

Pedestrian Bridges Made Easy

EXPLORING YOUR OPTIONS
FOR A CUSTOM DESIGN



AXCESS

Span the Gap

At Axxcess, LLC we're passionate about giving people opportunities to enjoy the natural world. Our bridges improve access to outdoor activity in municipalities, parks, land developments, golf courses, and private home settings.

Pedestrian bridges are our area of expertise and our primary focus. We have a unique one-stop business model that covers everything from exploring bridge concepts and design to building and installation. And that makes it easy and affordable to build the bridge that meets your visual and functional requirements.



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SPAN THE GAP

How to Get from an Idea to a Completed Structure

Access can replace an existing bridge or install a brand new one on trails, across roads, or over waterways. While it's easy to see where a bridge is needed in your landscape, it's harder to know how to start planning. These questions will help you define your project:

- **What's your vision?** From a simple footbridge to a grand suspension bridge, and everywhere in between, start by visualizing the final bridge in your setting. Bridge style, material choices, and color options can be used to create your desired aesthetic.

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- **What distance will the bridge span?** The distance a bridge must span may determine the appropriate style of the structure (e.g. truss, beam, etc.). If the bridge crosses a waterway, the span must also include the associated floodway area, which can make for a longer bridge.
 - **How will it be used?** Do you anticipate light, moderate, or heavy pedestrian traffic? Will there be any vehicle or horse traffic? These live load requirements for the bridge and environmental factors like heavy snow or ice can also influence some design decisions.
 - **What other goals do you have for the project?** These can include low- or no-maintenance construction, special features like lighting or benches, and accessibility and safety requirements.
 - **Where will the bridge be located?** Our bridge structures are prefabricated and transported to your site intact or in several large pieces for installation. Certain bridge styles are made of heavy materials and require large equipment to move and are therefore not suited to remote locations such as hiking trails. Lighter materials, such as fiberglass, may be more appropriate for remote installations than a heavier material such as steel.
 - **How much time do you have?** Our end-to-end services cover your project from initial planning and design, through installation and even final landscaping. This saves you the time and hassle of vetting and coordinating separate contractors for each phase.
 - **What's your budget?** Cost is always a consideration so we have developed relationships with suppliers to help keep costs low, even for "advanced" and "engineered" materials. Our turnkey business model ensures you get expert design and installation service as a package, which further reduces expenses. While each project is unique and final prices vary, plan on approximately \$150.00 to \$300.00 per square foot of installed bridge.



O'Bannon Creek Bridge, Loveland, OH

Dimensions:

Bridge span:	50 feet
Bridge width:	7.7 feet
Bridge weight:	22,000 pounds

Project goals:

- Maintenance free design.
- Non-truss style bridge structure.
- Cost-effectiveness.

Acess designed a bridge without trusses that combined a fiberglass deck with co-fabricated weathering steel beams and an aluminum railing. This design expanded the bridge to 50 feet in length, which is longer than typical bridge spans for a non-truss structure. This maintenance-free solution also ensures the City will have minimal upkeep and maintenance requirements for the life of the bridge.



UNDERSTANDING

The Options

Bridge style is the first big decision to make when planning your project. If you have a very specific visual effect in mind, it's important to understand that the required span, or length, may limit the acceptable styles in order to maintain structural soundness.

If the bridge crosses a waterway, the span must be determined by the floodway area below the structure and may be considerably longer than simply the width of the stream or waterway it crosses. Typically, no construction is done in the floodway, which is the portion of the floodplain that carries the highest flow rates during a flood event. This is to ensure there is no backup of water or flooding upstream. For example, a creek that is 10 feet wide may require a 45-foot long bridge to keep from infringing on the floodway. Our engineers will visit your site and analyze floodplain maps to determine the exact span required and advise you on appropriate bridge styles.

Beam

This is a very common style for spans up to 40 feet. Wood or steel beams are placed underneath the bridge to span the load between concrete abutments.



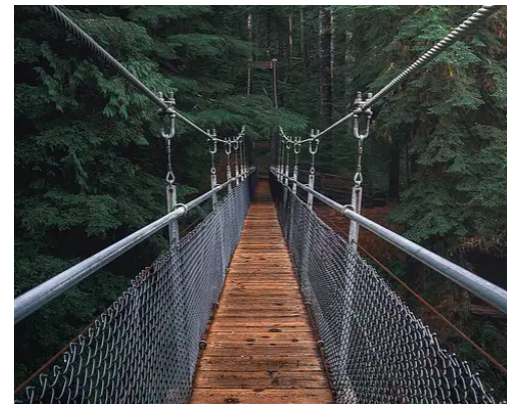
Truss

This style can accommodate spans from 30 to 200 feet and just about any width. Material options include galvanized, painted, or weathered steel as well as fiberglass. The railing is integrated into the truss structure, which extends above the deck. In a floodplain setting, truss bridges may be a better choice than beam bridges because very little of the structure is below the deck surface, allowing the bridge to sit at a lower elevation.



