Build a Concrete Block Raised Bed Garden
Version 3

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Crave

I’ve always craved a rewarding garden experience. My first encounter with dirt was a discouraging one. As a young boy, I imagined becoming a grower of sorts and spent a portion of my skimp allowance on a package of sunflower seeds. I intended to use a shovel and turn over a small patch of ground, plant the seeds, and then nurse the seedlings along until they looked like the flowers pictured on the front of the packet. My family lived in a mobile home situated on a treeless one-acre rural lot in hills of upstate New York. I quickly discovered that the land there was quite rocky and troublesome to dig in. Determined to succeed, I persevered and planted several seeds according to the printed instructions on the back of the pack. After that, I began to water the spot profusely each day. After three days, to my surprise, nothing happened. I then purchased a small container of water-soluble fertilizer to boost the nutrient content of the soil and to expedite the germination process. When my level of expectation finally got breached, I dug into the ground, looking for the seeds I had planted. To my dismay, there were no seeds. It was as if I had sowed nothing. Being my parents were from a farming background; they took pity on me and decided to pay a local farmer to plow a right-sized family plot. To my recollection, the family plot produced little and got abandoned after the first year.

My passion for gardening has increased over the past 50 years, and there appears to be no obstacle that can dissolve my love affair with soil and plants. I’ve seen some people give up on their gardens because of the trouble they encounter. I would encourage you to stick with it. Some of the problems we run into are a result of our lack of understanding and application. I have made my share of mistakes and have had to chalk them up to the learning experience. Apart from that, dreadful weather events have occasionally occurred that have wiped out my seasonal efforts. Somehow these happenings, either self-inflicted or beyond one’s control, need to strengthen our resolve and help us become better gardeners. They’re all part of the growing process.

A productive garden is an asset that will claim some of your time and money. Be wise when making gardening decisions, and don’t take on more than you can reasonably manage. Be conservative in your approach until you gain enough knowledge and confidence to expand your horticultural ideas.
Consider

If you are considering a raised bed garden, you are on a well-beaten path to a favorable outcome. This form of gardening is an excellent choice for both novice and expert gardeners because it offers many options and advantages. Gardens do not spontaneously appear in nature. They are human-made environments sustained through human intervention. The most labor-intensive gardening chores are related to bed upkeep and plant care, so keep these activities in mind as you develop your garden strategy.

Simply defined, a raised bed is a large container. As with all container gardens, the gardener must take into account size, functionality, usability, aesthetics, materials, and maintenance. There is a myriad of options to capture one’s imagination during the purchasing and construction process. This guide addresses one only of these options; the concrete block raised bed. I have successfully built and used many types of raised beds over the years. I’ve concluded that concrete block garden structures are an excellent choice for larger suburban applications where ground quality is poor. Whatever your preferences are, it is vital that your garden gives you a sense of personal satisfaction and is not a burdensome place to work and play in. Happiness is a benefit of well-planned garden spaces.

Before you commit resources to an outdoor project, write down your gardening goals, contemplate your current financial situation, research your options, and stay within your budget. Garden size affects all other factors, such as time and cost. Big infers “a lot,” so set sensible boundaries and expand your garden area over time if need be.

Construction materials determine the longevity of raised bed garden structures. A goal may be to minimize the replacement of structures due to weather-related deterioration or rot associated with soil contact. Bed restoration is time-consuming and costly. An initial expenditure for more durable materials will save you hours and dollars in the long run.
Calculate

Estimating the cost of a project can be tricky if you’ve never done it before. Here is a list of things to take into account as you plan:

- Tools for both garden construction and maintenance, which includes any power tools
- Garden bed construction materials. Materials include large garden containers, if applicable
- Drainage and soil components
- Fertilizers and pest control items, such as manures, sprays, fences, etc
- Plants and seeds (annuals, perennials, bushes, shrubs, and trees)
- Gardening books
- Labor

This publication will now guide you through the necessary steps on how to construct a Concrete Block Raised Bed Garden space.

Step #1: Determine the garden location.

- Create a simple birds-eye view sketch of the area where you want to include a garden space. Take measurements. Show applicable features including; boundaries, fences, buildings and outbuildings, paved areas, trees and shrubs, water features and sources, septic tank cover, poles, compass points, and others.
Mark (X) locations on the **sketch** where the beds get placed. Consider; obstacles, sun exposure (shaded areas), ground grade, existing soil quality, access to water sources, proximity to the kitchen, etc.

**Step #2: Review the concrete block information.**

There are 3 types of lightweight concrete blocks used, as illustrated (left to right).  
1) **Full size Standard Cored** Concrete Block (Common: 8-in x 8-in x 16-in; Actual: 7.625-in x 7.625-in x 15.625-in),  
2) **Solid Cap** Concrete Block (Common: 16-in x 4-in x 8-in; Actual: 15.625-in x 3.625-in x 7.625-in), and  
3) **¼ size Standard Cored** Concrete Block that is approx. 8-in x 8-in x 8-in.

!! **Important Note** !! A garden bed needs to be at least 16 inches deep to root various types of plants adequately. Cored blocks are eight inches in height, and Cap blocks are four inches in height. The number of blocks required increases substantially as the height of the bed increases. Concrete blocks can be dyed a color. Dye blocks before assembling the raised beds.
Step #3: Lay out the bed “DESIGN” on the grid. Each cell is equal to 8 inches, and 2 adjacent cells represent one full size Cored or Cap block.
Step #4: Record all measurements on the DESIGN grid.

