Pamela Crawford’s
Living Wall Guide
For Outdoor Use

❖ Design
❖ Planting
❖ Easy Recipes
“In my work as a garden designer, I frequently come across empty walls on the exterior of homes or in courtyards. Fences also are commonplace in the landscape.

Today’s trend towards outdoor living is teaching me to treat outdoor spaces similarly to indoor rooms. Since we are accustomed to hanging artwork in our living rooms, why not hang a living piece of art outdoors?

I decided to design a living wall planter for outdoors that was simple to use yet provided a healthy growing environment for plants. Since coming up with the basic prototype, I have had two growing seasons in which to try different designs and materials. This booklet documents the results of planting 962 plants in these planters.

I have been fascinated with the possibilities of living wall planters, and would love to see your masterpieces. Share them with me at colorgdn@aol.com.”
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### Buying Information for Living Walls

- **From garden centers**
  Go to www.sideplanting.com to find a list of garden centers near you.

- **Online**
  Go to www.kinsmangarden.com for retail and www.kinsmanwholesale.com for wholesale.

- **Phone**
  1-800-733-4146 for retail orders or 1-800-733-5613 for wholesale orders.
Thank you to Graham Kinsman and his wife, Michele (from Kinsman Company), who loved the idea from the first time I told them about it.

Thanks to Scott Driesbach, vice president of Kinsman Company, for his tireless help and advice along the way.

Thanks to Barbara Hadsell, my great friend and assistant, for helping me plant over 450 plants in these planters. She also maintained the planters at her home.

Thanks to Mickey Brooks, of Family Tree Garden Center in Snellville, Georgia for valuable design assistance.
We started with a 16” x 16” x 4” planter with room for 24 plants. The planter was too heavy for me to lift comfortably, and the plants ended up to close together. We lost more than plants I liked.

We changed the size to 14” x 14” x 5” with room for 16 Plants. It was lighter, and I was able to lift it easily. And we had a much higher success rate with plants, probably due to more room for each plant to spread.

Since the planter has a large planting area, the plants have lots of room to spread. This room causes the plants to live longer than if the planter was broken up into small cells.

We decided to try as many different plants as possible. One summer, we purchased plants strictly from retail garden centers to mimick what consumers would be able to find. The next summer, we broadened the scope and tried some major wholesalers as well.

We tested a total of 962 plants of all many different types: annuals, foliage plants, orchids, and succulents. In addition, Graham and Michele Kinsman planted a living wall with perennials in Pennsylvania.

The living wall planter is designed to hold plants with root balls ranging from 3” to 4.5” wide.

However, I tried some wild things with larger plants. I couldn’t find some of the plants I wanted to test, namely ‘Kong’ coleus and some of the bromeliads, with root balls that small. So, I bought these plants in gallon containers and really mangled the root balls in order to get them in the holes. Believe it or not, they did beautifully, but I don’t know if I would recommend this for the faint of heart!
Use potting mix (not potting soil, garden soil, or top soil) for all plants except cacti, succulents, and orchids. Use a mix specially formulated for cacti and succulents - the same mix works for both. Orchids, however, require another specialty mix (often made of coir) which will be labeled as such.

If you are hanging more than one living wall planter together, don’t plant the edges that would touch or the plants would get smushed! Fill the unplanted holes with small wad of newspaper to keep potting mix from escaping.

**Foliage Plants**

By ‘foliage plants,’ I am referring to those plants usually found in the indoor plant section of a garden center. Most have interesting leaves instead of glamorous flowers because they grow in shade, and flowers require more light than leaves in most situations. On the whole, the plants that have proved ‘tried and true’ for generations did quite well. These include pothos, bromeliads, variegated peperomia, spider plant, ferns, ivy, pilea, syngonium, rhoeo, polka dot plant, and dracaena.

The newer plants, many with lots of pretty color, did not do well on the whole. I was disappointed in the performance of Hemigraphis ‘Purple Waffle,’ and a beautiful purple and silver rex begonia, losing most of both varieties. About 50 per cent of the fittonia survived, but the survival rate increased when we changed the planter size.

One caution: Be sure to accurately assess the light conditions. Only a few foliage plants live in really dark situations.

