

Breathe™ Living Wall

Design and Order Guide

Issued: 2024-06-10





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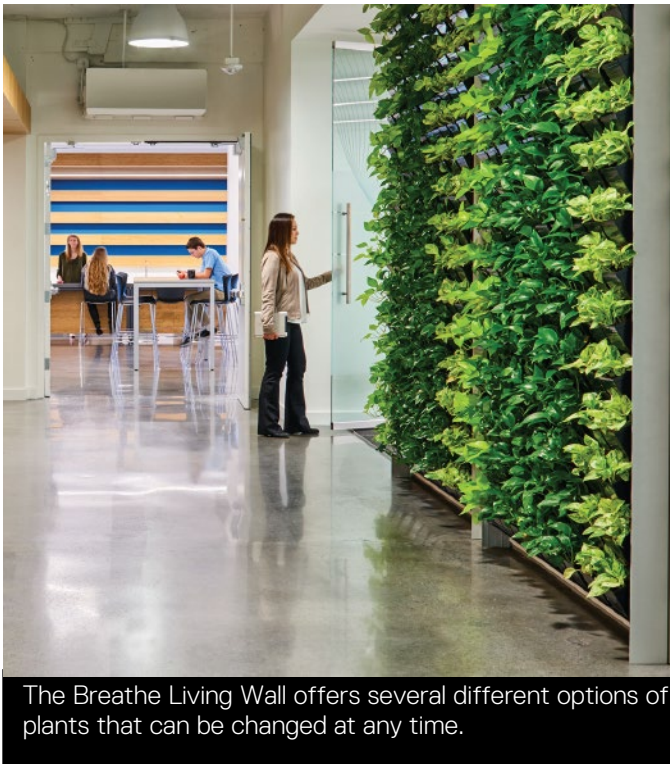
INTRODUCTION

Breathe™ is a way to introduce living plants into environments to take advantage of their beauty, ability to clean the air and the added oxygen that plants provide, all without using up precious real estate.

Breathe is designed to initially, or retroactively, attach to DIRTT Walls or conventional walls. Plant pot modules come in different sizes and cantilever into the patented DIRTT support extrusions. The self-contained hoses and troughs use gravity to send water through the system, making watering the plants simple.

Sustainability

Breathe shares the same notion of modularity as the rest of the DIRTT system. It supports living plant modules and an independent water delivery system. Unlike hydroponic living wall systems, which are often only good for the life of a wall (the roots are literally embedded in the wall's material composition), Breathe is a box-type system which adapts well to changes in an interior environment. Just like DIRTT's modular wall system, Breathe plant pots and the support structure can be moved around. Individual pots can be replaced if a plant becomes sick or if freshly flowering plants are substituted for those that have ceased to flower. This flexibility is unique to Breathe, making it a living wall of choice for new construction and retrofitting of interiors.



The Breathe Living Wall offers several different options of plants that can be changed at any time.



Environmental Benefits

Most buildings condition air through a heating, ventilation and air conditioning (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 less energy use in buildings. Studies confirm certain types of indoor plants reliably reduce total volatile organic compound loads by 75% to below 100 parts per billion and also remove carbon dioxide. In fact, Breathe can provide a benefit to indoor air quality that no HVAC system can supply.



A Breathe Living Wall can act as an extra filter to provide clean air in buildings.



Performance Booster

The positive impacts of plants in workplace interiors are well documented. People perform better in environments with plants, which seem to have a stress-reducing effect and can prevent fatigue during attention-demanding work. For a small investment, organizations can improve cognitive performance and drive better business results by including plants in the design of interior spaces.



