CIVIL TECH AND TRENDZ

MAGAZINE OF CIVIL ENGINEERING DEPARTMENT

JAN - JUNE 2019

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

• MYLAVARAM •

TRUTH ALWAYS TRIUMPHS

HARD WORK PAYS

THERE'S A LOT INSIDE....

CHECK AND EXPLORE THE MARVELS

Let me guide you along the way through this magazine.

DEPARTMENTAL EVENTS

ACHIEVEMENTS

RESEARCH PUBLICATIONS

ARTICLES& ENGINEERING MARVELS

TRICK ZONE

STUDENT ARTS

..THERE IS MUCH MORE.....

DEPARTMENTAL EVENTS

Two week workshop program on "REVIT – ARCHITECTURE " during 13-05-2019 to 25-05-2019

The joy of engineering is to find a straight line on a double logarithmic diagram…

Thomas Koenig

ACHIEVEMENTS

ACADEMIC ACHIEVERS

ACADEMIC MERIT ONGOING

1.EDA HEEMA SHIVANI (14761A0114)
2.CHUNDURU GAYATHRI (15761A0114)
3.ADUSMALLI NAGARAJU (16761A0101)
4.PINGALA MOHAN SAI TEJA REDDY (17761A0141)

EXTRA-CURRICAL ACHIEVEMENTS

EXTEMPORE(18-02-19) BY SPOORTHI LITERARY CLUB

1.N.V.JAYASIMHA REDDY (16761A0139)

SOLVING PUZZLES(19-02-19) BY SPOORTHI LITERARY CLUB

1. G.CHINTU 16761A0115)

GROUP DISCUSSION (21-02-19) BY SPOORTHI LITERARY CLUB

1.SAIGIRI NADA(16761A0138)

BEST LIBRARY USER AWARD

1.N.V.JAYASIMHA REDDY (16761A0139)

RESEARCH PUBLICATIONS

- B. Narasimha Rao (2019) "In Elastic Response of Two Pile Group under Moment Loading" International Journal of Scientific Engineering and Research

(IJSER), Volume 7 Issue 2, ISSN : 2347-3878, Jan 2019, Page No : 20-26.

- M.Satyanarayana (2019) "Design and Analysis of Duplex Building by using CYPECAD Software" Journal of Emerging Technologies and Innovative Research (JETIR), ISSN : 2349-5162, Volume 6, Issue 3, March 2019, Page No : 353-358 (UGC Approved Journal).

- . V. Ramakrishna (2019). "A study on Water Balance in Mylavaram Mandal, Krishna District, Andhra Pradesh, India", IOSR Journal of Engineering, Volume 9, Issue 4, (April 2019), pp. 76-83 (UGC Recognized Journal)

