

SARUM HARDWOOD STRUCTURES

Bridges • Boardwalks • Jetties • Structures



Timber naturally

Connecting **concept** to **design**



SHS has the expertise in the design, production and installation of timber and steel/timber composite bridges, boardwalks, jetties and related structures. Since our formation we have installed hundreds of structures throughout the UK and earned a formidable reputation for delivering high quality products and excellent service from concept to completion.

Design & Manufacture

Design and Manufacture is carried out by our engineers and skilled craftsmen in accordance with a quality system that complies with the requirements of NEN-EN-ISO9001. CAD drawings are provided with each structure together with supporting design calculations. All structures are designed in accordance with current British and Euro code standard and codes of practice appropriate to their location.

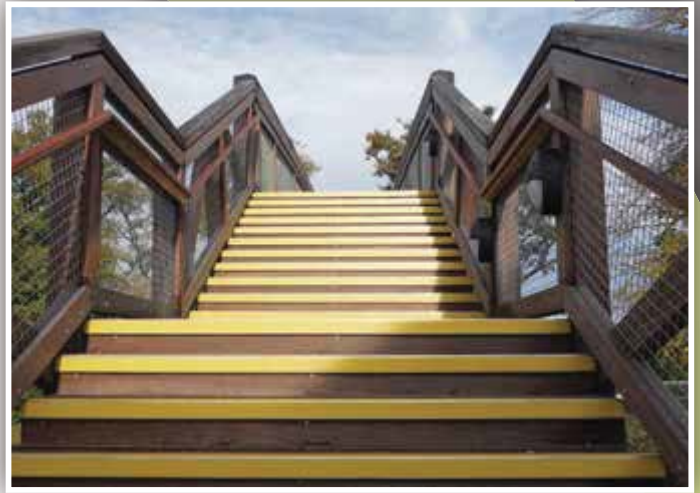


Environmental

In accordance with our long-established policy and the principles established by the Forest Stewardship Council®, timber used within the manufacture of SHS bridges is obtained from responsible sources under our certificate number RA-COC-005535-AV.

Maintenance

Hardwood structures require minimal maintenance for an extended life. The pleasing natural appearance of the timber makes it an ideal medium for construction, especially in the countryside where it blends harmoniously with its surroundings.



From **design** to **construction**

Timber Bridges

SHS bridges can be designed for pedestrians, cyclists, equestrians and light vehicles. We can offer a choice of bridge styles to suit any given application and will be pleased to help you select the most appropriate for your location. These are predominantly chosen to suit the individual span and clearance requirements which may influence the choice of suitable materials used in its construction. All SHS bridges are designed on an individual basis and can incorporate a choice of parapet styles and decking from our standard range. Hardwood timber has good fire, environmental and vandal resistant properties. We will be pleased to carry out site visits and advise on the best solution for your requirements.

Installation

Full installation is carried out nationwide by our operatives who are highly skilled and suitably qualified in heavy timber construction. Method statements and risk assessments are provided in accordance with current regulations.



STRUCTURES

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NATURAL HARDWOOD

The benefits of hardwood:

1. No preservative treatment required
2. Minimal maintenance
3. Excellent vandal resistant and fire retardant characteristics

The SHS service includes:

1. Design drawings
2. Design check calculations
3. In-house manufacturing
4. Installation
5. After-care service



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Type 1 Solid Beam Bridges



SHS Solid Hardwood Beam Bridges

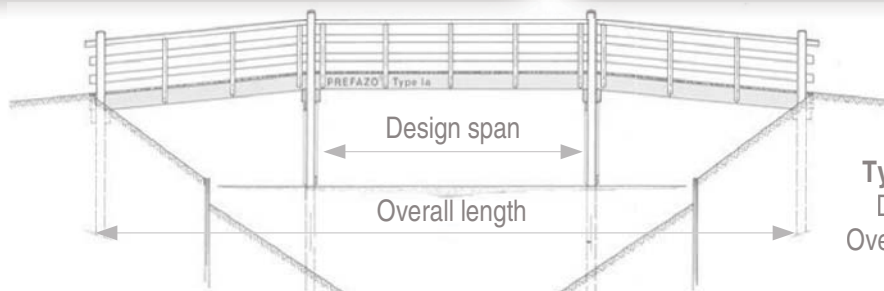
- An attractive and economic design for single or multiple spans up to 9m in length
- Solid hardwood main beams
- Designed to accommodate pedestrian, equestrian and light vehicle traffic