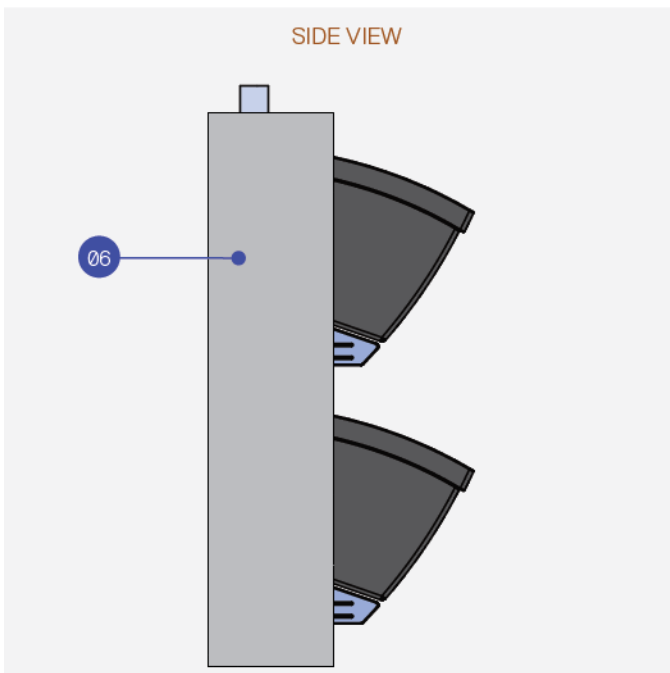
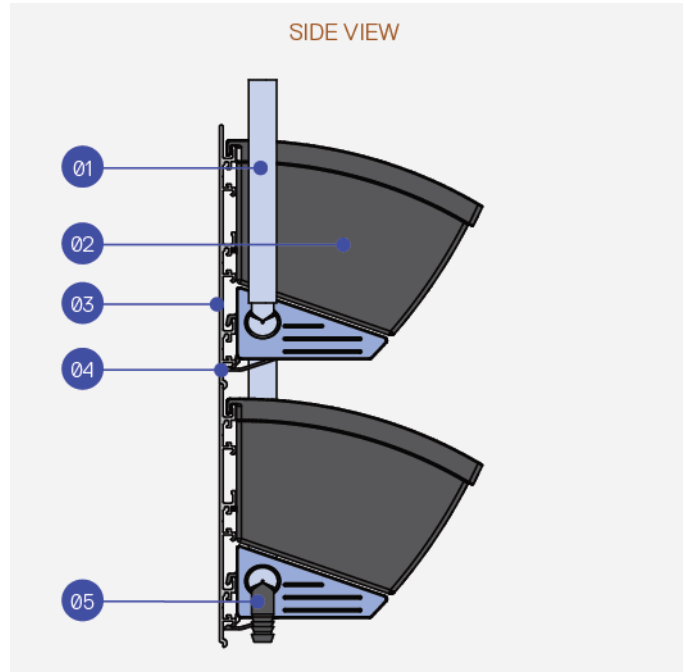
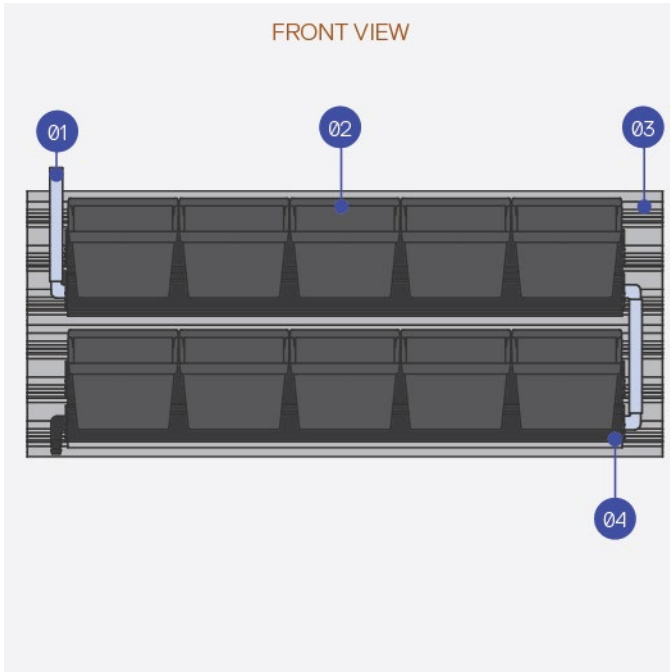
A Breathe Living Wall helps to destress the working environment and improve productivity.