Jot down the length and width of all areas.

Collect

Step #5: Gather the tools and materials needed to construct the raised bed area.

Get tools and materials from local home improvement stores and garden centers.

Tools Checklist

☐ Power cultivator/tiller (optional)
☐ Wheelbarrow (optional)
☐ Shovel (Pointed-tip for digging)
☐ Garden rake
☐ Tamp (8” preferred)
☐ Broom
☐ Line level, 6-8” small level, and 36”+ large level
☐ Tape measure
☐ Large square (helpful)
☐ Landscape flags/stakes (for positioning)
☐ Mason hammer (for cutting blocks)
☐ Mason chisel (for cutting blocks)
☐ Paintbrush (if dyeing blocks)

Structural Materials Checklist

☐ Lightweight concrete blocks and capstones (do not use cinderblocks)
☐ Paver base (a mixture of gravel and sand)
☐ Drainage rock
☐ Fast-setting concrete mix (optional)
☐ Mason sand (optional)
☐ Concrete cleaner/etch (if dyeing blocks)
☐ Concrete dye (if dyeing blocks)

Soil Materials Checklist

☐ 50:50 Topsoil/Compost mix (from a local gravel/soil provider $), or Miracle-Gro Raised Bed Garden Soil mix (recommended $$)
☐ Vermiculite or peat moss (for water retention, per instructional use)
☐ Rotted manure or Black Kow (bagged is recommended $$, up to 50% of the soil composition)
☐ Granular organic fertilizer (Various, per instructional use)
Construct

Step #6: In your outdoor space, stake or flag the corners of the proposed garden beds.

Use a tape measure and mark (stake or flag) where the corners of the garden bed will be. Make any adjustments to the position of the raised bed based on the results observed.

Step #7: Determine the highest point and lowest point of the garden space.

Use a line level (with string) to determine the grade/slope of the garden area. Note the highest point and lowest point along the perimeter of the DESIGN area.

!! Important Note !! Base blocks are the concrete blocks that are placed at the lowest level of the bed wall and are the foundation blocks for all upper wall blocks. Correctly “setting” these blocks is the most crucial step in the construction of the garden bed.

Step #8: Determine where to set the 1st base block in the garden bed area.

Refer to the following sketch to make this determination:
Per the illustration, this garden plan is two 4’ x 8’ beds (vertical) connected by an intermediate 4’ x 3’ bed (horizontal), forming an H-shape design. Corners (A, B, C, D) and mid-points (E, F) are reference points.

- If “A” is the HIGHEST point and “B” is the LOWest point, then place the 1st base block at “E” (one of the 3 points).
- If “D” is the HIGHEST point and “B” is the LOWest point, then place the 1st base block at either “A” or “C.”
- If “C” is the HIGHEST point and “B” is the LOWest point, then place the 1st base block at “F.”

**Step #9: Set the 1st base block.**

A base block (cap block in this example) gets set below the ground surface at a depth of 2-4 inches. Prepare (dig out) an area slightly larger than the base block. Add a thin layer of drainage rock to the prepared area and tamp. Next, spread the paver base across the spot and re-tamp. Set the base block in the area and check to see if it is level in all directions. If needed, add more paver base, tamp, and reset the base block until it is completely level in all directions.

**Step #10: Set the remaining base blocks.**

The remaining base blocks are added, in-line, with a previously placed base block. The next base block is leveled in the same manner as the 1st one and pressed tightly against its neighboring block. The top surfaces of the base blocks must be even and level with each other. Corners get placed the same way. Setting the base blocks is a tedious process, but it is the most crucial process in the construction of the raised bed. If the base blocks get placed correctly, all upper rows of Cored or Cap blocks will be level and fit tightly together. Keep in mind, measuring, squaring, and leveling get performed consistently to ensure a visually pleasing result when finished.
**Step #11: Stack the wall blocks.**

All of the base blocks get placed before stacking the wall blocks. Stack all remaining Cored and Cap blocks to finish the designed structures. If need be, Caps can be scored and cut using a mason hammer and chisel.

**!! Important Note !!** If the height of the bed wall exceeds 24 inches, then secure the corner Core blocks using a fast-setting concrete mix in the Core block openings. When connecting adjacent beds, consider staggering the blocks to lock the beds into place.

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**Step #12: Fill the concrete block raised bed with a soil mixture.**

a) Retain as much of the native soil (rock-free) as possible.

b) Combine quality composted materials to the native soil at a rate of 1:1 (use a bagged in-ground garden soil mix). This mixture of native soil and bagged soil forms the bottom-most layer of dirt in the raised bed.

c) **Add a garden soil mix** (topsoil + compost, or a bagged organic raised bed soil) and **rotten manure** (bagged preferred) **to the bed.** Rotted manure can be up to 50% of the mixture.

d) Add peat moss or horticultural vermiculite to the raised bed per instructional use.

e) Thoroughly combine all of the soil elements and level the mixture.

f) Add a granular organic fertilizer to the top 6-8 inches of the raised bed soil mixture per instructional use.
Cultivate

Step #13: The raised bed is ready for use.

Celebrate

Step #14: Personalize the garden space.

A garden is an extension of your creativity and preferences!