**Annuals**

I have planted tens of thousands of annuals in side-planted baskets. Since these baskets share the same construction as the living wall planters, I assumed the same plants would thrive. That proved to be the case. Almost all the annuals really thrived, including dragon wing begonias, coleus, purple queen or purple heart, wax begonias, sweet potato vines, lantana, caladiums, torenia, and gomphrena. Only blue scaevola and the new, compact New Guinea impatiens disappointed me, with about a 50 per cent death rate. The plants were quite root bound when I planted them, however.
I tried two different kinds of Phalaenopsis (Butterfly) orchids. You can see them on pages 16 and 17. The larger ones looked beautiful (page 16), whereas the smaller ones stuck out a bit awkwardly (page 17). So, I still have a long way to go with orchids!

Common orchids found in most garden centers bloom for about two months each year. Some gardeners overwinter them and others treat them like cut flowers - throw them out when they are done blooming. Since the price of common orchids has been dropping, they are an excellent value even if you plan to keep them for a short time.

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**Succulents**

I tried lots of different sizes and shapes of succulents and learned some valuable information. Succulents that grow in really small clusters did not do well. The *Echeveria* type that look like flowers really thrived. Sedum ‘Angelina’ did well too, and proved a great textural contrast to the *Echeverias*. Since I like to cover up the coco fiber, the sedum was doubly useful.

Be sure to use potting mix especially for succulents, and don’t overwater them. **Wait until the potting mix is REALLY dry before watering.**

Succulents are the ideal choice for living walls because they need little water or root space.

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**Orchids**

I tried two different kinds of Phalaenopsis (Butterfly) orchids. You can see them on pages 16 and 17. The larger ones looked beautiful (page 16), whereas the smaller ones stuck out a bit awkwardly (page 17). So, I still have a long way to go with orchids!

Common orchids found in most garden centers bloom for about two months each year. Some gardeners overwinter them and others treat them like cut flowers - throw them out when they are done blooming. Since the price of common orchids has been dropping, they are an excellent value even if you plan to keep them for a short time.
Soak the roots of a plant in a bucket of water. Squeeze it four to six times, and slip it through the hole, roots first. Be sure the roots are on the inside and plant is on the outside. Start with the bottom row.

After finishing each layer, add potting mix up to about 3/4” from the next layer. Firm the potting mix several times with your hand. This keeps the plants from falling out when you are done.

Repeat the same process until you have finished planting the holes. Plant one layer at a time, like lasagna!

Plant the top with the plants on their sides. It helps to squeeze their wet root balls flat, like a layer. Firm the potting sandwich. This angled mix several times with planting keeps the top of the plants at a similar angle plants from falling out to the rest of the plants when you are done. Add some potting mix to the top.
Flexible holes in the planter’s cocofiber liner allow fairly large root balls to be inserted through them. The flap around the hole secures the roots and potting mix on the inside of the planter. Expect some potting mix to leak through the holes on planting day, but there is no need to lay it on its side until the roots establish. You can hang it up immediately after planting.

How To Water

Living walls are ideal for drip irrigation and we are currently testing different systems. Hand watering is easy, but takes some time because you need to water slowly, from the top, to give the water time to absorb all the way to the bottom of the planter.

Water with a gentle spray, as shown left. Keep the water moving along the top of the planter to allow it time to absorb. Keep watering until you see a steady stream flowing from the bottom. If your planters are hung one about another, water as described above plus water the front of the bottom planter until you can see that the potting mix is saturated.

How Often To Water

Water when you see signs of wilt or the soil feels dry to the touch. Use your finger to test the soil. Push it into the soil about an inch or so. Low-water plants like cacti and succulents, need less water and can go longer with dry soil. Knowing when to water is very important because many container plants die from overwatering. If the plant looks wilted and the soil has been wet for several days, the plant has drowned and will probably die. It has a fungus. You might try a fungicide if the plant is very important to you. It’s really important not to overwater living walls.

What Keeps the Plants from Falling Out

Flexible holes in the planter’s cocofiber liner allow fairly large root balls to be inserted through them. The flap around the hole secures the roots and potting mix on the inside of the planter. Expect some potting mix to leak through the holes on planting day, but there is no need to lay it on its side until the roots establish. You can hang it up immediately after planting.
Hanging

J-hooks are ideal hangers because they are easy to hang and keep the living walls hung securely. Two are included with each planter.

Keeping the Planter Away from the Wall

J-hooks keep the top of the planter away from the wall, but not the bottom. Since my walls are concrete and withstand moisture well, I have simply hung them on the J-hooks and not worried about the small area of contact.