DESIGNING WITH BREATHE LIVING WALL

Components

PART REFERENCE—BREATHE COMPONENTS





NOTES

DETAILS

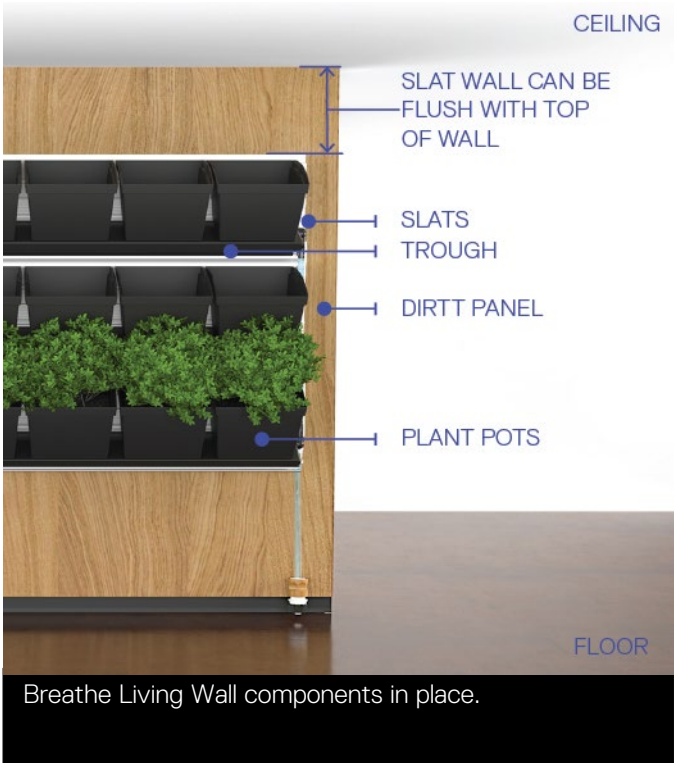
| | | |
|----|-----------------------------|---|
| 01 | Breathe ½" Clear Hose | ½" (12mm) diameter clear vinyl hose attaches to the elbow connectors and delivers water from one trough to another |
| 02 | Breathe Pots | <ul style="list-style-type: none">• Black ABS pots with integral lips hang from the aluminum slat wall and rest above watering troughs.• Four pot options are available as needed.• All Breathe pots can be repositioned horizontally to accommodate plant density.• Pots (and plants by others) are never in contact with water within the trough.• Water is delivered to the pots (and plants supplied by others) by plant wicks.• Wicks are inserted into square cutouts in the bottom of the pots and extend into the watering trough.• Wicks absorb the water, which provides moisture to the planting soil and plants (both by others). |
| 03 | Aluminum Wall Slats | <ul style="list-style-type: none">• Supports watering troughs and pots.• Stackable extrusions (7" x 10'-0" maximum length) are predrilled every 12" for attachment to vertical surfaces. |
| 04 | Watering Troughs | <ul style="list-style-type: none">• Black ABS plastic troughs clip on or slide onto the aluminum wall slats.• Each end of the trough is fitted with polycarbonate end caps.• End caps have integral threading to receive ABS 90° elbow connectors that serve as troughs' water intake and outflow.• Elbow connectors deliver water vertically from trough to trough.• ABS inline connectors are included, as needed, for horizontal trough-to-trough connections. |
| 05 | Breathe 90° Elbow Connector | <ul style="list-style-type: none">• ½ National Pipe Thread pipe size• 14 threads per inch• ½" thread engagement |
| 06 | Gable Extrusions | <ul style="list-style-type: none">• 4" wide x (varies) high powder-coated aluminum gable extrusions are available as requested.• Gables attach to the slat wall with 11866_Gable Clips and provide a finished look where sides of the pots, troughs and tubing are visible. |



Sizing Guidelines

SIZING REFERENCE—BREATHE LIVING WALL

| COMPONENT | DETAILS |
|----------------------------------|--|
| Slat height | Height is 7" (178mm) |
| Minimum length of Breathe trough | 7 ½ (190mm) |
| Maximum length of Breathe trough | 10'-0" (3.04m) but 6'-0" (1.82m) increments are recommended. NOTE: Longer spans can be accomplished using multiple troughs connected by inline connectors. |
| Trough minimum spacing | Minimum 3 ¼" (82mm) between troughs to accommodate watering |
| Slat wall length | Always 1 ½" (38mm) longer than their troughs (meaning the trough on a minimum Breathe wall (7 ½") is 6" (152mm) long. |
| Minimum trough width | 6" (152mm) to fit minimum length of Breathe trough |



IMPORTANT: Because slat height is 7" (178mm), plan wall height in 7" (178mm) increments. Additionally, think about the height of the plants when planning the size and placement of a Breathe wall. This information will help to ensure enough room is available for the plants to sit and grow comfortably.