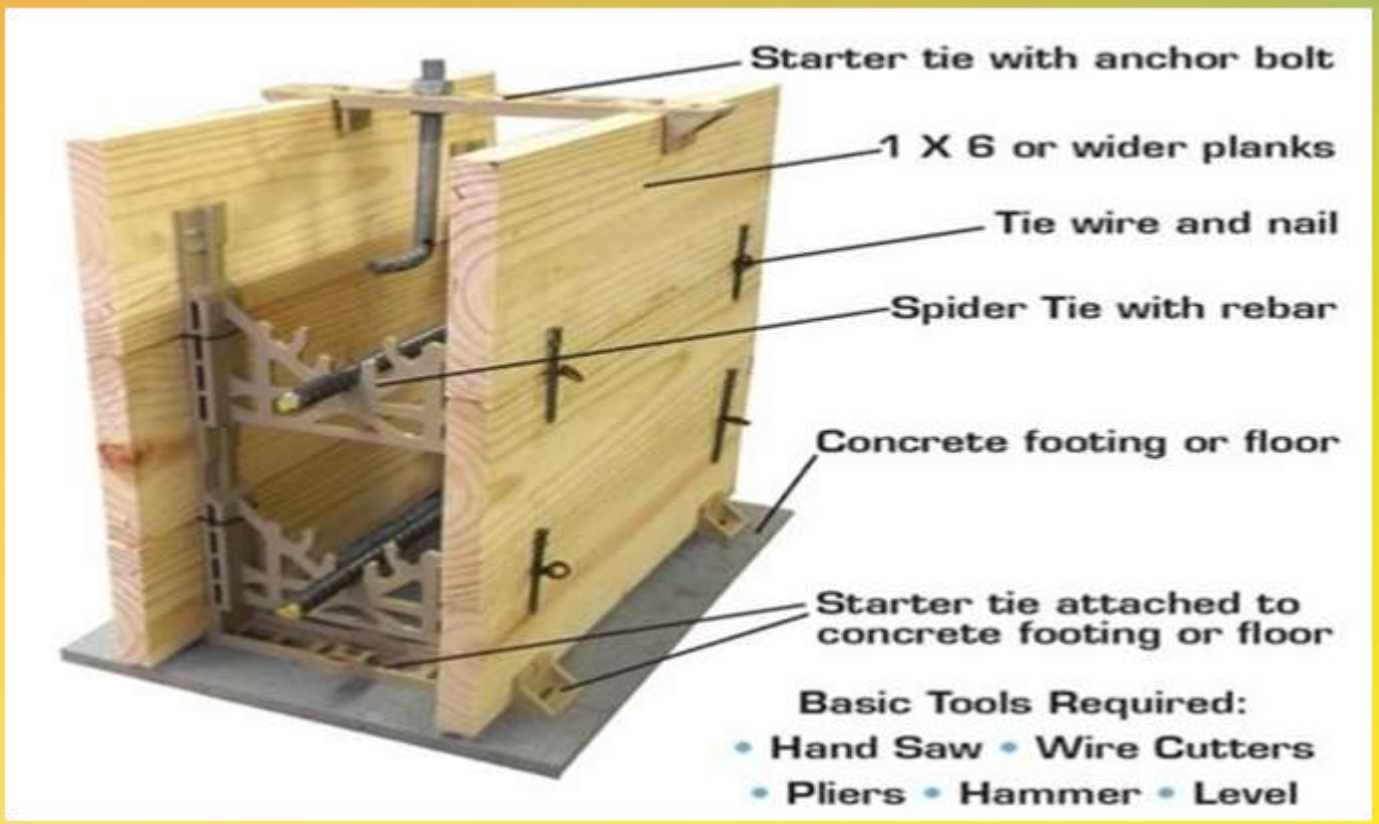
ARTICLES

SPIDER TIE TECHNOLOGY

The spider tie technology is a new construction system allows affordable and easy to build concrete walls of any shape, thickness and size .The spider tie concrete wall system is new way to form a concrete wall easily and quickly developed by the residential home construction manager Greg MCDonagh, it provides a temporary frame work that is attached to the plywood panels using special plastic ties. These ties hold the frame work in place until the concrete(of any type) has cured and afterwards you simply unscrew it so that it can be used again for future projects . The special ties on the other hand, made of recycled plastic, are used just once as they stay in the concrete once as they stay in the concrete once it has been poured. " It gives you a really easy wat to hold your forms together while you are pouring concrete", McDonagh says" It doesn't require whalers or extra bracing, it's simply a screw every six inches ".The system can be used for walls as high as 9ft and it is available in two types:Spider Tie, Dry Spider Tie Wet.

Characteristics:

The system was designed as a much easier way to form concrete walls requiring less labor. A residential structure can be built in about half the time or less in comparison to traditional methods.



The system consists of 4 main components:

- The Spider Tie forming system which uses plastic interlocking from ties to create a frame work for the form plywood to attach to with special screws.
- The special concrete mix called Light Weight Cellular Concrete(LWCC) that is used. This concrete has undergone an air entrainment process which provides it with considerable insulation properties. The mix design can achieve strengths up to 4500PSI and the weight of the finished product is reduced by as much as 45%.
- Special fibers are also introduced into the concrete mix design, as their use considerably reduces the need for large rebar. They are made of zinc coated steel stands long and are thoroughly mixed into the wet concrete before placement , creating a stronger matrix than a traditional concrete and rebar methods.
- The Speed floor forming system is used to quickly form suspended concrete floors. It consists of rolled steel joints spanning the width of the room and spaced apart . Cross bars are then inserted into the floor joints providing support for the forming plywood that is laid on the top.

