EXCEL BRIDGE MANUFACTURING CO.

English

FOR OWNERS» FOR ENGINEERS» FOR CONTRACTORS» GALLERY RECENT PROJECTS ABOUT US CONTACT US

For Personal Nationwide Assistance Call 1-800-548-0054

DECK TYPES

Prefabricated bridges have been decked with gravel, grass, paving stones, natural flag stone, FRP grate and plate, various types of metal grating and asphalt. The most common decks by far are wood and concrete.

Concrete: Poured into a form pan provided by Excel, this is arguably the best deck for most situations. For vehicles up to pickup truck size, it only needs be only about 4"-5" thick on average. Sometimes dyed concrete is used to mask staining from weathering steel. Another key feature is that a continuous slab with molded in curbs can direct run off away from traffic below, so concrete is almost always used for overpasses.

Form pan comes installed

Concrete bridge decks do not need expansion joints

Wood: Economical, rustic and natural, wood is specified on at least half the bridges Excel builds. Because it is light weight and can be installed with hand tools after the bridge is set, it is often the material of choice for bridges that might be moved, or are to be put in sites with difficult access.

Top grade Ipe, (sometimes referred to as Ironwood®), provides the toughest, longest lasting, and least warping/cupping type of wood deck. It will turn gray like most other types of wood.

Allow us to assist you! Complete the form below and provide us with a few particulars for a free & quick budget price. Let us know if you want a friendly representative to call you or simply call us. **800-548-0054**

Name: (required)

Company:

Email: (required)

Phone:

Address:

City:

State/Provence:

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How did you hear about us?

Select One

Specifications or Questions:

Please enter the characters below:

S 5 9 X

Treated Doug Fir or Pine is typically treated with water borne ACQ. However, the Forest Service still orders their decks treated with Penta or Copper Naphthenate which are solvent borne and longer lasting treatments. And there are other choices, each with its advantages and disadvantages. Excel will be happy to provide any type that is specified, but it is up you to determine what is best for your project.

Grating: Metal or FRP (Fiberglass Reinforced Polymer) grate decks are usually used in industrial applications or in areas where it is desired to keep animals from crossing the bridge. For most public pedestrian applications, grate decking is usually not utilized as many pets won't cross it during a walk, it may not meet ADA requirements, and/or women's shoes sometimes become a trip hazard on open bar grating. Hot dip galvanized, painted steel, and FRP are the usual materials that grate is fabricated from. Most grate decks are not designed to carry much more than a 5 ton vehicle, but can be done at a considerable expense and weight increase.

Asphalt: Usually considered to be a less popular choice for a pedestrian or single lane vehicular bridge. It is expensive because of the structural metal corrugated pan needed to carry the asphalt and to support the heavy equipment needed to install the asphalt. Asphalt itself has no structural value and needs maintenance. If matching an asphalt trail is an issue, Excel recommends investigating the use of black-dyed concrete.

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Midwest offices:
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Direct Line: (320) 762-1784

Sales: Jodi Seidl
Direct Line: (320) 762-1368

Sales Assistant: Kathryn Holman
Direct Line: (320) 759-1540

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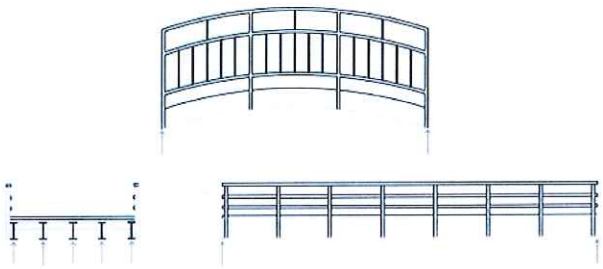
100% ENGINEERED & MANUFACTURED IN THE U.S.A.

BRIDGE TYPES

The engineers and expert team at Excel Bridge will accurately build any type of bridge your project requires, from economy spans to antique reproductions.

Stringer/girder



Stringer, Beam & Girder:

Various beam/girder views

Girder bridge with center splice.

The strength and longevity of weathering steel beams, often covered with the natural beauty of wood.

Wood look with longevity of steel beams inside

Golf cart & maintenance vehicle access

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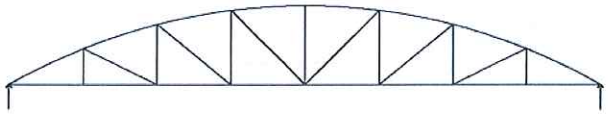
Arched plate type

Short spans only, usually dressed with masonry or rock.

