programme for a scheme of maintenance shall be submitted to and approved in writing by the local planning authority. The green or brown roof shall be fully provided in accordance with the approved details prior to first occupation of the new dwelling fronting onto St Paul's Crescent and thereafter retained and maintained in accordance with the approved scheme of maintenance..'

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1. Location of the green roof



Roof plan

2. Description of the solution proposed

An extensive green roof system designed to create a biodiverse habitat utilising a specially formulated free-draining substrate and drainage board. A wildflower and grass seed mix is broadcast over the surface of the substrate, and lightly worked in to germinate and grow over time.



1. Icopal Extensive Biodiverse Seed Mix
2. Icopal Extensive Biodiverse Substrate
3. Icopal Filter Fleece (*pre-bonded to drainage board*)
4. Icopal Drainage Board 20 FF
5. Icopal Protection Fleece
6. Icopal Waterproofing System

2.1. Species

The wildflower and grass species mix is designed to create food, nectar and pollen sources for a wide range of invertebrate species. These roofs can be left relatively undisturbed to attract ground nesting birds.

-Typical Species: (subject to season variation)

Wildflower species -Agrimonia, anthyllis, centaurea, clinopodium, echium, galium, hypericum, knautia, leontodon, leucanthemum, linaria, lotus, malva, origanum, plantago, primula, prunella, ranunculus x 2, reseda, sanguisorba, silene.

Grass species -Briza, cynosurus, festuca x 2, phleum, trisetum..

-Flowering Period: May – August.

-Typical Colours: Seasonal variation of yellows, whites, reds and pinks. Foliage turns from green to brown in the autumn.

2.2. Planting density

2-5g/sqm density mats of 1m x 1m with pre-cultivated UK grown vegetation blanket which comprises of a geo synthetic mat with a thin layer of growing substrate, into which the wildflower plants themselves grow. Around 28 different species are incorporated within the mat which have been carefully chosen to provide flowering of different colours at varying times from spring through to late autumn period.

-Mat Weight (dry): 15 kg·m⁻²

-Mat Weight (saturated): 20 kg·m⁻²

-Mat Depth: 20mm

-Typical Plant Height: 20 - 100 mm

2.3. Substrate

The Icopal Biodiverse Substrate is designed to support wild flower, sedum and grass species on Icopal Biodiverse green roof systems. The substrate is designed to be free-draining yet water retentive. Its low nutrient status makes it ideal to support the wild flower species sown / or planted into it.

-Growing Substrate Depth: 100mm (settled)

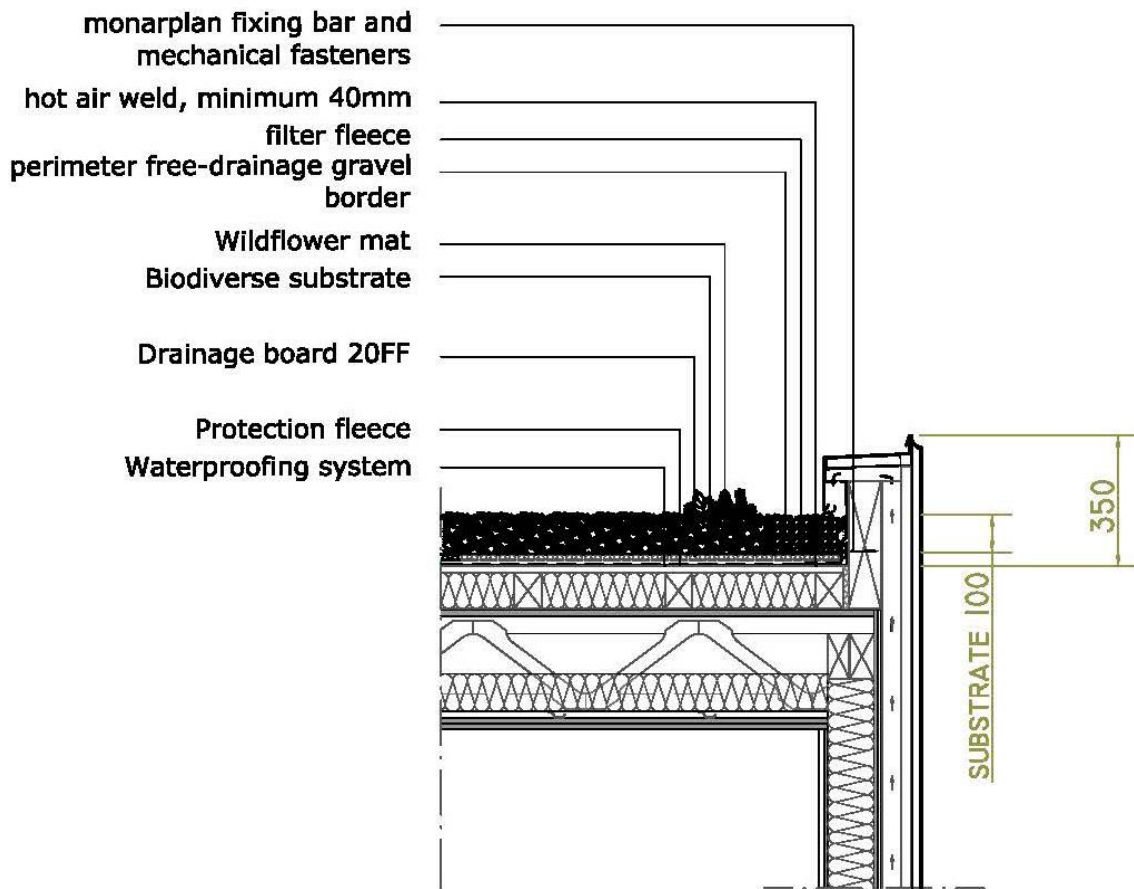
-Composition: Recycled crushed brick, fine grade 10mm topsoil (BS 3882) and 10mm Composted Green Waste (certified PAS 100)

-Weight/Unit Volume dry: 1000 kg·m⁻³ Weight/Unit Vol.

-Weight/Unit Volume saturated: 1250 kg·m⁻³ Weight/Unit Vol.

-Compaction: 20%

2.3 Section at scale 1:20



Roof Detail
Scale 1:20

The system can be installed on flat roofs and those with shallow pitches, generally no greater than 15°. For slopes over 9° a retention system is required. All slopes over 5° will require a mechanically fixed eaves edge restraint

3. Programme for a scheme of maintenance

Programme for a Scheme of Maintenance to make clear that the following content stems from the manufacturer's guidelines:

Species selection ensures that the roof will evolve naturally, however appropriate qualified professionals will be tending the roof in accordance with:

-Irrigation:

It is important that once laid the wildflower mats are frequently watered to prevent drying out until the roots are fully established into the substrate. It is therefore essential that there is a means of getting water onto the roof. The establishment period is generally between 8 - 12 months.

Once established irrigation is only generally required during prolonged periods of hot dry weather.

-Vegetation:

An annual maintenance schedule is recommended to remove invasive plant and weed species.

Vegetation and flower growth is expected to be between 20 and 100 mm. It is recommended that the roof is strimmed in the early spring and autumn (after the flowers have dropped their seed), and all cuttings removed to allow the roof to thrive.

-Rainwater gutters and Outlets:

All drainage points, must be checked every 6 months and cleared out if necessary to ensure that outlets are working correctly. Excess water must be able to leave the roof, to avoid ponding and overloading.

-Vegetation breaks / barriers:

A border with a recommended width of 300–500 mm of washed river stones (20– 40 mm Ø) should be used around all roof penetrations and perimeters to provide a vegetation free zone.