Water Systems

Breathe is designed to eliminate plumbing problems and reduce complexity for occupants. Water travels along the troughs where it is drawn up into individual plant pots by a wick. 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: Breathe does not waste water. Fertilizer can be added to the portable irrigation unit for dispensing during watering.

The Breathe Living Wall design includes three options for watering the plants:

1. Adding water manually
2. Supplying water to the system with a portable pressurized-watering device
3. Installing a cold-water plumbing line and timer (both “by others”)

Regardless of method used, only one fill point is needed at the top of the wall as Breathe relies on gravity for water distribution between troughs.

IMPORTANT: DIRTT recommends specifying thermofoil finishes for Breathe Wall panels to manage moisture that may contact the surface.

MANUAL WATERING SYSTEM

In this system, a watering can may be used to introduce water directly into the horizontal opening of the top watering trough. A water overflow container (provided “by others”) may need to be set under the bottommost tube to accept excess water. When water reaches the container, the system is full and manual watering may stop. Turning the bottom tube upright and crimping it with a cable-tie can be effective when an overflow container is not desired. Care should be taken to ensure that manual watering stops as soon as water enters the crimped upright tube.

NOTE: Crimped tubing involves tying off the tube to stop waterflow with a zip tie or similar strapping.

PORTABLE PRESSURIZED WATER DEVICE

In this system, portable pressurized water devices, such as [The Waterboy](#), are supplied “by others” and are used to fill the horizontal troughs beneath the plant pots. They connect to the Breathe Wall system with an optional DIRTT-supplied Hose Connector Kit and a Water Supply Connector Kit (known as the Breathe Quick Connector Regulator). These kits connect the Breathe trough tubing to the pressurized watering device. The watering device provides a regulated flow of water to the uppermost Breathe trough without too much pressure. Too much pressure in the waterflow may cause the trough to overflow. An overflow container or crimped tubing will be needed for this method of water delivery.

PLUMBING LINE AND TIMER

In this system, a cold-water line (installed by a licensed plumber) is set up for larger or higher positioned Breathe installations and connected to an automatic on-off timing device. This system is the option to use when manual watering or pressurized watering devices are not feasible.

IMPORTANT: Consult with a local plumbing professional on best practices (e.g., plumbing location, pipe size and material, timing device and floor drain) for installing a plumbing line and timer system. Neither DIRTT nor its partners are responsible for this type of connection but are available to consult with the local plumbing professional to ensure the best possible installation.



Pot Options

Given the wide diversity in plant species, leaf shape and color, plant designers can create works of art with plants. Breathe gives them the latitude to compose a living wall that also changes over time. The pots integrate into the modular slat wall surface by cantilevering into the patented DIRTT support extrusions. DIRTT's intelligent 3D ICE software treats the plants as objects, which can be dropped into place for easy composition along the slat wall.

PLANT POT OPTIONS AND DIMENSIONS

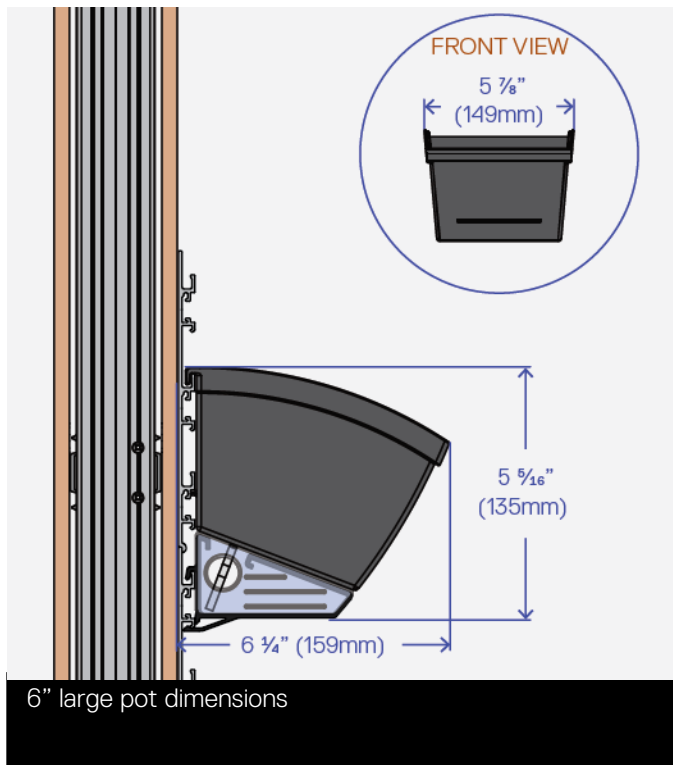
The Breathe module is designed to take four sizes of plant pots:

1. 6 x 6"
2. 3 x 6"
3. 3 x 3"
4. 10" x 10"

The four pot options and their dimensions are described below.

