



## Building and Construction

# Bridge Pole Decoration

The Octavio Frias de Oliveira bridge is considered a new landmark in São Paulo. The unique wire suspension bridge has one pole which carries two curved sections of highway at different levels. Stainless steel has been used as a decorative element on the pole by architect João Valente Filho. The stainless steel parts reflect the surroundings which creates interesting visual effects. The result is that the pole appears light and elegant.



**Location/environment** | SÃO PAULO, BRAZIL/OUTDOOR

**Product** | LONG PRODUCTS

**Fabrication process** | CUTTING AND CONFORMATION

**Grade/surface** | AISI 444/18 (LATERAL RIB) AND AISI 304/2B (SUPERIOR KNOTS)

**Material thickness/diameter** | 1.5 MM

**Weight**

**Competing material** | SEVERAL

**Date of completion** | MARCH 2008

**Manufacturer** | COPPERMAX

**Material supplier** | ARCELOR MITTAL INOX BRAZIL

**Source of information** | NÚCLEO INOX

**Remarks**

## Building and Construction

# Glass Brick Support

Glass bricks are often used in homes and offices as walls and even as floors and ceilings. The bricks enable light to enter without compromising privacy. These stainless steel supports for glass bricks bring added strength to the structure and will not corrode, even in wet environments.



Location/environment | WORLDWIDE/INDOOR AND OUTDOOR

Product | STAINLESS STEEL REBAR

Fabrication process

Grade/surface | TYPE 204CU (UNS S20430)

Material thickness/diameter | 5 MM

Weight

Competing material | GALVANISED STEEL

Date of completion | 2007

Manufacturer | UGITECH SA

Material supplier

Source of information | UGITECH SA/ISSF REBAR PROJECT

Remarks

15



## Building and Construction

# Nedujinja Shrine Shinkyō

Stainless steel rebar was chosen for its durability as a reinforcement material in concrete structures. A ferritic grade was selected over an austenitic grade because of its low thermal expansion properties and low cost.



**Location/environment** | TOKYO, JAPAN/OUTDOOR

**Product** | DEFORMED STAINLESS STEEL BARS

**Fabrication process** | BENDING

**Grade/surface** | TYPE 410L/PICKLED

**Material thickness/diameter** | 13 AND 19 MM

**Weight** | 1.2 TONS

**Competing material** | EPOXY COATED REINFORCEMENT BARS

**Date of completion** | SEPTEMBER 2006

**Manufacturer** | NSSC HIKARI WORKS

**Material supplier** | NSSC

**Source of information** | JSSA/NSSC

Remarks

17



## Building and Construction

# Solid Stainless Steel Rebar

Solid stainless steel reinforcement bar (known as rebar) exhibits significant corrosion resistance and strength. This type of rebar is often used in bridge decks and other critical applications where exposure to salt is an issue. Salt exposure can occur in coastal environments and in climates where surfaces are treated with de-icing salts during winter. The stainless rebar can be incorporated during new bridge construction or during repair work.



**Location/environment** | NORTH AMERICA, EUROPE AND ASIA/OUTDOOR

**Product** | SOLID STAINLESS STEEL REBAR

**Fabrication process** | HOT ROLLED AND ACID CLEANED

**Grade/surface** | ENDURAMET® 2205, ENDURAMET® 316LN, ENDURAMET® 32, EN4362

**Material thickness/diameter** | DIAMETERS RANGE FROM 0.95 MM TO 6.03 MM

**Weight** | 180 TONS (10 TONS PER BRIDGE)

**Competing material** | CARBON STEEL REBAR AND EPOXY-COATED REBAR

**Date of completion** | JULY 2006

**Manufacturer** | CARPENTER TECHNOLOGY CORPORATION

**Material supplier** | CARPENTER TECHNOLOGY CORPORATION

**Source of information** | CARPENTER TECHNOLOGY CORPORATION

**Remarks** | SOLID STAINLESS STEEL REBAR HAS BEEN SHOWN TO EXTEND THE LIFE OF A BRIDGE TO MORE THAN 125 YEARS COMPARED TO 20 YEARS IF CARBON STEEL OR EPOXY COATED REBAR ARE USED. THE SUPERIOR CORROSION RESISTANCE OF STAINLESS ENABLES A THINNER CONCRETE COVER. THE STRENGTH OF STAINLESS REBAR COUPLED WITH ITS DUCTILITY MAKES IT AN IDEAL REINFORCEMENT SOLUTION IN AREAS PRONE TO SEISMIC ACTIVITY.

25



## Building and Construction

# Tensegrity Glass Beams

The University of Pisa has developed a new type of glass panel beam that avoids glass fracture by creating a series of modular elements. The triangular elements are connected to each other using pre-tensioned stainless steel cables.

The structure relies on the principle of tensile integrity, or tensegrity as it is better known. Tensegrity refers to the integrity of structures that is based on the synergy between balanced tension and compression components.

All ancillary parts such as routels, studs, tie-rods and support systems for the sheets of glass are all made of stainless steel. This is for both aesthetic and durability reasons.



**Location/environment** | PISA, ITALY/INDOOR

**Product** | STAINLESS STEEL CABLE

**Fabrication process**

**Grade/surface** | EN 1.4401 (AISI 316)

**Material thickness/diameter** | 6 MM

**Weight**

**Competing material**

**Date of completion**

**Manufacturer** | DEPARTMENT OF STRUCTURAL ENGINEERING, UNIVERSITY OF PISA

**Material supplier**

**Source of information** | CENTRO INOX

**Remarks** | THE EXAMPLE PICTURED IS A PROTOTYPE.

27

