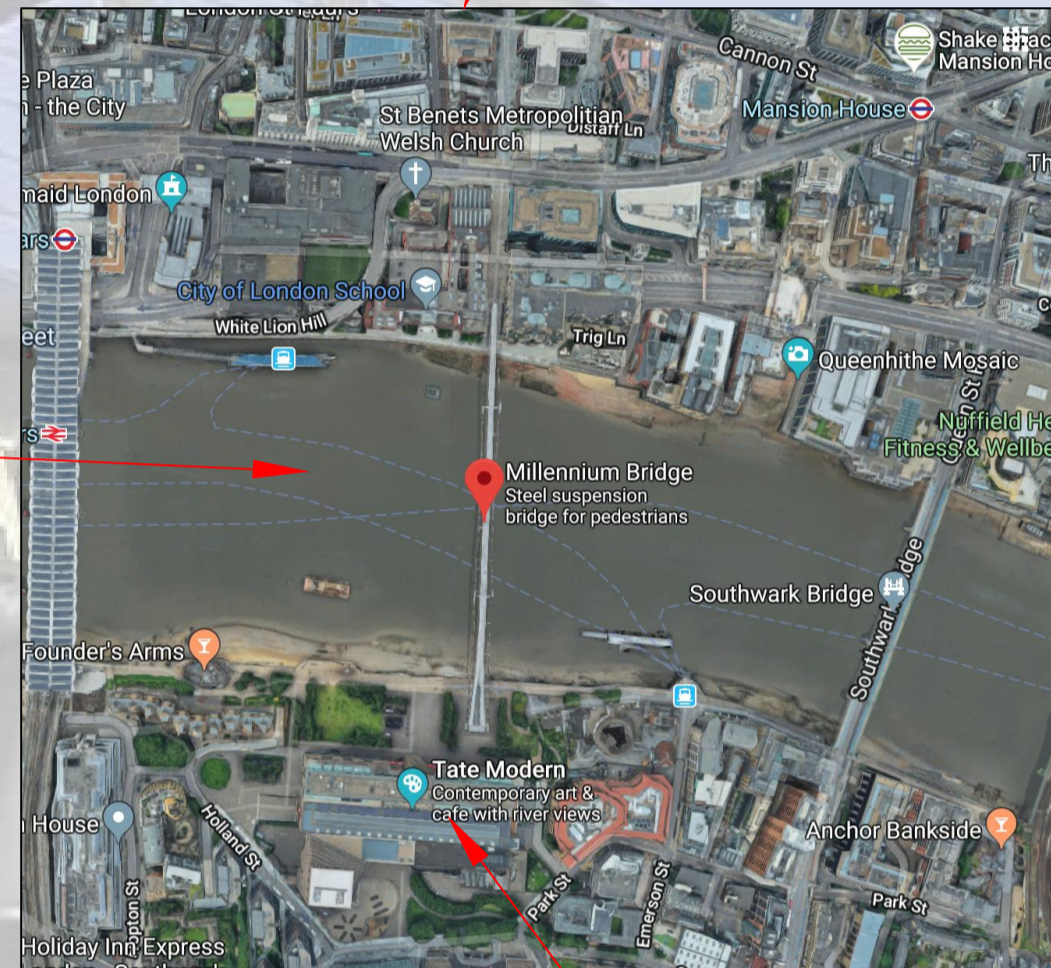


THE MILLENNIUM BRIDGE, LONDON

The Millennium Bridge is a steel suspension pedestrian footbridge located in London spanning 320m over the River Thames, from the city to the North, to the Entrance of the Tate Modern art gallery on Bankside. The bridge was opened in June 2000 to represent the merge of art and architecture along with the practicality of engineering a shallow decked footbridge.

St. Paul's Cathedral

River Thames (320m span)



Tate Modern

Structural Design
 2 Intermediate Y-shaped structures support 4 suspension cables each side of the bridge. These cables run along the sides of the 4 metre wide asphalt decking with steel traverse arm clamping the cables at 8.0m centres, hanging from the clamps are open 'U' shaped supporting the decking itself. The unique arrangement of these materials limit the rise of the structure over the deck to 2.3m, thus limiting the interference of the panoramic views for the pedestrians

What About The Loads?

The Dead Loads and Imposed loads applied to this structure comprise of the self weight of the structure, pedestrians crossing the bridge and the wind loads applied.

red arrows indicate imposed load from pedestrians



green line: cables in tension

blue lines: supports under compression

Note! the two Y-shaped intermediate supports are under direct compression (including negligible lateral wind load) as the cables are all in tension to both anchorage points either side of the Thames River!