Options Include:

- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate inserts or coating
- A shallow curve can be machined into the main beams to achieve an arch effect
- Design can incorporate other architectural materials to influence the aesthetic appearance

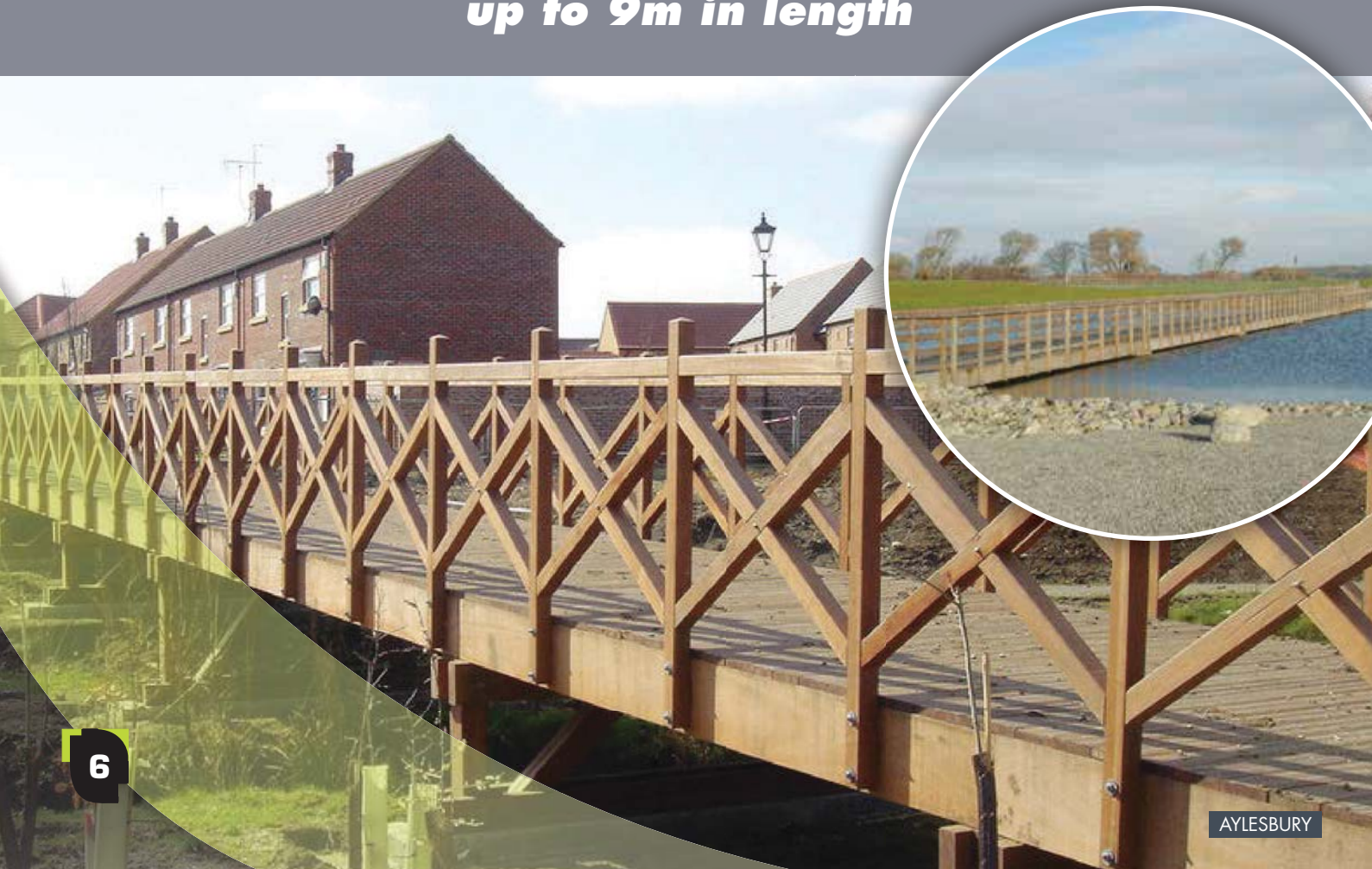


Type 1a Multi Span Solid Hardwood Beam Bridges



Type 1a Multi span bridge
Design span up to 9.00m
Overall length is dependant on
number of spans

**An attractive and economic design for multi-spans
up to 9m in length**



Type 2 Laminated Hardwood Beam Bridges



- Developed for spans up to 25m in length
- Designed to accommodate pedestrian, equestrian and vehicle loadings
- Construction with mechanically laminated beams which are more durable than glue laminated constructions
- Depth of construction can be reduced with through deck design

Options Include:

1. Choice of parapets
2. Decking with machine grooved slip resistant finish
3. Decking with anti-slip aggregate inserts or coating
4. Can be produced with a pronounced arch
5. Design can incorporate other architectural materials to influence the aesthetic appearance

Type 1&2 Laminated Hardwood Bridges With Through Deck Construction



Where depth of construction is a limiting factor then an SHS bridge with a through deck construction could be a solution

- Mechanically laminated main beams
- Developed for spans up to 25m
- Reduced depth of construction
- Designed to accommodate pedestrian and equestrian users

Options Include:

1. Choice of parapets
2. Parapets can be mounted on the side or the top face of main beams
3. Can be produced with a bow
4. Grooved slip resistant decking with optional anti-slip resin bonded aggregate inserts or surface coating
5. Design can incorporate other architectural materials to influence the aesthetic appearance



Type 28 Steel and Timber Composite Bridges



NEWPORT PAGNELL



ITFORD



- Developed for spans typically up to 25m although larger spans are possible
- Steel main beam supplied with galvanised and/or painted protective finishes