6" Large Pot

This pot option is the standard size for Breathe. The 6" x 6" pot is sized for a 6" plant. Newly planted pots will immediately look full if a 6" inch plant is used. Larger wallscape compositions would use 6" x 6" pots. This pot uses two wicks.

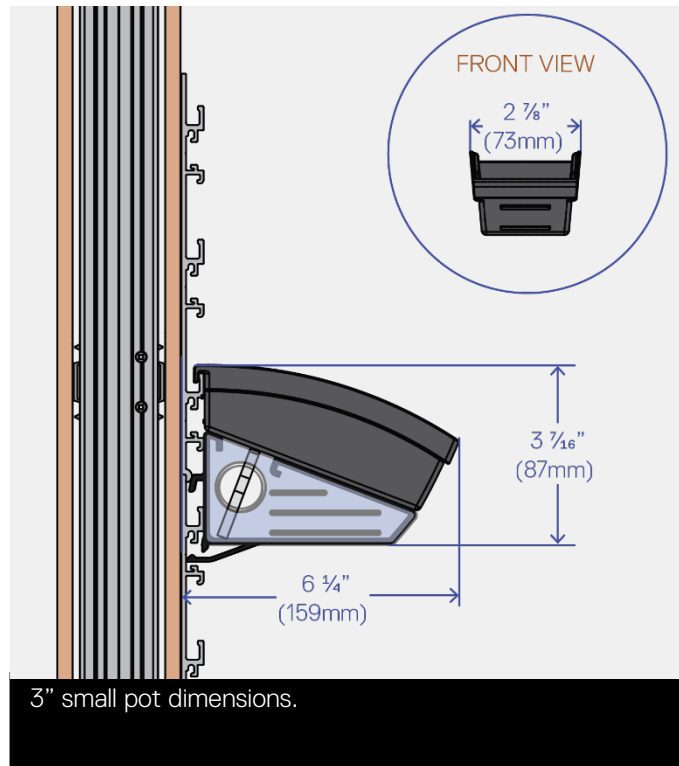
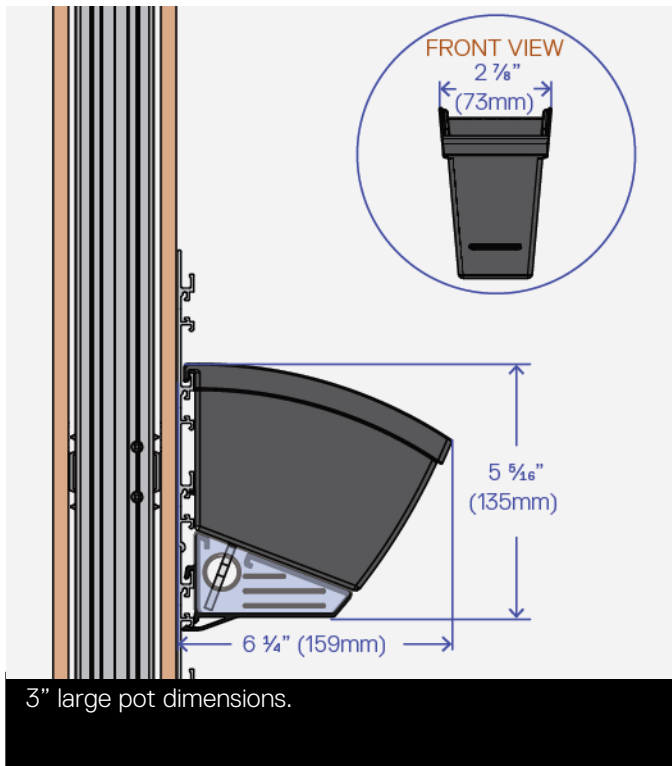


NOTE: The specific dimensions for this pot are 5 ⁷/₈" wide by 6 ¹/₄" deep by 5 ⁵/₁₆" high (149 mm wide by 159 mm deep by 135 mm high).