Cables anchored into reinforced concrete foundation

4 No. 120mm diameter coiled cables

4 No. friction clamps at each traverse steel member location

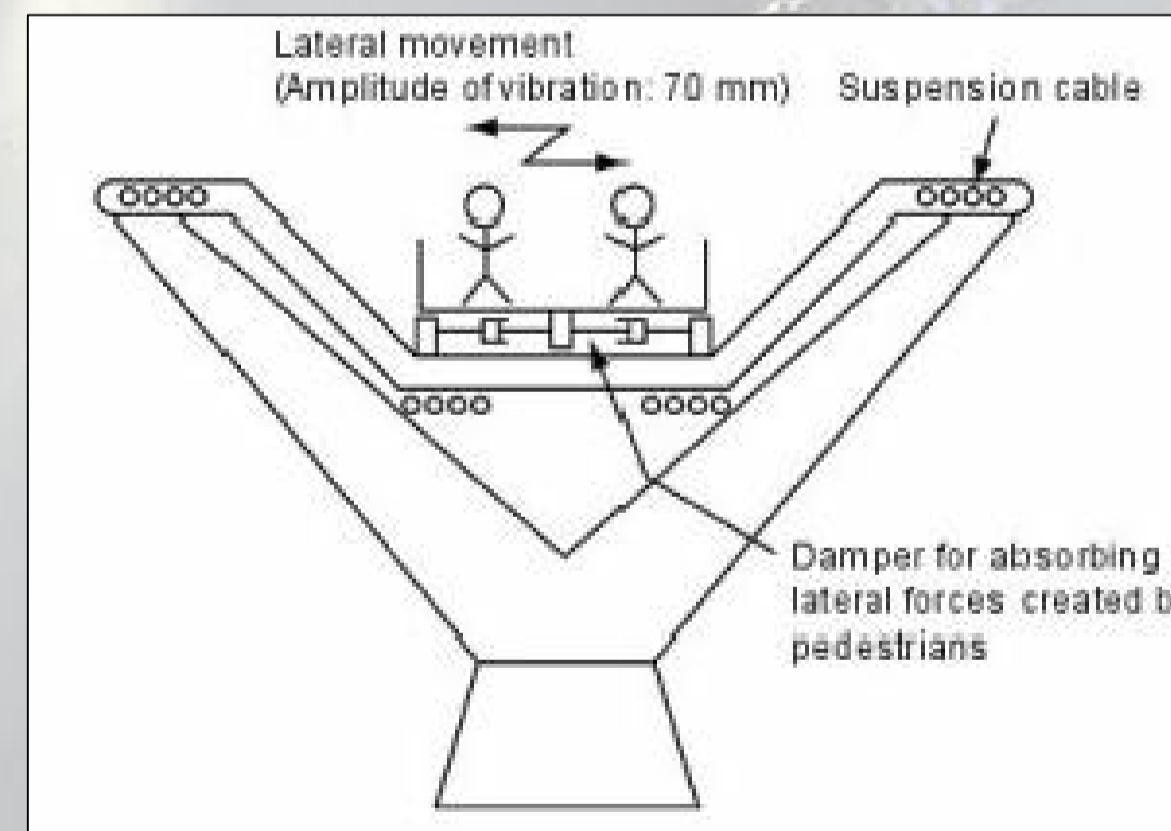
traverse arm with integrated clamps at 8.0m centres.

15.0m tall Y-shaped reinforced concrete piers using C60 concrete and 75mm diameter rebars!

the piers are founded on piled foundation constructed using a caisson method of engineering

4.0m wide aluminium deck with lateral bracing

Interesting Fact!



When the Bridge opened on 10th June 2000, over 100,000 people proceeded to use the footbridge. As pedestrians crossed the bridge, their footsteps became synchronized with the flex of the steel resulting in an unexpected phenomenon to the suprose of the engineers. the bridge was immediately closed, pending an explanation!!

The Millenium Bridge did not 'fail' however, 91 dampers were introduced to alleviate the phenomenon, the bridge was re-opened in 2002.

A Wobbly Bridge?



FAST FACTS

Name	London Millennium Bridge
Owner	Bridge House Estates for City of London Corporation
Design	Arup
Architect	Foster together with Sir Anthony Caro (sculptor)
Contractor	Monberg Thorsen, Sir Robert McAlpine
When	2000
Where	Central London
Latitude	N 51 39' 36"
Longitude	W 00 05' 55"
Why	Footbridge over River Thames that links St Paul's Cathedral with the Tate Modern Gallery