- Width to client requirements
- Can be designed to accommodate equestrian and vehicle loadings

Options Include:

1. Choice of parapets
2. Decking with smooth or machine grooved slip resistant finish
3. Decking with anti-slip aggregate inserts or coating
4. Optional timber fascia to provide an all timber appearance
5. Can be produced with a pronounced bow
6. Design can incorporate other architectural materials to influence the aesthetic appearance

Type 5 Bow Arch Bridge



- Bow arch with laminated beams
- Graceful bow arch structure permits large spans and generous height clearance
- Mechanically laminated hardwood support beams
- Design to accommodate pedestrian, equestrian and vehicle loadings
- Deck can also be suspended below or above the arch
- Choice of parapet
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating
- Design can incorporate other architectural materials to influence the aesthetic appearance



King Post Bridge



CAMBRIDGE

- Elegant and aesthetically pleasing design
- All timber solution for solid timber designs up to 20m
- King Post design delivers a rigid construction design with minimal vibrations
- Parapets are contained within the triangular frame
- Choice of parapets to suit surroundings
- Width between parapets up to 1.2m depending on span length
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating
- Design can incorporate other architectural materials to influence the aesthetic appearance



Type 6 Truss Bridge



- Design delivers an elegant low profile and a rigid all timber solution for spans of 25 – 40m
- Truss members have discreet mortise joints
- Parapets contained within the height of the truss
- Width between parapets up to 4m
- Design to accommodate pedestrian, equestrian and vehicular loadings
- Choice of parapets to suit surrounding area
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating
- Design can incorporate other architectural materials to influence the aesthetic appearance
- Available optically flat or with a bow for a curved elevation