However, if you are concerned about moisture from the planter, tuck a small spacer in between the planter and the wall - at each bottom corner. Be sure to use a material that won’t stain the wall, or absorb water. I used a small, plastic sprinkler cap and it worked just fine. I didn’t attach it with anything, just tucked it in.

Fertilizer

Fertilizer is one of the most important components of easy container gardens. Without the right fertilizer, plants will slowly turn yellow and decline. I have only found one fertilizer that works perfectly every time. And it is forgiving. If you use too much, it doesn't burn the plants.

This fertilizer is slow-release, meaning its little pellets release the nutrients over a period of time. It is a great improvement over the liquids you apply weekly with a hose sprayer!

Many potting mixes also include fertilizer. I haven’t found one yet that lasts long, so I add this one at planting time as well.
These photos show how the visual impact of living walls increases as you hang groups as compared with singles. Hang the planters with the sides touching so they look like a single unit.

Of these three images, the porch planting (right) has the most impact because it is the largest. Four planters are bung together to form a square.

Above, top: Single planter.

Above, bottom: Two planters bung side by side.
Popular Hanging Patterns

One Planter Hung Alone: 14” x 14” x 5”

Two Planters Hung Side by Side

Two Planters Hung Vertically
Popular Hanging Patterns

Four Planters Hung in a Square

Six Planters Hung in a Rectangle

Don’t Smush the Plants!

❖ When planters are planted side by side or one on top of another, don’t plant the edges that will meet or the plants will get smushed!

❖ Simply plug those holes as you plant each layer with a wad of newspaper.
Create a Natural Frame

I frequently plant one type of plant along the top edge and in the side holes, giving the effect of a living frame.

This single planter features Guzmania bromeliads and green hoya planted in the front. The sides and top edge are planted in white butterfly.

Alternate Different Plants

Alternating plants is a really easy, natural design that always works. I usually use three to five different kinds of plants.

This planter features spider plants, ivy, and pothos.
Design Ideas

Display a Dramatic, Center Focal Point

Plant a real knock-out in the center of the front, like this *Neorgelia* bromeliad. It is surrounded by white butterfly and framed with pilea. The bromeliad came in a 6” pot, which is larger than I normally plant. I really mangled the roots to get them through the small hole, but it worked!

Vary the Shape and Size of Flowers and Leaves

This planter includes strap-leaf caladiums alternated with New Guinea impatiens in the front. Spider plant forms the frame.

The difference in leaf sizes - large, arrow-shaped caladium leaves and long, narrow spider plant leaves - makes this planter design pop.
**Light:** Medium to dense shade.

**Season:** When temperatures range from 55 to 90 degrees.

**Lifespan:** Butterfly orchids bloom for about two months. Both orchids and tropical ferns live for years if kept in a frost-free location. Neither plant requires much root space, making them ideal for long-term living walls. See page seven for more info about orchids.

**Care:** Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I planted five butterfly (*Phalaenopsis*) orchids on the front of the planter, plugging the empty holes with newspaper. Nine ferns filled the side holes and the top edge. I finished by applying Oregon Moss (see page seven) wherever the cocofiber was visible.
Smaller Butterfly Orchids

Light: Medium to dense shade.

Season: When temperatures range from 55 to 90 degrees.

Lifespan: Butterfly orchids bloom for about two months. Both orchids and tropical ferns live for years if kept in a frost-free location. Neither plant requires much root space, making them ideal for long-term living walls. See page seven for more info about orchids.

Care: Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

Planting Plan: I planted 18 butterfly (Phalaenopsis) orchids on the front of the planter, plugging the empty holes with newspaper. 15 ferns filled all the side holes and the top edge. I finished by applying Oregon Moss (see page seven) wherever the cocofiber was visible.
Light: Medium to light shade. All these plants would also work in full sun, except the ‘Kong’ coleus, planted in the center.

Season: When temperatures range from 45 to 97 degrees.

Lifespan: Four to six months. These plants are annuals, which only live one season.

Care: Fertilize on planting day with a slow-release mix described on page six.

Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

Planting Plan: ‘Kong’ coleus are planted in the center holes of the front. I could only find it in gallon pots, which are larger than the planter is designed for. However, after reducing the root ball by 50%, soaking them in water, and man-handling them into the holes, they survived and flourished! The rest of the planter was planted with ‘Vino’ and ‘Gay’s Delight’ coleus alternated with Sunpatiens ‘Compact Lilac’ and Sunpatiens ‘Compact Magenta.’ Some of the Sunpatiens died, which had never happened to me before. This is the first time I ever tried the compact type, and that could account for the losses. This arrangement required a total of 54 plants in four planters arranged in a square.
**Light:** Light shade to full sun. Although many coleus and caladiums won’t take full sun, these do.

**Season:** When temperatures range from 70 to 95 degrees.

**Lifespan:** Four to six months. These plants are annuals, which only live one season.

**Care:** Fertilize on planting day with a slow-release mix described on page six. Repeat if the leaves of the plants look yellowish or washed out.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** ‘Florida Sweet Heart’ caladiums are planted in the center holes of the front. These strap-leaf caladiums are quite a bit smaller than the more common caladiums. The rest of the planter was planted with ‘Vino’ and ‘Wasabi’ coleus alternated with pink wax begonias and blue torenia. This arrangement required a total of 54 plants in four planters arranged in a square.
**Light:** Light shade to full sun.

**Season:** When temperatures range from 45 to 95 degrees.

**Lifespan:** About four months. These plants are annuals, which live for one growing season in most areas.

**Care:** Trim as needed. Fertilize on planting day with a slow-release mix described on page six. Repeat if the leaves of the plants look yellowish or washed out.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I alternated lime coleus, ‘Solar Flare’ coleus, pink wax begonias, purple sweet potato vine, and purple queen in this single planter. I used a total of 18 plants.
**Light:** Light shade to full sun.

**Season:** When temperatures range from 45 to 95 degrees.

**Lifespan:** About four months. These plants are annuals, which live for one growing season in most areas.

**Care:** Trim as needed. Fertilize on planting day with a slow-release mix described on page six. Repeat if the leaves of the plants look yellowish or washed out.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I alternated lime coleus, ‘Solar Flare’ coleus, red dragon wing begonias, purple sweet potato vine, and purple queen in two living wall planters hung side by side. I used a total of 30 plants.
Light: Light to medium shade. The strap-leaf caladiums and torenia take more sun, but not the ferns.

Season: When temperatures range from 70 to 95 degrees.

Lifespan: Four to six months. The ferns can be overwintered inside your home.

Care: Fertilize on planting day with a slow-release mix described on page six. Repeat if the leaves of the plants look yellowish or washed out.

Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

Planting Plan: I alternated ‘Candyland’ strap-leaf caladiums and pink torenia in the front. Ferns are planted in the side holes and along the top to provide a natural frame in this single planter.
**Light:** Light to medium shade.

**Season:** When temperatures range from 70 to 95 degrees.

**Lifespan:** Four to six months. The spider plants can be overwintered inside your home.

**Care:** Fertilize on planting day with a slow-release mix described on page six. Repeat if the leaves of the plants look yellowish or washed out.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I alternated ‘Red Ann’ fittonia and pink torenia in the front. Spider plants are planted in the side holes and along the top to provide a natural frame in this single planter.
**Light:** Medium to dense shade. Leaves burn with ANY direct sun.

**Season:** When temperatures range from 45 to 95 degrees.

**Lifespan:** These plants live for many years in tropical areas. They should last about a year in living wall planters if kept in temperatures above 45 degrees. Since they thrive in shade and are relatively inexpensive, these plants are also useful in cooler areas for summer decoration even if you don’t plan to overwinter them inside.

**Care:** Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I planted a ‘Neorgelia Fiesta’ bromeliad in the center hole. Although it came in a 6” pot, which is a little large for this planter, I reduced the root ball to about 4”, soaked it in water, and it slipped right in! Pink polka dot plant is planted in the remainder of the holes in the front while ferns provide a natural frame. This single planter required 18 plants.
**Light:** Light to medium shade. Leaves of these bromeliads take more sun than most.

**Season:** When temperatures range from 45 to 95 degrees.

**Lifespan:** These plants live for many years in tropical areas. They should last about a year in living wall planters if kept in temperatures above 45 degrees. Since they thrive in shade, these plants are also useful in cooler areas for summer decoration.

**Care:** Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I planted three ‘Neoregelia Petra’ in the center of three of the planters. The Although they came in 6” pots, which is a little large for this planter, I reduced the root ball to about 4”, soaked it in water, and they slipped right in! Variegated peperomia, ferns, and spider plants are alternated in the remaining spaces of the six planters. I finished by applying Oregon Moss (see page seven) wherever the cocofiber was visible.
Light: Light, medium or dense shade. Leaves burn with ANY direct sun.

