SREE DATTHA INSTITUTE OF ENGINEERING AND SCIENCE, HYDERABAD

DEPARTMENT OF CIVIL ENGINEERING

EDITORIAL BOARD

Mr. P Sanjay Chandra,
Editor.

Inside:
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DEPARTMENT OF CIVIL ENGINEERING PROFILE

The department of **Civil Engineering** is one of the most important departments of **Sree Dattha Institute of Engineering and Science (SDES)**. This department was established in the year 2001 and is presently offering Bachelor's Degree in Civil Engineering. The present intake for the Bachelor's program is 120 students. The department carries out a periodic review of its curricula to ensure concurrency and keep abreast with latest technologies and developments in science and technology.

SEMINAR ON SELF COMPACTING CONCRETE

A Seminar on "Self Compacting Concrete" was organized by Civil Engineering Department, SDES, Hyderabad on 10/02/19. Mr. K Rajesh garu addressed our students at SDES and shared his knowledge. He made the students to know about the self compacting concrete . He made the students interactive with a power point presentation and there was an excellent response from the students.

STUDENTS ATTENDING THE SEMINAR ON SELF COMPACTING CONCRETE

WORKSHOP ON NORMS TO MAINTAIN QUALITY IN INDUSTRY FOR USAGE OF CONCRETE. RHEOLOGY OF CONCRETE

This workshoip was organized by Civil Engineering Department from 30/08/18 to 31/08/18 by Dr.Arun Kumar, Associate professor at Malla Reddy College Engineering and Technology, Hyderabad. Dr. Arun Kumar addressed our students at SDES and shared his knowledge highlighting the importance of quality maintenance for usage of concrete. The students of SDES have gained a practical knowledge regarding the topic.

DR. ARUN KUMAR GARU AFTER DELIVERING THE LECTURE

GUEST LECTURE ON COMPOSITION OF MATERIALS USED FOR DETAILED MANUFACTURING PROCESS OF CEMENT

This lecture was organized by Civil Engineering Department on 20/08/18 by Mr. A Manjunath, Assistant professor at NNR Engineering College, Hyderabad. Mr. A Manjunath addressed our students at SDES and shared his knowledge with our students. He made the students know the composition of materials used for detailed manufacturing process of cement with a detailed power point presentation.

STUDENTS OF SDES ATTENDING THE SEMINAR

SEMINAR ON AIR QUALITY SAMPLING AND MONITORING

This event was organized by Civil Engineering Department from 06/10/18 to 07/10/18 by Mr.N Pratap Chillkuri, Assistant professor at MVSR college, Hyderabad. Mr. N Pratap Chillkuri addressed our students at SDES and shared his knowledge. He made the students know the Importance of Air quality sampling and monitoring with a power point presentation that made students understand the topic very well.

THE INTRODUCTION ABOUT THE TOPIC IS GIVEN TO THE STUDENTS

GUEST LECTURE ON TYPES OF RESERVOIRS WITH THEIR DISTRIBUTION AND USES

This lecture was organized by Civil Engineering Department on 29/09/18 by Mr. Nikilesh Sattenapalli, Director, Vashista developers, Hyderabad. Mr. S Nikilesh addressed our students at SDES and shared his knowledge with our students. He made the students know the different types of reservoirs with their distribution and uses with a detailed power point presentation.

MR. S NIKILESH ADDRESSING THE STUDENTS OF SDES

FACULTY CORNER

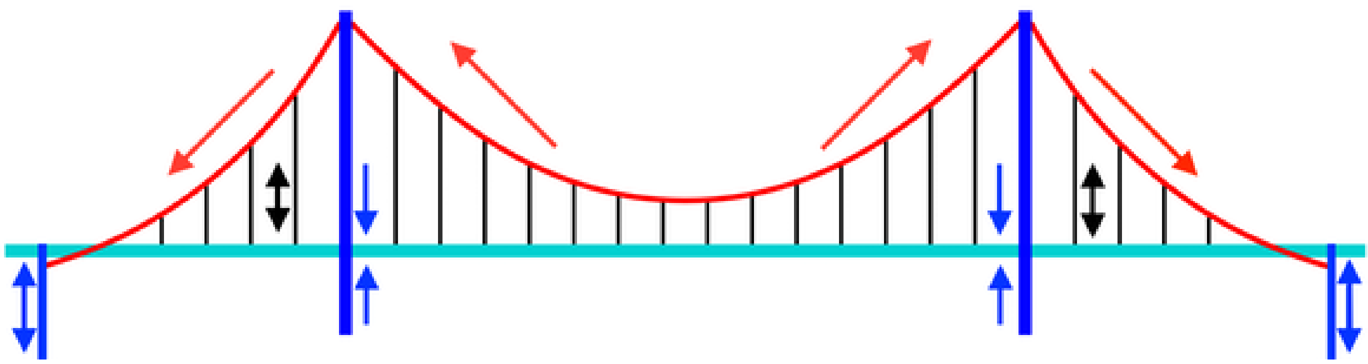
Article by:
A Prameela, Assistant Professor, Department of Civil Engineering, SDES.