Type 7 Cable Stay Bridge



- For spans up to 80m between towers
- Low profile deck structure to minimise visual impact
- Can be designed flat or bowed
- May be designed to accommodate pedestrian and equestrian loadings
- Choice of parapets
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating
- Design can incorporate other architectural materials to influence the aesthetic appearance

Type 8 Bascule / Draw Bridge

- Bespoke designs
- Constructed in timber or a combination of steel and timber
- Single or twin lifting beams
- Maximum length of beam 6m
- Manual, electric or hydraulic lifting
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating



Golf Course Bridges



The pleasing and natural appearance of hardwood makes it an ideal material for bridges and boardwalks on golf courses, in the countryside and parks, where it blends harmoniously with its natural surroundings. SHS can supply and install a range of simple platforms to cross ditches to large single span or multi span structures to cross rivers, lakes or roads

- Can be constructed in various widths to accommodate golf course vehicles and maintenance machinery
- Choice of parapets
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating
- Vehicle kerbs - flat or arched constructions can be accommodated



Softwood Bridges



- Attractive and economic standard designs for single or multiple span bridges
- Constructed in treated softwood
- Designed for pedestrian traffic
- Choice of parapets



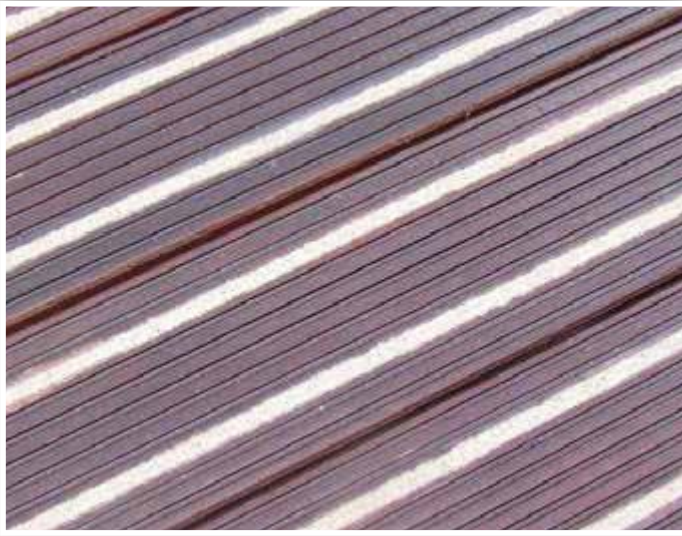
Boardwalks and Jetties



HYTHE

- Boardwalks for urban, rural and waterfront locations
- Constructed in hardwood or a composite of hardwood and steel
- Choice of parapets
- Decking with smooth or machine grooved slip resistant finish
- Decking with anti-slip aggregate GL inserts or GL coating
- Design can incorporate other architectural materials to influence the aesthetic appearance
- SHS has the expertise to design, manufacture and install an aesthetically pleasing structure to complement its natural surroundings

Anti-Slip Deck Boards



Walking surfaces are usually formed from timber deck boards which have a grooved slip resistant finish. Slip resistance can be enhanced by inserting aggregate anti-slip inserts into the surface of the deck board. These are extremely effective and also they allow the natural appearance of the timber deck to be maintained.

SHS can also supply anti slip coating which is a full resin bonded aggregate applied to the total surface or to a selective area of the timber deck boards. Both options are suitable for use on bridges, jetties, boardwalks and walkways.