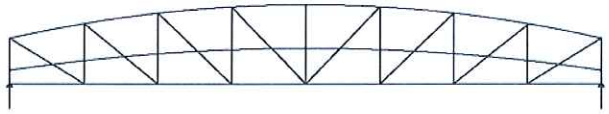
Truss Types

Pratt – Single diagonal

Pratt – Double diagonal



True bowstring

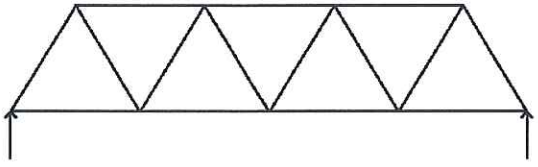


Modified bow

Modified bow

Note the height of the truss will be determined by the loading, but with Bowstrings this often is lower than what is pictured in the mind of the owner. If for aesthetic reasons a certain truss height is desired, it must be specified.

Warren Truss:



Typical Warren

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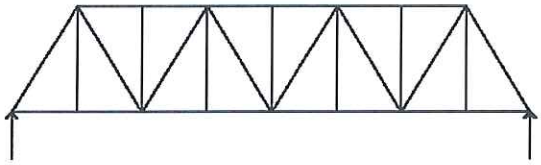
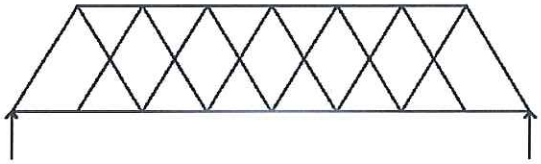
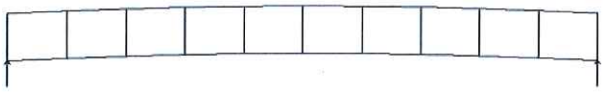


Divided Warren

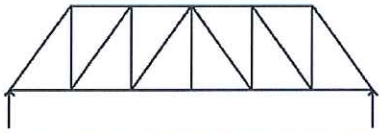


Double Warren

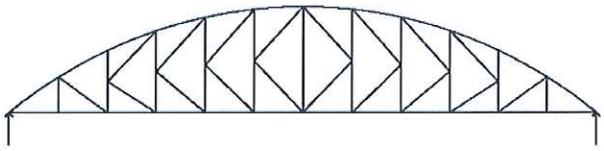


Vierendeel

Vierendeel



Howe (diagonals opposite of the Pratt)



"K" truss

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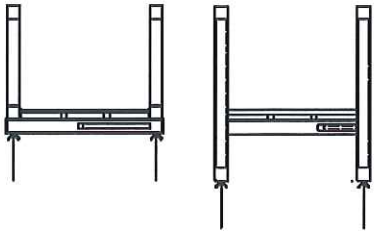
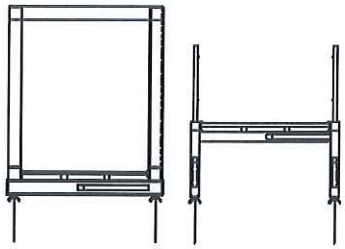
Additional truss information

Truss section variations:

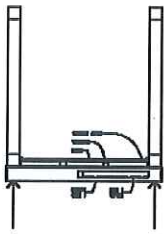


Pony or half through truss

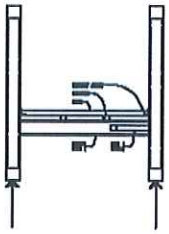


Box or through truss Deck trus

Two types of pony truss configurations:



"U" section, aka under hung floor beam, shorter spans only



"H" section -necessary for longer spans

Truss end conditions (applies to most truss types):

Sloped ends

Squared ends

Notice the squaring effect of the safety rails encroaching upon the of beauty of the bow

Truss diagonals:

Only one is needed for structural reasons, but two may be specified for aesthetic reasons. For competitive bids, the engineer should indicate if diagonal sizes must match or unequal sizes will usually result. Also, if the owner has a preference for pass through vs. pass by diagonals, this should be explored with Excel's staff. Depending on the bridge parameters, the owner may or may not have a choice. Pass by diagonals are more economical.

Single diagonal

Double diagonal

Unequal sized diagonals

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COST

How Much Does A Bridge Cost?

Pre-fabricated bridges, like most custom manufacturing, vary tremendously in cost depending on the size and features chosen. Equally important is what combination of loadings (pedestrian / vehicular/ snow/ stream loads) and which design codes are applied to the structure. There is no national agreement on what codes, loads, and stresses should apply, so it is often dictated per the collaborative judgments from owners, consultants and local governments. Our structures can easily range from $350 a linear foot to over $2,000 a linear foot depending on usage, aesthetics, applicable codes, and other options. This huge variance in pricing is why our team is available Monday through Friday to offer a quick budget price right over the phone or within 24 hours on web-inquiries in most cases.