3" Pots

DIRTT offers 3" pots for more complex plantscape designs. They come in two options: 3" x 6" (half-standard size) and 3" x 3" (spice standard size). These pots use two wicks.



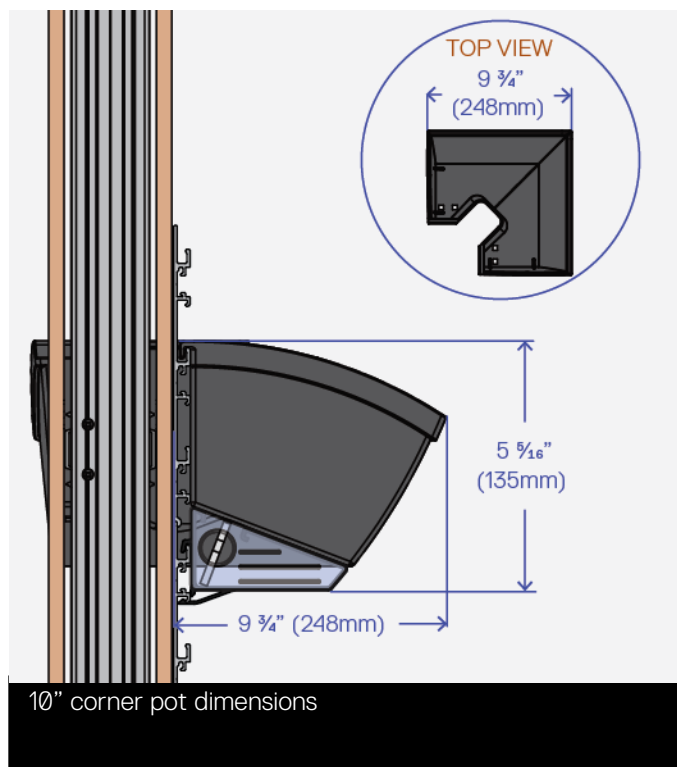
NOTE: The specific dimensions for these pots are:

- Half-standard: 2 7/8" wide by 6 1/4" deep by 5 5/16" high (73mm wide by 159mm deep by 135mm high)
- Spice standard: 2 7/8" wide by 6 1/4" deep by 3 7/16" high (73mm wide by 159mm deep by 87mm high)



10" Corner Pot

The Breathe Corner Pot 10" is used on living walls that turn a right angle or for gardens surrounding a post. Corner pots are designed for 90° corners only, but they can be used to fill non-90° corners with appropriate preparation of the slat wall supports and troughs. A space on the inside corner is provided to allow water supply hoses to pass vertically from level to level. Installation of the corner pot is the same as any regular Breathe pot. This pot uses four wicks.



NOTE: The specific dimensions for this pot are 9 3/4" wide by 9 3/4" deep by 5 5/16" high (248 mm wide by 248 mm deep by 135 mm high).



Plant Options

IMPORTANT: DIRTT does not recommend any specific plant species' suitability for the Breathe Living Wall. Designers should consult a plant library or an interior landscape professional to learn more about varieties suitable for the wall. The [Green Plants for Green Buildings](#) website maintains a list of plants known to remove volatile organic compounds (VOCs) and other pollutants.

The type of plants used in a living wall depend on several factors, including not only light levels, plant availability and design factors (e.g., color, height, growing habit) but also plant species for their ability to remove VOCs. Light is usually the most important factor governing plant choice and growth in interior environments; local or regional availability of plants is another consideration. In the correct light and with regular watering and care, plants can last at least five years before they need to be replaced.

IMPORTANT: Breathe grows best with a professional, general purpose potting mix, not dirt. Use a soil-free horticultural potting mix specific for your plants and combine it with a biofungicide to prevent root disease.



BREATHE GROW LIGHTS

Breathe grow lights help bring year-round light to the plants in a Breathe wall when natural light is insufficient or unavailable. Given the particular lighting needs of the plants in a Breathe wall, having a way to tailor lighting requirements can help to ensure the plants in the wall remain nourished and healthy.

DIRTT works with the Canadian company SunBlaster to provide horticulture lights, specifically the T5HO model, for Breathe. Below are the options available for specific slat wall lengths. For more information about the T5HO model of horticultural lights, see the [SunBlaster website](#).