Standard Parapets



Parapet Type A



Parapet Type B



Parapet Type C



Parapet Type E



Parapet Type EE



Parapet Type G

Examples Of Bespoke Parapets



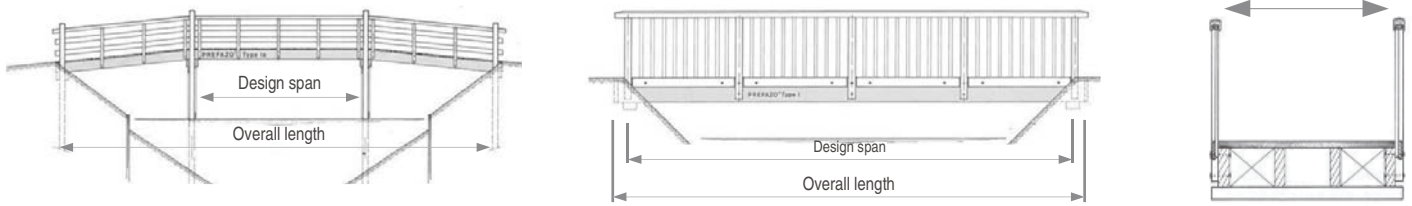
SHS P2 (80) - N1 Highway Parapet



Three Rail Hardwood Parapet Design

Impact tested with a 1500kg saloon car travelling at 80km/h at an angle of 20°

The choice of parapets may be influenced by a number of factors, for which we can offer technical advice. SHS has developed a range of standard parapets, which will suit most situations and can produce many different styles tailored to individual preferences.



General Maintenance

In general hardwoods by their very nature are low maintenance. It is recognised that no preservative or oil treatment is effective or necessary for the majority of hardwoods, given their natural durability and density. All will eventually weather to a silver grey colour over a period of months which is common to all hardwoods. We recommend that the deck surface of any structure is swept occasionally to keep the gaps between the boards open for drainage and to remove any build-up of mud, leaves and other detritus to maintain the performance of the timber.

Fire Resistance

Different timbers char at varying rates, largely as a function of their density, with the higher density timbers charring more slowly. SHS Structures are typically manufactured in Ekki or similar strength timbers with density around 1000 kg/m³, giving them superior fire resistance and inhibiting the development of fire. Charring rate is typically only 15mm in 30 minutes.

Parapets

Standard parapet heights are 1.15 m for pedestrian footbridges, 1.4m for pedestrian/cyclist footbridges and 1.80m for equestrian use. Parapets can be constructed to a standard range of styles in hardwood timber and to bespoke patterns in alternative materials. Steel parapets are supplied galvanised or galvanised and painted.

Slip resistant decking

Standard deck boards are hardwood with grooves machined into the walking surface to provide a low slip potential, which can be further enhanced with the optional inclusion of our resin bonded aggregate GL inserts, or full resin bonded coating to meet all current regulations.

Vehicle Bridges

SHS can design bridges to carry loadings for maintenance / emergency vehicles in accordance with Eurocode.

FSC Certification

SHS can supply timber from responsibly managed forests under our Forest Stewardship Council certificate number RA-COC-005535-AV.

Bespoke Structures

Please approach us for any special designs / finishes that may be required for a particular structure as we would be pleased to offer our help and advice.

SARUM HARDWOOD STRUCTURES was established in 1984 and since then it has become the market leader in hardwood engineered structures. In conjunction with our parent company Groot Lemmer, SHS provides to its customers an 'End to End' service, which embraces the design, manufacture, supply and installation of hardwood bridges, boardwalks and structures for pedestrian, equestrian and vehicle users. The products we supply have been designed to blend in with their environments and constructed in natural materials that will tolerate conditions over the many years to come. We pride ourselves on our quality of service and the success achieved in many market sectors.

Health and Safety

Sarum Hardwood Structures Ltd (inc. Mat & Timber Services) is a professional and safety conscious organisation which values the effective management of health, safety and welfare throughout its premises and all stages of a project. The clear objective is to minimise harm to persons and property by adopting a proactive approach to effective risk and safety management. All work will be carried out in accordance with best practice, to the relevant statutory provisions with all reasonably practicable measures being taken to avoid risk to employees, sub-contractors and others that may be affected.

Environmental Policy

For centuries timber has been one of the most important and widely used of the world's natural resources. There is increasing public awareness of the need to maintain this valuable resource, to ensure that it is not used in a manner detrimental to the environment, and as part of this awareness to ask questions about the source of timber. In accordance with our long established policy, and as a general rule, timber used within manufacture of SHS bridges, is obtained from properly managed forests. In many cases we are able to provide evidence in the form of chain of custody certification. For example, we can supply bridges utilising timber from independently certified well managed forests to principles and criteria established by The Forest Stewardship Council.