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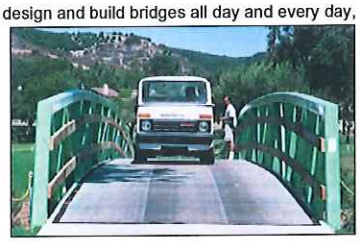
Fortunately, Excel Bridge provides the design, fabrication, and delivery which takes all those tasks off your plate. Because we design and build bridges all day and every day, our experience and efficiencies can often reduce your total costs by up to 2/3. Including Excel's steel or aluminum bridges in your project can mean clearing much longer spans than most other bridging options allow, virtually eliminating the need for piers. This can save a lot of time, money, and headaches with being able to free-span areas that other owners or agencies may control.



Other costs that should be considered and are outside of Excel Bridge's scope are:

- Utilizing a contractor to construct the abutments/ foundations (and piers if needed) and set the bridge(s)
- Environmental issues. These can impact your timelines, costs, pier location options and more

A local engineer and/or architect should be able to assist you with the above plus offer design of abutments, help with permits, utility coordination (if applicable), hydrology issues (if applicable), soil analysis and aesthetics.

Typical 50' to120' bridges made from weathering steel, with wood or concrete decks are our most economical options on a linear foot basis. You may be surprised to find

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Postal Code:

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Select One

Specifications or Questions:

Please enter the characters below:
J N6 M

that a 20' or 30' bridge can cost more plf than a 50' span.

When spanning over 120', our steel truss structures are most often the most cost efficient option available anywhere.

Our "Box" truss style bridges are most often fenced on all sides for highway or RR overpasses, and typically cost more than our half-through options shown above.

- Painted bridges are almost always more expensive than our "un-painted" weathering steel bridges.

Painted Bow Truss

- Our "Bow" truss bridges are typically slightly to moderately more expensive than parallel chord trusses.

- Our "Girder" or beam type structures can be aesthetically enhanced with a wood covering (or fascia) like the Excel "Macho Combo" above. This aesthetic enhancing can add 10-25% to the cost.
- AASHTO (or DOT impacted) codes instead of our standard AISC design stresses typically adds to the cost.

Longitudinally spliced bridge nested for shipment

- Wider bridges with decks from 13' to 16' are usually 20% to 40% higher cost.

Full Highway load, also called HS-20 loading

Deck widths over 12' wide (13' to 16' are usually 20% to 40% higher cost than a 12' wide). "Girder" style spans (up to 75' feet long can be as wide as desired).

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These factors can affect price significantly but cannot be quantified without considering project particulars:

- Larger vehicles: Applying a pickup truck (5 ton or H5) vehicle load usually has little effect on cost. Vehicles of 6-7.5 tons do typically cause a small increase in price. H10 (10 ton) trucks are the next step higher. HS-20 trucks for fire, propane, construction, etc., can increase costs significantly depending on bridge size, etc... For larger vehicles such as skid steer loaders and other construction/maintenance vehicles you must know the actual axle dimensions and weight distribution. Generalizations cannot reliably be made for these kinds of vehicle loads.
- 5 -100 year flood events: If the entire bridge or part of it may be submerged in a flood, the consultant and/or local authorities must decide how much of the bridge will be impacted & what steam velocity load may apply.

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- Some truss bridges have been designed to withstand 12 fps of stream load assuming the truss railing is filled with debris (becomes a solid wall). This can drive costs significantly higher. Break-a-way designs are sometimes used when the bridge cannot be raised out of the flood plain but water back up from the damming effect is unacceptable. Many break-a-ways have a cable imbedded into one abutment in an attempt to prevent the bridge from tumbling downstream causing injury. Some field reports indicate success with this strategy, sometimes rescuing and reinstalling the bridge.
- Attempting to raise the bridge above the flood water may not only affect pier heights and bridge length, but the allowable top of deck to low steel dimension as well. Requiring a very shallow top of deck to low steel for long spans can change the look and cost of your bridge considerably. Despite this, pony and box trusses still provide the best top of deck to lowest member dimension and cost.

- Following the American Disabilities Act (ADA) sometimes causes small additional costs by adding features, but also can cause major cost increases as it affects the construction of the trail. These problems usually center around the conflict between the limits of how much slope is allowed in the trail verses how high the bridge must be to clear the flood events (see point immediately above). For views of the types of bridges and their below-deck structure, click here.
- Clearance over traffic lanes or rail road cars, is similar to the two points above. To over simplify: truss bridges under 70' need at least 12"-18" from top of deck to lowest member. Over 100' and this dimension can jump to a minimum of 22" all the way to several feet. If something is limiting your depth of structure please call to discuss the options. Don't forget the ramps and/or stairs to get on the bridge; sometimes the bridge cost becomes secondary to these structures.

Other significant costs that are outside the scope of Excel Bridge's work are:

- The crane size required to set the bridge.
- Accessibility to the specific bridge site
- Environmental issues. These can impact your timeline, pier possibilities, costs, and more.
- Concrete for the deck, or other types of decking provided an installed by others.
- Designing and constructing of the concrete abutments.

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