

Golden Gate Bridging

Fun Facts about the Golden Gate Bridge

- Total length of Bridge including approaches: 1.7 miles = 8,981 ft = 2,737 m
- Length of suspension span including main span and side spans: 1.2 miles = 6,450 ft = 1,966 m
- Length of main span portion of suspended structure (distance between towers): 4,200 ft = 1,280m
- Length of one side span: 1,125 ft = 343 m
- Width of Bridge: 90 ft = 27 m
- Width of roadway between curbs: 62 ft = 19 m
- Width of sidewalk: 10 ft = 3 m
- Clearance above mean higher high water: 220 ft = 67 m
- Total weight of each anchorage: 60,000 tons = 54,400,000 kg
- Original combined weight of Bridge, anchorages, and approaches: 894,500 tons = 811,500,000 kg
- Total weight of Bridge, anchorages, and approaches (1937): 894,500 tons = 811,500,000 kg
- Total weight of Bridge, anchorages, and approaches (1986)*: 887,000 tons = 804,700,00 kg*
- Weight of Bridge, not including anchorages and north and south approaches, but including suspended structure, towers, piers and fenders, bottom lateral system and orthotropic redecking (1986)*: 419,800 tons = 380,800,000 kg*
- *The total bridge weight listed for 1986 includes the reduction in weight due to the redecking in 1986. The weight of the original reinforced concrete deck and its supporting stringers was 166,397 tons (150,952,000 kg). The weight of the new orthotropic steel plate deck, its two inches of epoxy asphalt surfacing, and its supporting pedestals is now 154,093 tons (139,790,700 kg). This is a total reduction in weight of the deck of 12,300 tons (11,158,400 kg), or 1.37 tons (1133 kg) per lineal foot of deck.

Main Tower Stats

- The Golden Gate Bridge has two main towers that support the two main cables.
- Height of tower above water: 746 ft = 227 m
- Height of tower above roadway: 500 ft = 152 m
- Tower base dimension (each leg): 33 x 54 ft = 10 x 16 m
- Load on each tower from main cables: 61,500 tons = 56,000,000 kg
- Weight of both main towers: 44,000 tons = 40,200,000 kg
- Transverse deflection of towers: 12.5 inches = 0.32 m
- Longitudinal deflection of towers:
 - shoreward: 22 in = 0.56 m
 - channelward: 18 in = 0.46 m

- The south tower foundation depth below mean low water is: 110 ft = 34m
- To build the pier to support the south tower, construction workers pumped 9.41 million gallons or 35.6 million liters of water out of the fender that was constructed first.

Main Cable Stats

- The Bridge has two main cables which pass over the tops of the two main towers and are secured at either end in giant anchorages.
- The main cables rest on top of the towers in huge steelcastings called saddles.
- Diameter of one main cable with wrapping: 36 3/8 in. = .92 m
- Length of one main cable: 7,650 ft = 2,332 m
- Total length of wire used in both main cables: 80,000 mi = 129,000 km
- Number of galvanized wires in one main cable that are 0.192 inches in diameter: 27,572
- Number of strands in one main cable: 61
- Weight of both Main Cables, Suspender Cables & Accessories: 24,500 tons = 22,200,000 kg
- The wire comprising each main cable was laid by spinning the wire using a loom-type shuttle that moved back and forth as it laid the wire in place to form the cables.
- The spinning of the main cable wires was completed in six months and nine days.

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| Steel used for the Main Cables is carbon steel with the following average chemical composition and physical properties: | | Concrete Quantities | | |
| Ladle test results (specified) | | | Cu. yd. | Cu. m. |
| C: | 0.81% (0.85) | San Francisco Pier and Fender | 130,000 | 99,400 |
| Mn: | 0.66% (---) | Marin Pier | 23,500 | 18,000 |
| P: | 0.026% (0.04) | Anchorage, Pylons, and Cable Housing | 182,000 | 139,160 |
| S: | 0.028% (0.04) | Approaches | 28,500 | 21,800 |
| Si: | 0.24% (---) | Paving | 25,000 | 19,115 |
| | | Structural Steel Quantities | Tons | Kg. |
| Tested properties (specified) | | Main Towers | 44,400 | 40,280,000 |
| Tensile Str, | Fu = 235,600 psi (220,000 psi min) | Suspended Structure | 24,000 | 21,772,000 |
| Yield Str, | Fy = 182,600 psi (160,000 psi min) | Anchorage | 4,400 | 3,991,000 |
| Elongation in 10" at rupture = 6.3% (4.0% min) | | Approaches | 10,200 | 9,250,000 |

Information Supplied from goldengatebridge.com -
<http://goldengatebridge.org/research/factsGGBDesign.php>