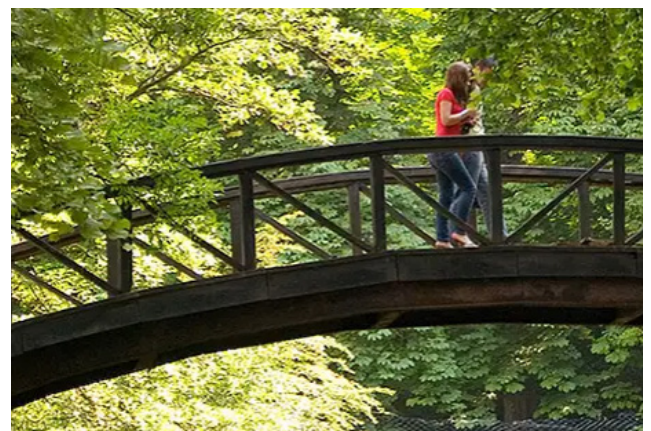
Suspension/cable-stayed

These bridges create a signature look in any location, from a sleek, modern appearance to a dramatic, decorative effect. They are primarily used for very long spans (usually over 80 feet) that cannot be easily achieved with other bridge styles.



Arch

This style is best for spans of 20 to 50 feet. The arch structure can be located above or below the bridge, and the gently curved surface creates a unique aesthetic.





MATERIALS

For Support and Durability

We work with a variety of durable and beautiful materials, including engineered materials like fiberglass reinforced polymer (FRP), composite lumber, and weathering steel, as well as treated lumber, aluminum, and concrete.





While it is possible to mix and match materials to achieve a desired visual effect, some combinations do not work well together and may cause accelerated corrosion or higher project costs. Axxess has the engineering expertise to walk its customers through those material choices to ensure a solutions that will last long into the future.

The American Association of State Highway and Transportation Officials (AASHTO) dictates the loading requirements for pedestrian bridges, which we follow:



- Must accommodate “live” loads, which are objects that move across the bridge (e.g. people, animals)
 - Designed for 90 pounds per square foot of pedestrian live load
 - When intended to be used for equestrian traffic, design must accommodate a patch load (i.e. concentrated load) of 1,000 pounds over a 4-inch by 4-inch square area
 - Pedestrian bridges that are seven to 10 feet wide must be designed for a 10,000 pound vehicle, while those more than 10 feet wide must be designed for a 20,000 pound vehicle
- Must accommodate stationary loads, which remain in one place (e.g. benches)
- Loading also includes environmental factors like wind, ice, snow, and seismic conditions

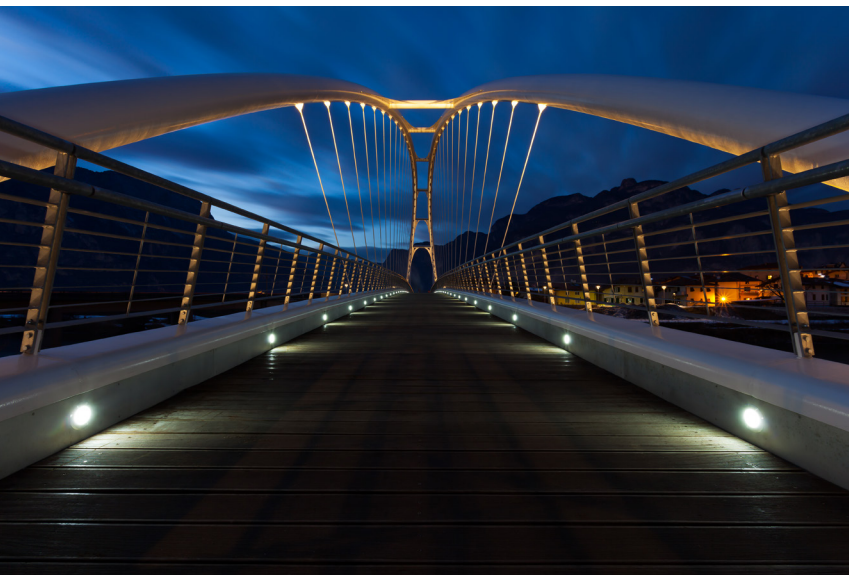
The structural elements of a bridge are those materials that bring the loading to the abutments. These materials usually require high strength and stiffness to be cost effective. The chart below details some critical factors to compare for structural elements:

	 ASTM A588 Weathering Steel	 Fiber Reinforced Polymer (FRP)	 Aluminum	 Treated Lumber
Stiffness	Excellent	OK	OK	Poor
Strength	Excellent	Excellent	OK	Poor
Cost	Good	OK	Poor	Excellent
Weight	Poor	Excellent	Excellent	OK
Lifespan	Good	Excellent	Excellent	Poor

Materials for decking are selected based on durability, safety considerations, and desired appearance. Solid surface and plank options are available. This chart compares decking material characteristics:

	 Concrete	 Fiber Reinforced Polymer (FRP)	 Treated Lumber	 Composite Lumber
Strength	Excellent	Excellent	Poor	OK
Wearability	Excellent	Excellent	OK	OK
Safety	Excellent	Excellent	OK	OK
Lifespan	Good	Excellent	Poor	Good
Cosmetics	OK	Excellent	Poor	OK
Cost	Poor	Poor/OK	Excellent	OK

Additional features can enhance user experience and the overall aesthetic of the site. We can incorporate these and other features, contingent on budget and site requirements:



- Epoxy-based non-slip coatings
- Solid surface or plank decking
- Railings or a low curb (may be subject to local building codes)
- Functional and decorative lighting
- Benches or other seating
- Gates
- Signage or lookout points
- Accommodation of existing natural elements (e.g. trees, rock formations)



Jackson's Grant development, Indianapolis, IN

Dimensions:

Bridge span:	43 feet
Bridge width:	9 feet
Bridge weight:	11,000 pounds

Project goals:

- Level and smooth walkway for safety and to improve stroller access.
- Preserve the scenic view.
- Color options to blend into the existing landscape.
- Durability and maintenance-free construction to save Homeowner Association costs.

Axcess designed a bridge that consists of weathering steel beams with a solid surface fiberglass deck. The railing was omitted in order to maintain the scenic view, and wood curbs were installed to ensure safe passage over the bridge. The solid surface FRP also allows for a wide range of color options to create the desired visual effect.



LET'S BUILD

YOUR bridge

Access provides a one-stop, end-to-end business model that puts a new pedestrian bridge within reach.



Define the Scope



Design Concepts



Contract



Assembly



Installation

Define the scope of the project.

We'll start by talking through the questions at the beginning of this guide with you. Our discovery process involves analyzing floodplain conditions, if appropriate. We also conduct a thorough site visit to take measurements and understand the engineering requirements in detail. We also want to learn from you about usage patterns, the environment, and the bigger picture setting for the bridge. Your input and experience are vital in these early stages!



Design concepts.

You'll receive multiple conceptual drawings and material options from us to consider. We will also discuss the tradeoffs between different bridge styles and other choices in terms of maintenance and budget. Once you pick a design, we'll work up calculations for materials and costs. When you sign the contract, we'll place orders with our supply network and work with you to complete permitting.



Assembly, site preparation, and installation.

Our bridges are generally prefabricated offsite and brought to your location intact or in sections for installation. We will carefully prepare the site (e.g. clearing the ground, digging and pouring footings), and then installation takes place in a matter of hours or days. Clean up and landscaping are included in the package so that your new bridge is ready to use immediately.



Most importantly, our model is flexible. While we encourage customers to take advantage of the time, money, and stress savings with our turnkey model, you are the expert on your site and your needs. So if you only want design services or construction services, we can do that. If you want to have some of your internal labor assist with the installation to offset some costs, we can do that too.



Enjoying your new bridge for years to come.

Most of our bridges are low- or no-maintenance solutions that will last for generations. However, to maximize the useful life of your bridge, you should plan to do some simple, routine checks that can alert you to wear and tear or safety issues early when they're easy to fix. We will provide a customized guide to these tasks, which can be performed by any of your staff:

- Timeframe for checking fasteners, anchors, and hardware
- Wear and tear indicators on solid or non-slip surfaces
- Repainting schedule (where appropriate)
- Any specific warranty requirements for materials or components

ABOUT US

Axcess, LLC strives to provide a flexible, collaborative, and authentic partnership with our customers. Based in southwest Ohio, we build pedestrian bridges with durable, innovative materials and prefabricated structural elements sourced from our network of trusted vendors. We do design and construction work in Ohio, Kentucky, Indiana, West Virginia, western Pennsylvania, and southern Michigan.

Please visit us online at spanthegap.com or contact us by phone at (937) 907-0069 or email aloff@spanthegap.com.