

## Footbridges and Footbridge Design

Bennett Associates (now known as Atkins, Rotherham) has a long history of involvement in the design of a variety of footbridges and moving bridges in the UK. Some of the projects we have been involved in include:

### Gateshead Millennium Bridge

Production of the performance specification and supervision of the mechanical, hydraulic design, electrical control design, installation and commissioning for the moving pedestrian footbridge and cycle bridge on the River Tyne at Gateshead. The completely original tilting mechanism of the bridge allows the passage of ships underneath by the whole of the footbridge raising and tilting as one rigid structure. The striking arched bridge stands 45m high and spans 10m across the river and attracts people from all over the world.

### Glasgow Science Centre Bridge

Bennett Associates were responsible for the concept design and detailed manufacturing drawings for the structural, mechanical, electrical and hydraulic systems. The 128m footbridge spans over the River Clyde joining the Glasgow Science Centre on the south bank with the Scottish Conference and exhibition Centre on the north. At the centre of the bridge, two bascule sections raise to allow river traffic to pass through to their destination.

### Lowry Centre Footbridge

Bennett Associates produced detailed designs and manufacturing drawings for all mechanical equipment, site hydraulics, the design and authoring of all PLC software and network design as well as the commissioning of all moving parts for the moveable footbridge at Lowry Centre, Salford Quays. The 95m footbridge links Trafford to Salford across the Quays and provides pedestrian and cycle access across the canal. The footbridge maintains regular shipping traffic by raising 18m above the water line in less than 3 minutes.

### The Bridge of Scottish Invention

Situated over the River Irvine in Scotland, this unique footbridge connects Irvine Harbourside and Maritime Museum to the 'The Big Idea', the highly successful permanent Millennium exhibition on the Ardeer Peninsula.

Bennett Associates were responsible for the detailed design of the structure and the mechanical and electrical control systems. The sliding opening footbridge is 80m long and retracts 16.5m to leave a clear navigation channel for boats leaving Irvine Harbour. The bridge is the closest movable river bridge to the open sea in Britain.

### Port Tawe Footbridge and Walkway Design

The regeneration of the River Tawe Marina in Swansea saw the design of twin bridges. The south bridge had to enable canal access through the existing lock gates, which control the water level and Bennett Associates were involved in designing the opening section over the existing lock gates. The south moving bridge consists of two swing bridges approx 11m long that pivot 90 degrees on a central point to provide an opening of 12.5m, the width of the dock.

### Torquay Pedestrian Footbridge

Bennett Associates provided mechanical and structural details of the footbridge and dock impounding gates. The visually striking 45m long bridge links the north and south piers allowing pedestrians to walk all around the harbour for the first time. The centre section of the footbridge hydraulically lifts in two giving a 10m opening, the underwater gate drops to allow safe passage of vessels into the harbour.



Gateshead Millennium Bridge



Glasgow Science Centre Bridge



Lowry Centre Footbridge



The Bridge of Scottish Invention



Port Tawe Footbridge



Torquay Pedestrian Footbridge

More...

# Footbridges and Footbridge Design - continued

## Forton Lake Bridge

Bennett Associates involvement was in the design and production of detailed manufacturing drawings for the mechanical and electrical systems for the movable footbridge over Forton Lake at Gosport, England. The bridge is designed as a pedestrian footbridge and cycle bridge but also can also carry a road train and emergency vehicles.

The bascule bridge rises in 5 minutes and lowers in 5 minutes using a small amount of power, which is achieved by the use of well-balanced counterweights and slow operation time.

## The Deep Footbridge

The Deep is located on the bank of the River Humber in Hull and is within walking distance from the city centre. Bennett Associates were involved in the mechanical, electrical and hydraulic services of the swing pedestrian footbridge and cycle bridge which connects the facility to the City Centre.

## Bellmouth Passage Footbridge, Canary Wharf

Mechanical design for moveable bridges in the Canary Wharf development to connect two office blocks into the main development.

## River Yeo Bridge

Bennett Associates produced detailed designs of the mechanical, power hydraulic, electrical power and control systems which included fully detailed manufacturing drawings and the maintenance manual for the Millennium swing cycle and footbridge over the River Yeo at Barnstaple, Devon. The moving bridge spans 31.5m and has a swing span of 15.5m to allow the passage of river traffic. The bridge is 4m wide overall and carries a 3m wide cycle track.

## York Millennium Bridge

Manufacturing drawings and design of temporary works for foot and cycle-way bridge situated over the River Ouse in York. The design, which runs alongside the National Cycle Network route number 65, was inspired by the spokes on a bicycle wheel. It consists of an inclined arch approximately 80m in length with cables supporting the 4m wide deck. The full length of the bridge is approximately 150m.

## River Liffey Bridge

The Sean O'Casey Bridge is a pedestrian footbridge linking the north and south quays of the River Liffey in Dublin, Ireland. The bridge is approximately 44 m long, 4.5m wide and is in two sections that swing open 90 degrees to allow boats to travel up and down the river. Bennett Associates involvement was in the design of mechanical and electrical systems of the swinging mechanism.

## Clarence Dock Footbridge

This footbridge is a suspension bridge with a single support tower allowing passage over the Rive Aire in Leeds.

## Port of Vasteras Harbour

This footbridge provides a pedestrian link between the waterside residential area and Vasteras town centre. The design of the bridge is based on the Glasgow Science Centre Bridge. The lifting sections of the bridge provide access to sea-going ships.



Forton Lake Bridge



The Deep Footbridge



Bellmouth Passage Footbridge



River Yeo Bridge



York Millennium Bridge



River Liffey Bridge



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