PART REFERENCE—T5HO HORTICULTURAL LIGHTS

| SLAT WALL LENGTH (INCHES) | LIGHT REQUIREMENTS |
|---------------------------|---|
| 28-39 | 2'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |
| 40-51 | 3'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |
| 52-65 | 4'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |
| 66-79 | <ul style="list-style-type: none">• 2'-0" SunBlaster T5H0 Lamp, Fixture and Reflector• 3'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |
| 80-89 | 3'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |
| 90-101 | <ul style="list-style-type: none">• 3'-0" SunBlaster T5H0 Lamp, Fixture and Reflector• 4'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |
| 102-112 | 4'-0" SunBlaster T5H0 Lamp, Fixture and Reflector |



T5HO lamp and fixture.



T5HO reflector.



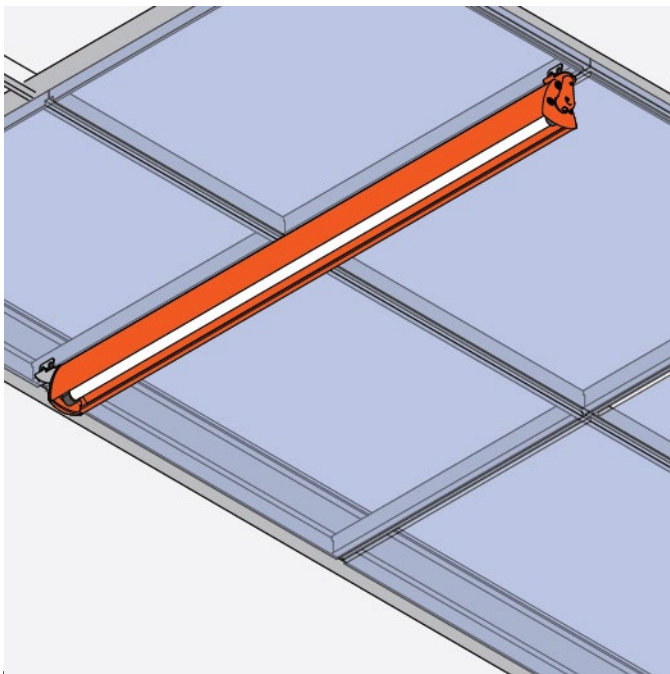
The angle and distance of the light can be easily adjusted for optimization. Lights can be mounted from Breathe slat walls, standard DIRT slat walls or from the ceiling.



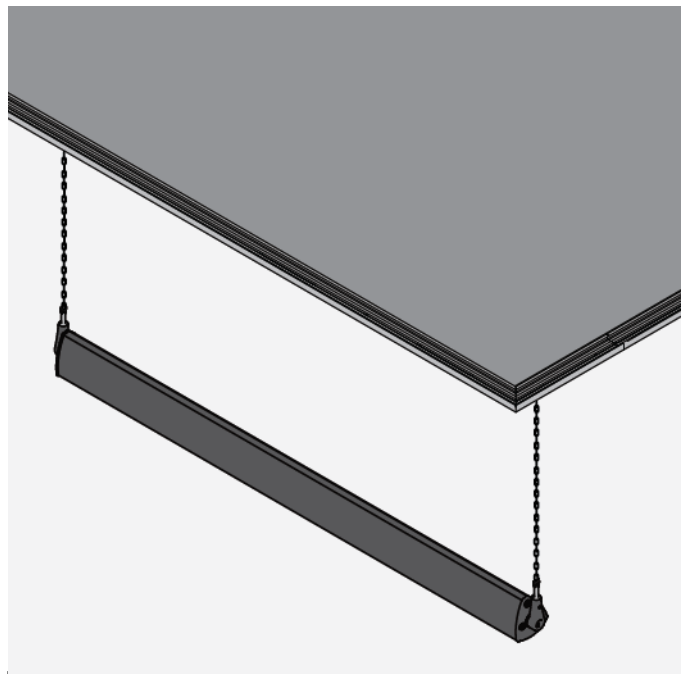
Adjustable angle at base of support rod.



Adjustable angle at head of light unit.



Breathe Light mounted to drop ceiling with tegular tile ceiling clips.



Breathe Light hung from the ceiling.