Title: How would engineers build the Golden Gate Bridge today?

Ever since the Golden Gate Bridge opened to traffic on May 27, 1937, it's been an iconic symbol on the American landscape.By 1870, people had realized the necessity of building a bridge spanning the Golden Gate Strait to connect the city of San Francisco with Marin County. However, it was another half-century before structural engineer Joseph Strauss submitted his bridge proposal. The plans evolved, and the final project was approved as a suspension bridge that ended up taking over four years to build.When the Golden Gate Bridge went up, it was the longest suspended bridge span in the world – cables hold up the roadway between two towers, with no intermediate supports. And the setting had a number of inherent challenges. It cost about US$37 million at the time; building the same structure today would cost about a billion dollars. So how has the design held up over the past 80 years – and would we do things differently if we were starting from scratch today?

Longest suspension bridge in the world:
The Golden Gate Bridge is a suspension bridge, meaning it relies on cables and suspenders under tension along with towers under compression to cross a long distance without any intermediate supports. The roadway deck hangs from vertical suspenders that connect to the two main cables that run between the towers and the anchors on the end. The suspenders transfer vehicular forces and self-weight to the supporting cables that are anchored to towers and on to solid ground. The first bridges of this type probably connected two cliffs with flexible ropes to cross a valley or a river. Hundreds of years ago, these ropes were made of plant fiber; iron chains came later. The Brooklyn Bridge in New York City, opened in 1883, was the first to use steel cables, which then became standard. The towers likely started as a simple rock on each side of a valley; eventually engineers used massive stone or steel piers. The Golden Gate Bridge, for instance, is supported by one abutment on each end and the two towers, which are placed over foundations embedded in the seafloor.The Golden Gate Bridge's two supporting cables are about the only thing that has not been changed since the bridge was opened to traffic in 1937. Each main cable is formed by 27,572 steel wires with the approximate thickness of a pencil. Construction crews hung nearly 80,000 miles of wire cables from one side of the bridge to the other.

It's nearly impossible to manufacture a long, thick cable in one piece with no flaws to do this job. And crucially, if a single big cable was holding the bridge up and something happened to it, there would be a catastrophic failure. Relying on smaller wires means any failure would be slower, leaving time to divert disaster. Since people first started pondering a bridge in the bay of San Francisco, there was huge concern about the structure's ability to withstand the location's strong winds, turbulent waters and possible earthquake forces. San Francisco is located at the intersection of two active tectonic plates – obviously no one wanted to see an earthquake bring down the bridge, which currently carries around 112,000 vehicles per day. To avoid this problem, the builders also located shock absorbers at each end of the bridge to absorb the energy coming from wind or seismic forces. These specially designed vibration dampers are meter-diameter cylinders made of a lead core covered by rubber. Placed at strategic locations, they absorb energy that could otherwise cause the bridge to collapse.



SCHEMATIC OF A SUSPENSION BRIDGE: THE RED SUPPORTING CABLES TRANSFER FORCES FROM THE BLACK SUSPENSION CABLES TO THE BLUE TOWERS AND ANCHORS

