Biofilter Construction:
Infrastructure | Plant Installation

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Infrastructure: wall membrane

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The support wall is covered with a high quality vapour barrier.

To protect the supporting wall, it is covered with high quality vapour barrier. This barrier is applied to a self-adhesive membrane and will provide decades of protection.
Infrastructure: metal trim

The edges of the biofilter are sealed with metal trim.

The trim creates the air spaces that will connect the building’s air handling system.

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**Vapour barrier**
Protects structural wall.

**Hanger bracket**
Supports the perforated plates and creates inner plenum space between back wall and perforated plate. The created plenum (space) collects air pulled through biofilter media and directs it to building handling system (connection point not in photo).

**Perforated Plate**
Gives uniform air flow across entire face of biofilter.

**Vertical Struts**
Creates second plenum (space) between biofilter media (not yet installed) and perforated plate.

Infrastructure: build
Infrastructure: growth media

The growth media is installed over metal infrastructure.

The ‘soft’ part of the infrastructure is the growth media. This porous mat material is fastened to the vertical struts at two layers. Each layer is roughly 2 cm (roughly 1” each). The plant roots grow in and through the growth media, but the open nature of the material easily allows air to be pulled through the media. This brings the ‘dirty’ air in close contact with the thriving biotic community in the media.

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Construction: irrigation system

Internal irrigation system is installed concurrent with the media.

To facilitate the biofiltration process, the growth media is under constant irrigation. A pump (typically in the basin) lifts the water to the top of the media and is dispersed across the top, between the two layers of growth media by an emitter system. The water then slowly percolates down through the media to the basin where it is then circulated to the top again.

The pump system circulates the water through the system ensuring the health and function of the biofilter.

The system is now ready for the plants.
Construction: plant installation

The plants are bare rooted and slipped into the growth media.

Commercially-produced plants have their roots cleaned of soil. Unlike other plant wall systems, the biofilter is “soil free”. The plant roots grow in the biofilter media, not soil.

A small slice is made in the outer layer of the media and the roots of the plant are slid into these pockets so the roots are in the water flow between the two layers. The media holds the plants tight until new roots firmly anchor the plant into the growth media.

The biofilter uses full size, ready to go plants.

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Construction: plant installation

Because full size plants are used, the Nedlaw living wall biofilter looks great on *Day One.* Planting the Nedlaw living wall biofilter is an exciting time. Within a few hours of starting the planting process, the beauty of the system becomes clear. Even for large walls, the planting process is completed in a matter of days. Because the finished product is ‘ready for use’, planting is usually scheduled to occur just before occupancy.

Typically the system is allowed a period to adjust before being activated as a biofilter. But once air is drawn through the system, the beneficial biota begin the biofiltration process almost immediately.

The Nedlaw living wall biofilter looks good and is functional right from the start.