Min/Max Contract Values

Typically range from £5,000 to £500,000.

Quality Assurance

Groot Lemmer BV carries out the design and manufacture of the bridges and other structures in the Netherlands and operates a quality system according to the requirements of their NEN-EN-ISO 9001:2008 accreditation. SHS is not accredited but operates in accordance with customer requirements.

Design

SHS bridges are designed according to Euro-Code standards and detailed drawings and calculations are issued for customer approval, for all orders received.

Steel/Timber Bridges

The utilisation of steel main beams with hardwood timber parapets and decking provides an additional option for longer spans. Timber fascias can be incorporated to provide an all-timber appearance.

Installation

Full installation is carried out by operatives who are highly skilled and suitably qualified in heavy timber construction.

Foundations

Generally, bridges are supported on concrete foundations and in most situations SHS can include these in design and installation packages.

Machined Timber

SHS can supply machined and bulk timber to your cutting list or Bill of Quantities for various species of timber. Please contact us for prices and further information.

Site Visits

We will be pleased to carry out site visits throughout the UK and advise on the best solution for your requirements.

Mats & Temporary Roadways

The MATS division manufactures timber mats, flexi-mats and temporary roadways for hire or sale.

SARUM HARDWOOD STRUCTURES has expertise in the supply and installation of structures designed to customer specifications, constructed in natural hardwoods that we obtain from accredited sources and manufactured using processes that have little impact on the environment.

Hardwoods require minimal maintenance and do not need preservative treatment making their natural appearance ideal for constructions that will blend harmoniously with their surrounding environments.



Solid Hardwood Beam Bridges



Bow Arch Bridges



Cable Stay Bridges



Boardwalks & Jetties

Structures

- Solid Beam Bridges
- Laminated Beam Bridges
- Bow Arch Bridges
- Cable Stay Bridges
- Truss Girder Bridges
- Bascule Bridges
- Composite Steel/Hardwood Bridges

Users

- Pedestrians
- Cyclists
- Equestrians
- Light Vehicles

Locations

- Parklands
- Gardens
- Golf Courses
- Woodlands
- Towns & Cities
- Estate Development
- Marinas & Waterfronts

To Span

- Rivers & Lakes,
- Highways
- Railways,
- Trenches & Gullies



Laminated Hardwood Beam Bridges



Truss Girder Bridges

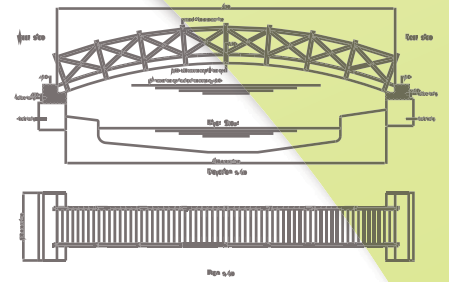
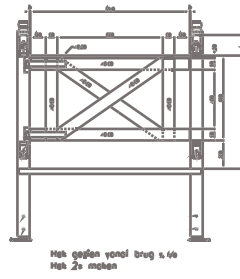
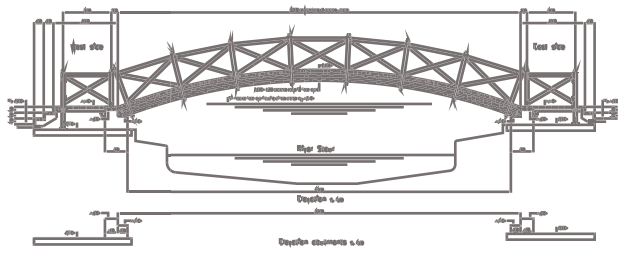


Steel & Hardwood Composite Bridges



Golf Course Bridges

From Concept



STURRY

To construction

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