Season: When temperatures range from 45 to 95 degrees.

Lifespan: These plants live for many years in tropical areas. The bromeliads stay in bloom about two months and occasionally bloom from a new offshoot the following year if kept warm in the winter. They should last about a year in living wall planters if kept in temperatures above 45 degrees. Since they thrive in shade, these plants are also useful in any climate for summer decoration.

Care: Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

Planting Plan: I planted alternated Guzmania bromeliads with white polka dot plant on the front of this single planter. The side holes and top edge are planted with ferns. This arrangement requires 18 plants.
**Light:** Light, medium, or dense shade.

**Season:** When temperatures range from 45 to 95 degrees.

**Lifespan:** These plants live for many years in tropical areas. They should last about a year in living wall planters if kept in temperatures above 45 degrees. Since they thrive in shade and are relatively inexpensive, these plants are also useful in cooler areas for summer decoration even if you don’t plan to overwinter them inside.

**Care:** Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

**Water:** Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

**Planting Plan:** I planted five Cryptanthus ‘Ruby Star’ bromeliads as shown in some of the holes in front. The rest of the holes and top edge are planted with ‘Neon’ pothos. This single planter required 18 plants.
Light: Medium to dense shade.
Season: When temperatures range from 45 to 95 degrees.
Lifespan: These plants live for many years in tropical areas. They should last about a year in living wall planters if kept in temperatures above 45 degrees. Since they thrive in shade, these plants are also useful in cooler areas for summer decoration.
Care: Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.
Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).
Planting Plan: I bought an assortment of 54 indoor plants (dracaena, pothos, fittonia, ferns, spider plants) and alternated them throughout the arrangement. This living wall featured four planters arranged in a square.
Foliage Plants

Light: Medium to dense shade.

Season: When temperatures range from 45 to 95 degrees.

Lifespan: These plants live for many years in tropical areas. They should last about a year in living wall planters if kept in temperatures above 45 degrees. Since they thrive in shade, these plants are also useful in cooler areas for summer decoration.

Care: Fertilize on planting day with a slow-release mix described on page 6. Repeat every six to nine months.

Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page 9).

Planting Plan: I alternated spider plants, ivy, and pothos in this living wall, which fills one planter. I used a total of 18 plants.
Light: Light shade to full sun.

Season: Thousands of succulents are available. Most don’t take freezes, but quite a few tolerate cold well. Match your succulents to your climate.

Lifespan: Succulents live for years if kept in location that suits their temperature needs. Neither plant requires much root space, making them ideal for long-term, living walls.

Care: Fertilize on planting day with a slow-release mix described on page six. Repeat every six to nine months.

Water: Water thoroughly if the plants show signs of wilt, or the soil feels dry when you push your fingertip into the potting mix (see page nine).

Planting Plan: I chose mainly *Echeveria* succulents and alternated them with *Sedum* ‘Angelina.’
Pamela Crawford, author of ten gardening books, is considered one of the most accomplished container garden experts in the country. In addition to designing gardens for over 1500 residences, her work has been featured on the cover of Better Homes & Gardens publications as well as in Southern Living, HGTVMagazine, Fine Gardening, Country Gardens, Country Almanac, Small Gardens, and in over 2500 hundred newspapers. As an expert in her field, she has appeared on the Fine Living Network, gardenloverstv.com, Fox News affiliates and numerous local tv shows. She recently was featured as a container garden expert on five episodes of GardenSmart TV.

Pamela has an undergraduate degree from Vanderbilt University and a masters degree in landscape architecture from Florida International University, where she received the prestigious ‘Torch Award’ as an outstanding alumnus from the school of architecture. Pamela is Vice President of Landscape Architecture at Botanical Visions in Boca Raton, Florida. She also designs products for Kinsman Company. You can reach Pamela at colorgdn@aol.com.
Pamela Crawford’s
Living Wall Guide

Planting: Easy as 1-2-3!

Step 1: Wet the root balls of the plants, squeeze them, and slide them through the bottom row of holes. Add potting mix.

Stand the planter on a table because you will be planting from the top.

Step 2: Repeat the same process until you have finished planting the holes. Plant one layer at a time, like lasagna!

Step 3: Tuck in the edge plants along the top. Hang the planter with the enclosed hangers.