

Breathe™ Living Wall

Modular Wall Solution from DIRTT

Breathe: DIRTT walls. Clean air.

DIRTT Environmental Solutions is launching the latest innovation in its modular wall solutions. Breathe™ is a (patent pending) simple system for incorporating plants into DIRTT Walls. Breathe mounts to the tile layer of the wall, can be retrofitted on existing DIRTT walls, and mounted to any flat, vertical building surface: gypsum, concrete, stone, etc. It is scalable and easily expanded from one panel to a monolithic wall of plants. Designers can incorporate Breathe living walls, or interior plantscapes, to bring nature indoors and beautify and detoxify interior spaces.

Natural elements have long been on the list of environmental attributes DIRTT wished to add to its Walls. Quite aside from their aesthetic attributes, plants are known to remove harmful environmental toxins found in building interiors. Pollutants have a direct impact, resulting in illness and lower rates of productivity in the workplace. Most buildings condition air through an HVAC system to render the air fit for human use. Conditioning air requires energy, further contributing to greenhouse gas production and the cost of building operations. Plant landscapes can lighten the load of the HVAC system by removing many of these toxins, resulting in up to 10% less energy use in buildings. Studies confirm certain types of indoor plants reliably reduce total volatile organic compound loads by 75%, to below 100 ppb.

Breathe facilitates biophilic design – design that reflects a love for the natural world. Interior plantscapes can be used to create healing, pleasant spaces. The use of plants indoors, to realize biophilia objectives and improve indoor air quality, has helped secure Innovation Credit 1.2 in LEED projects. Breathe provides a benefit to indoor air quality that no HVAC system can supply, improving interior air quality and promoting occupant wellbeing.

DIRTT is implementing Breathe into the latest incarnation of their Chicago Green Learning Center, opening in April 2011. To learn more about Breathe, contact Andrée Iffrig at DIRTT. aiffrig@dirtt.net

BREATHE FAQ

How does the living wall work?

Breathe™ is the living wall system from DIRTT Environmental Solutions. It shares the same notion of modularity as the rest of the DIRTT system. Breathe supports living plant modules and an independent water delivery system. These two elements are separate units to ensure plants can be maintained and removed individually for servicing or replacement.

The Breathe module can be mounted to a DIRTT wall surface, retrofitted on existing DIRTT walls, or attached to any flat vertical surface including gypsum, stone, concrete, etc. The module is designed to take three sizes of plant pot – 6 x 6", 3 x 6" and 3 x 3". The pots integrate into the modular slat wall surface. DIRTT's intelligent 3D ICE software treats the plants as objects, which can be dropped into place for easy composition along the slat wall.

How do you water the Breathe wall?

Breathe is designed to eliminate plumbing problems and reduce complexity for occupants. For larger Breathe installations a portable irrigation system, such as a WaterBoy, is used to fill the horizontal troughs beneath the plant pots. Smaller systems can be filled with a hose attached to a tap, or with a watering can. There is only one fill point for a wall of plants, at the top. Water travels along the



troughs where it is wicked up into individual plant pots by a device that promotes capillary action. Breathe effectively separates the plant pot and growing medium from the water system, thereby eliminating mess and fuss usually associated with watering plants. An overflow mechanism at the end of each trough prevents water spillage and directs the extra water to the next trough. At the bottom of the wall any remaining excess water is captured. There is no water wastage with Breathe. Fertilizer can be added to the portable irrigation unit for dispensing during watering.

Is that real dirt in the DIRT Breathe wall?

Breathe uses a professional, general purpose growing medium. No, it's not dirt! This is a peat-based medium designed for the cultivation of horticultural plants, usually combined with a biofungicide to prevent root diseases. It is airier than dirt, does not compact and lets in more oxygen. Usually contains few nutrients, which must be regularly added with fertilizer. Includes some inoculates with beneficial bacteria to minimize soil-borne insects. (Typical composition breakdown: Sphagnum Peat Moss, 75-80% by volume; Vermiculite; Perlite; can include Dolomitic and Calcitic Limestone as a pH adjuster; Bacillus Subtilis as a Biofungicide; and Macronutrients).

What kinds of plants will work with Breathe?

The type of plants used in a living wall are dependent on a number of factors: light levels, plant availability, design factors (color, height, growing habit), and the decision to select plant species for their ability to remove VOCs. Designers can consult a plant library or interior landscape professional to learn more about varieties suitable for the wall. The website www.gpgb.org maintains a list of plants known to remove VOCs and other pollutants. Light is usually the most important factor governing plant choice and growth in interior environments; local or regional availability of plants is another consideration.

The standard 6 x 6" pot in Breathe is sized for a 6-inch plant. Newly planted pots will immediately look full if a 6-inch plant is used. Smaller, 3-inch pots are also available if a more complex plantscape design is desired. In the right light and with regular watering and care, plants can last at least five years before they need to be replaced.

Who plants and takes care of a Breathe wall?

Breathe is simple enough that any occupant could plant and care for a small living wall plantscape. Larger installations in commercial and institutional settings require plant professionals for care and maintenance, and to comply with credit criteria under green building rating systems. Professional plant contractors undertake weekly cleaning; prune plants; monitor nutrient levels and administer nutrients; monitor and control pests; ensure mold does not grow and spread; and replace diseased plants as necessary. They may also provide advice in the selection of plant species that are known to introduce microbes (bacteria) that break down VOCs found in interior environments.

What is the timeline for getting Breathe up and running?

DIRTT will be building its own test Breathe walls January and February 2011. Visitors to the Green Learning Center in Chicago will be able to view the wall there in April 2011. Integration of Breathe components into ICE software will be finished by May 2011. Clients wishing to specify Breathe will be notified by their DIRTT Rep as to its availability.

DIRTT—'Doing It Right This Time'; refers to creating unique workspace interiors with responsive, Agile Architectural Solutions. Self-expression and dynamic sustainability combine to produce customized, productive office walls that are award winning, sustainable, long-term assets. Further improving the process, DIRTT uses real-time, interactive 3D software called ICE®; a single software application for a fluid flow of information, from design and point-of-sale to the manufacturing floor, eliminating order entry errors and inter-application conflicts. ICE is completely interoperable with the industry standard AutoCAD™.