ORDERING BREATHE LIVING WALL

Pre-Ordering Information

For further information on ordering and pricing for Breathe Living Walls, see the [Breathe Wall \(Article #WAA08\)](#) from DIRTT Solution Support.

BREATHE PRICING

Download and enter your Breathe order into the [Breathe Pricing](#) spreadsheet, following the instructions outlined in the [Using the Breathe Pricing Spreadsheet](#) document.

FREIGHT QUOTATIONS

Email dirttfreightpricing@dirtt.com and include the following:

1. The destination address.
2. The preferred FedEx account to use (DIRTT's or yours).
3. The [Breathe Pricing](#) spreadsheet, complete with your order details.

ORDER ENTRY

To complete an order for Breathe Living Walls, submit the following information to orderentry@dirtt.com:

1. The purchase order (PO) number.
2. The [Breathe Pricing](#) spreadsheet, complete with your order details.
3. An AutoCAD file (in .dxf format) or ICE file:
 - a. Show the proposed Breathe wall with surrounding walls and surfaces.
 - b. Indicate where the Breathe will be placed on the wall.
4. The freight quote from DIRTT Freight Pricing.

CARE AND MAINTENANCE

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 and increase oxygen production in interior environments.



Specifying Breathe

WHAT’S IN ICE?

- Breathe Living Wall system
- Wall and counter designs
- Thermofoil finishes for DIRTT walls

WHAT’S NOT IN ICE?

- Watering systems

Ordering Breathe

BREATHE SYSTEM COMPONENTS

| FUNCTION | COMPONENT |
|------------------|---|
| Water delivery | <input type="checkbox"/> Breathe ½” clear hose <input type="checkbox"/> Watering troughs <input type="checkbox"/> Breathe 90° Elbow Connector |
| System structure | <input type="checkbox"/> Aluminum wall slats <input type="checkbox"/> Gable extrusions |

WATERING SYSTEM

| SYSTEM | DESCRIPTION |
|-----------------------------------|---|
| Manual system | <input type="checkbox"/> Trough plug <input type="checkbox"/> Water overflow container or crimped tubing (provided “by others”) |
| Portable pressurized water device | <input type="checkbox"/> Water devices (provided “by others”) <input type="checkbox"/> Optional DIRTT-supplied Hose Connector Kit and a Water Supply Connector Kit <input type="checkbox"/> Water overflow container or crimped tubing (provided “by others”) |
| Plumbing line and timer | <input type="checkbox"/> Cold-water line (installed by a licensed plumber) <input type="checkbox"/> Automatic on-off timing device |



POT OPTIONS

NOTE: Breathe pots come in black, textured ABS only.

| POT | DESCRIPTION |
|--------------|--|
| Breathe pots | <div><input type="checkbox"/> 6" standard size</div> <div><input type="checkbox"/> 3" half-standard size</div> <div><input type="checkbox"/> 3" spice size</div> <div><input type="checkbox"/> 10" corner size</div> |

GROW LIGHT OPTIONS

| COMPONENTS | DESCRIPTION |
|---|---|
| SunBlaster T5HO Lamp, Fixture and Reflector | <div><input type="checkbox"/> 2'-0"</div> <div><input type="checkbox"/> 3'-0"</div> <div><input type="checkbox"/> 4'-0"</div> <div><input type="checkbox"/> 5'-0" (2'-0" + 3'-0")</div> <div><input type="checkbox"/> 6'-0" (3'-0" + 3'-0")</div> <div><input type="checkbox"/> 7'-0" (3'-0" + 4'-0")</div> |
| System structure | <div><input type="checkbox"/> Breathe Light Assembly Hardware Pack</div> <div><input type="checkbox"/> Shroud assembly</div> <div><input type="checkbox"/> Light arm assembly</div> <div><input type="checkbox"/> Slat wall receivers</div> <div><input type="checkbox"/> Cable management</div> |
| Finish | <div><input type="checkbox"/> Black powder coat</div> <div><input type="checkbox"/> White powder coat</div> |



REVISION REFERENCE

| VERSION | INITIAL | DESCRIPTION | DATE |
|---------|---------|--|------------|
| 2.0 | MS | <ul style="list-style-type: none">• Migrated content into a new template adhering to current branding standards.• Compiled multiple documents into a single, comprehensive design and order guide• Fully updated and revised to ensure accuracy and relevance. | 2024-06-05 |