

Uniclass L6129	EPIC F122
CI/SfB (-A) Cp3	



## Technical Manual – Section 22 Green roofs and Hortag<sup>®</sup> horticultural medium

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## Introduction

Green roofs comprise of a multi layered system designed to cover the roof of a building with vegetation or landscaping over a drainage layer. They are designed to intercept and retain rainfall, reducing the run off and attenuating peak flows. As well as the control of rainfall they improve air quality, improve ecological potential, insulate buildings against temperature extremes and can be retro fitted.

As part of the green roof system, whether they are intensive, extensive or simple intensive systems they all can add weight to a structure. Careful consideration has to be given to the component parts of the system to ensure they provide a suitable medium for sustaining vegetation, provide adequate drainage while still retaining moisture, minimise the weight on the building and should aim to protect the environment but, at the same time minimise the use of finite natural resources and provide reasonable value to those involved in its design, construction and operation.

A key factor that may be considered is the use of recycled or secondary aggregates. The environmental impact, taxes and transportation issues related to using natural aggregates mean that alternative sources must be considered. These more sustainable options may also produce long term cost savings.

## Hortag horticultural medium

Hortag horticultural medium is a secondary aggregate manufactured from waste ash from coal fired power stations. The raw material used in the manufacture of Hortag horticultural medium is pulverised fuel ash (pfa). The aggregate is called 'sintered pulverised fuel ash lightweight aggregate', more commonly known as Hortag horticultural medium.

Hortag horticultural medium is made by pelletising the pfa. By adding a controlled amount of water in specially designed dish pelletising pans, rounded pellets are formed which are then heated on a sinter strand. The result is a hard, honeycombed structure of interconnecting voids within the aggregate. The particles formed are rounded in shape and range in size from 14mm down to fines; these are processed to the required grading, depending on the final use. Being a wholly manufactured aggregate, made from a waste stream, means that the quantity of pfa being landfilled is reduced and virgin aggregate extraction is reduced.



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Hortag horticultural medium has been used successfully for many years as a drainage medium for sports pitches, golf courses and back fill applications, by providing a fill medium that is free draining while retaining a high volume of moisture to slowly release back into the environment once drier conditions prevail.

As such, Hortag horticultural medium should be considered for use as a component in green roofing systems.

### **Hortag horticultural medium typical properties**

<b>absorption</b>	>20%
<b>voids ratio</b>	>40%
<b>hydraulic conductivity</b>	1.3 x 10 <sup>-1</sup> m/s
<b>Hortag® Products</b>	H1, H2 and H3
<b>Oven Dry Loose Bulk Density</b>	710kg/m <sup>3</sup>
<b>Weight when fully saturated</b>	87kg per 100mm thickness
<b>Shape</b>	Rounded

By using Hortag horticultural medium either as the drainage layer under the vegetation or as part of the soil/growing medium a reduction in overall weight can be achieved. Hortag horticultural medium is approximately 50% of the weight of natural aggregate. The combination of its drainage and moisture retention properties makes it an excellent choice.

Green roofs provide an excellent first stage in a Sustainable Urban Drainage Systems (SUDS) and using Hortag horticultural medium in the Green Roof as well as geo fill in other areas of SUDS systems meet many of the sustainability requirements of today's construction projects.

For more information on Hortag please see section 19 of the Lytag Technical manual.



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