

Design and Materials for Accessible Garden Paths

An important consideration when creating or updating a youth garden is accessibility. Good pathway design using the proper materials is one key to making all of your young gardeners — and visitors — feel welcome. This article offers an overview of the principles of pathway design and takes a deeper look at the benefits and drawbacks of various construction materials.



Who Benefits from Accessibility? Everyone!

According to the Centre for Excellence in Universal Design (<https://universaldesign.ie/what-is-universal-design/>), "Universal Design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability.... This is not a special requirement, for the benefit of only a minority of the population. It is a fundamental condition of good design."

Although wheelchair access often comes to mind when discussing garden accessibility (and it's an important consideration!), everyone benefits from well-designed garden paths. People with vision impairment or balance issues, people on crutches, and even gardeners lugging watering cans or pushing a wheelbarrow all appreciate smooth, level, easily navigable paths.

General Considerations for Garden Paths

Accessibility is influenced by many factors, including the layout, slope, width, and surface.

Layout: Gentle curves are easier to navigate than sharp corners. Open sightlines ensure good visibility of oncoming traffic on the path. Seating areas invite visitors to rest if desired. Although it may not be possible to make every garden nook accessible, all major garden areas should be linked by accessible pathways.

Slopes: Per the Americans with Disabilities Act (ADA), the running slope of walking surfaces should not be steeper than 1:20. (Any gradient steeper than 1:20 is considered a ramp, with special design considerations.) This translates to a 5% slope. As a percentage, slope is the rise

divided by the run. For example, a 1' rise over 20' is a 5% slope (1 divided by 20 = .05). Learn more about ADA guidelines later in this article.

Width: An accessible walkway must be at least 36" wide. However, this width limits accessibility for wheelchair users that require (or desire) that someone walk alongside them. When possible, make paths at least 42" wide. Wheelchairs require a 60" space for turning around, so plan for wider walkway sections at regular intervals.

Surface: The surface of paths should be firm, stable, and slip-resistant. Large holes, cracks, and other surface irregularities can cause trips and falls and may create barriers for wheelchairs. Water should drain freely from the path's surface.

Pathway Surfaces Comparison

Concrete (\$\$\$\$). In-situ concrete (that is, concrete that is poured on-site) is one of the best options for accessible, long-lasting paths. Concrete surfaces are generally smooth, relatively non-slip, and have seams that are narrow and infrequent.

Concrete walkways require careful site preparation and on-site access for concrete delivery, so up-front costs can be high. However, they are long-lasting and require minimal maintenance. If you consider spreading the installation cost over the life of the walkway (which can be up to 50 years!), concrete may turn out to be an affordable option.

We've all seen concrete sidewalks that have buckled due to tree root growth, and this should be a consideration when laying out garden paths. If possible, choose routes away from large trees. Also, in cold-winter areas, concrete is prone to frost heaves and cracks due to expansion and contraction. Inspect concrete walkways regularly and replace any sections that have buckled, heaved, or have large cracks.

Asphalt paving (\$\$\$). Another good option, asphalt paths are smooth and easy to navigate. Compared to concrete, they're less likely to heave and crack in cold weather. However, in hot-summer regions, asphalt can soften and get sticky and oily. Also, due to its dark color, asphalt surfaces exposed to high air temperatures and direct sunlight can get very hot.

Asphalt is usually less expensive than concrete. (Note that asphalt contains petroleum products so prices may vary with changes in crude oil prices.) However, asphalt paths generally don't last quite as long as concrete, though they may last up to 30 years depending upon climate, installation, and other factors.



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Some types of asphalt are made with recycled materials — including used road asphalt that's been dug and ground up — making them earth-friendlier options.

Crushed stone/driveway gravel (\$\$). Sometimes called "1/4 minus," this type of gravel is made up of crushed stone that has been sifted so that it includes only small (1/4" or less) pieces. The small size and angular shape of the individual pieces allows them to lock together and pack down, creating an almost cement-like surface.

Although the material itself is less expensive than concrete and asphalt, proper site preparation and installation are key. In most cases, soil must be excavated down 6" and a layer of coarser gravel added for drainage. This site work decreases — but doesn't eliminate — the occurrence of ruts, divots, and washed-out areas. Regular inspection and maintenance are required to keep the pathway smooth.

Note: Avoid using pea stone (aka pea gravel) for walkways. Because it's composed of rounded pieces of rock, it doesn't pack down, creating a loose surface that is difficult to walk on. (Imagine walking on marbles!)

Decomposed granite. When solid granite — a hard, igneous rock — is exposed to rain, sun, frost, and other environmental conditions, over time it begins to flake and crumble into various-sized particles. These particles are further crushed and sifted to produce a uniform product.

There are three types of decomposed granite (DG) used for walkways:

- "Loose" or "Natural" DG (\$) is made up of 1/4" or smaller pieces with no additives and can be compacted to create a relatively smooth surface. Because the rock pieces aren't bound together, paths made up of this material are subject to erosion and scattering.
- "Stabilized" DG (\$\$) has a stabilizer mixed in with the granite aggregates that helps bind the pieces together. Although it's more expensive, stabilized DG packs down better and is less susceptible to erosion, so it has a longer lifespan and requires less maintenance than loose DG.
- "Resin-coated" DG (\$\$\$) is the most expensive option. The addition of resin creates a hard, smooth, durable surface similar to asphalt in durability.

Materials to Avoid

Concrete pavers. Commonly used in home landscapes for paths and patios, pavers can be an affordable option. However, even with careful site preparation and expert installation, a path made from pavers can be problematic. For example, the cracks between individual pavers, along with heaving from frost, can cause the walkway surface to become uneven and create a tripping hazard. Bricks (made from baked clay) are less durable than pavers, making them a poor choice for paths.

Grass. In rare instances, carefully installed and well-maintained grass paths are smooth, hard, and flat enough to be easily navigated, but this is the exception rather than the rule. In general, grass paths get lumpy and rutted with use, become soft and muddy after a rainstorm, and require frequent maintenance and occasional renewal. Grass paths must be also be accessible to and wide enough for mowing equipment.

Mulch. Although attractive, bark mulch readily scatters and erodes, and creates a rough, unstable surface.

Wood. Like mulch, a wooden walkway can be attractive. However, a wooden path is difficult to construct into a smooth, flat surface. Along with the inevitable gaps, wood can be slippery in wet conditions, and may crack and heave due to frost.

ADA Compliance

The Americans with Disabilities Act (ADA) is a federal law that promotes the principles of Universal Design throughout its regulations. First passed in 1990, it prohibits discrimination on the basis of disability status and ensures people with disabilities have equal opportunities in employment, access to government services, and access to public places. If you wish to fully complying with ADA accessibility standards, refer to their website (<https://www.ada.gov/>), as well as their publication *Guidance on the 2010 ADA Standards for Accessible Design* (https://www.ada.gov/regs2010/2010ADAStandards/Guidance_2010ADAStandards.pdf)

Tips

- Although shrubs and overhanging border plants along a path can be attractive, they can also impede traffic. Path maintenance will need to include regular pruning.
- Incorporate lighting along paths that will be used after dark.
- Inspect all paths regularly so any problems can be remedied quickly.



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