FACULTY CORNER

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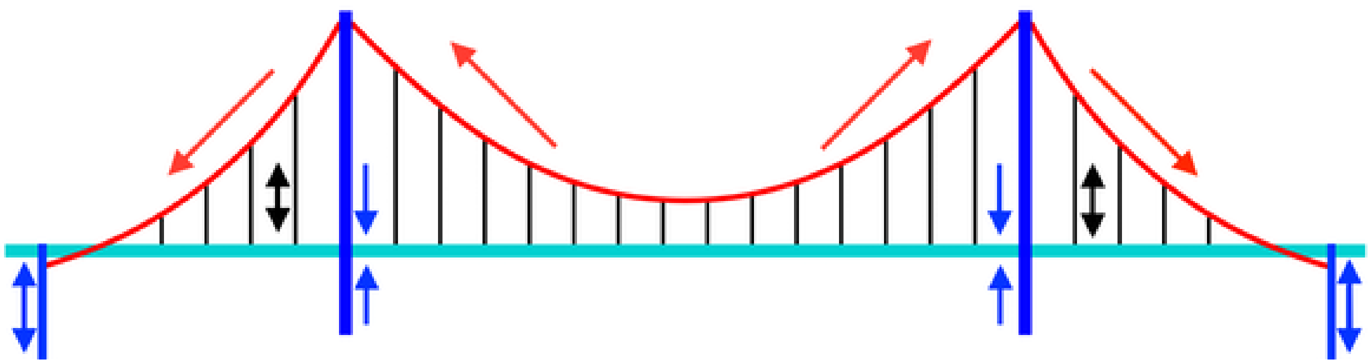

SCHEMATIC OF A SUSPENSION BRIDGE: THE RED SUPPORTING CABLES TRANSFER FORCES FROM THE BLACK SUSPENSION CABLES TO THE BLUE TOWERS AND ANCHORS

STUDENT CORNER

Article by:
M Jaweed, IV - A , Department of Civil Engineering, SDES.

Title: How science can help cities prepare for attacks on metro systems

Introduction:
Tokyo, Moscow, Madrid, London, Brussels, and now St. Petersburg. These major cities have all suffered attacks on their metro systems. The most recent events in St. Petersburg, where a metro bombing killed at least 14 people, remind us of the challenges faced by underground transport systems in keeping people safe during an emergency. This is where engineering and psychology research can come in useful, helping to optimise evacuation procedures using insight into how people behave.To start with, there are several key ways that evacuating an underground system differs from evacuating a building. Underground environments are often unfamiliar to the evacuees, especially if the evacuation has to start in the tunnels between stations. The system's enclosed nature also means visibility can rapidly deteriorate from smoke. Tunnels are generally not divided into separate sections to stop smoke spreading, which allows it to rapidly fill all spaces.

Problems:
A number of problems when it comes to evacuating passengers. Evacuation slows down when visibility is poor and people cannot fully rely on what they can see to help them get out. Smoke can also obscure signs and other visual instructions, making it difficult for people to locate the closest emergency exit. For this reason, evacuees often rely on alternative senses such as hearing or touch to find their way to safety. This is why auditory alarms and hand rails can be much more useful.Another reason these kind of guides and information are needed is because people tend to move towards familiar places or people in an emergency. For example, if someone is looking for a way out of a metro system, they may well try to get back to where they came in. But in many instances, closer emergency exits may be available in the tunnels. These exits often lead to safety in a significantly shorter time.Similarly, people's attention can narrow to focus on immediate threats rather than analysing all the information available to them, especially when they are under pressure to escape as quickly as possible. This is where social influence can come in. If one person can find a quicker evacuation route, their interaction with other evacuees can help spread this information and help everyone get out quicker. At a more fundamental level, the design of the tunnels and trains can lead to significant safety improvements. Experimental research has shown the effectiveness of an evacuation from a metro train depends on the configuration of the train door and the space available after getting out of it. This can include the presence of a height gap between the train doors and the outside floor and narrow spaces for evacuation in the tunnels.The height gap in particular, which can be up to 1.4 metres, can be a major obstacle during evacuation, slowing down the flow of people out of the train. It may also mean that some evacuees, particularly children and older people, may not be able to evacuate on their own. This height difference can make it even more important that the driver manages to get the train to a station, as the driver in the St. Petersburg attack did – despite the fact the bomb went off inside a tunnel. This likely led to a quicker evacuation and less severe consequences. It's worth also considering that people are often a lot more rational than you might think in a disaster. Media reports often use the ambiguous word "panic", suggesting irrational and competitive (anti-social) behaviour. But investigations of disasters have demonstrated that people actually tend to act rationally and in a non-competitive way.

In fact, people often tend to help each other in emergencies, including during metro train evacuations. For example, footage from the St. Petersburg bombing shows people trying to help others get out of the attacked trains, and similar altruistic behaviours have been observed in several other disasters. So whatever preparations metro authorities make for disasters, they can consider their passengers to be part of their solution. They need to design the tunnel environment for the people, not the people for the environment.

ST. PETERSBURG AFTER MATH