Compiled by

A.AMBICA TEJASWI

16761A0102

New Developments in Glass Technology Could Make Every Structure Green

The development and increasing availability of “smart” glass technology could bring significant changes to the design of structures and transportation.

As prices drop and supplies grow, so-called “smart” glass has the potential to redefine how architects and engineers design the exterior of buildings to meet sustainability criteria, according to a report released last week by the London office of Navigant Research, Smart Glass: Electrochromic, Suspended Particle, and Thermochromic Technologies for Architecturaland Transportation Applications: Global Market Analysis and Forecasts. The firm’s energy-performance projections indicate that smart glass will see significant gains over typical high-efficiency, low-emissivity glass within the next decade, and adoption levels will grow as prices for the new technology drop and supplies increase.

There are three types of smart glass, which can be used in both the construction and transportation electrochromic, suspended particle, and thermochromic“. Usually what people are referring to when they refer to smart glass, is actually electrochromic glass,” says Eric Bloom, a senior research analyst for Navigant Research in London and a coauthor of the study. “When a charge is applied to the glass there is a change in opacity, so it can go from pretty much totally clear to pretty much totally dark, just by changing the voltage being applied.” The charge changes the opacity of the glass by moving lithium ions between two layers of film sandwiched between two layers of glass.

Electrochromic glass offers the highest performance of each of the three types of smart glass, at a typical cost of $45 to $70 per square foot, Bloom says. Suspended particle glass typically costs about 20 percent more than electrochromic glass and works as it sounds, according to Bloom. Suspended particles located between two panes of glass are controlled through the application of a very low voltage. When the charge is applied, the particles reorient themselves to either let light through or block it.

Thermochromic glass—which has been around for some time, and is the concept behind the ubiquitous color-changing glasses popularized in the 1980s and 1990s—typically costs approximately $30 to $45 per square foot, he says. By comparison, low-emissivity glass typically costs between $5 and $15 per square foot.

The volume of smart glass sold globally is expected to grow dramatically, from a very low volume this year to up to just over 2.7 million m2 by 2022. (Navigant Research). “So comparing it, $5 to $15 a square foot versus $45 to $70 a square foot—it’s quite a jump,” Bloom says. “But, having said that, the costs are coming down pretty rapidly.”

As manufacturing processes scale up over the next decade, Bloom predicts that the costs of smart glass will drop by approximately 40 percent. In the last two years alone, he points out, the market has effectively transitioned from “science projects to reality,” which is the first step in moving away from research and development toward full-scale production.

As prices decline and supply grows, the report predicts that 80 to 85 percent of the market for smart glass will come from architectural uses in new construction, while the remainder will come from the luxury automotive industry and naval applications.

Overall, the volume of flat glass used in construction and other applications represents 75 billion sqft per annum and is currently valued at roughly $375 billion globally, according to the report. The advent of smart glass thus has the potential to have an enormous impact as it is adopted by the construction industry.

The volume of smart glass produced is forecast to grow from approximately 1.4 million sqft in 2013 to approximately 929 million sqft by 2022, according to the report. “When it comes down to it, electrochromic is going to be the real winner here,” despite its high initial cost, because it is slightly easier to control and cheaper to buy than suspended particle. Thermochromic glass changes opacity when it is exposed to ultraviolet light, making it unsuitable for construction because building occupants cannot control the exterior glass opacity, he says. Because smart glass can control the amount of light that enters a space, it can reduce overall energy consumption within a building.

Controls for the glass can be integrated into a building’s mechanical system, automating the system and removing the individual human element from the technology’s use. “We see a lot of museums taking interest in smart glass as a way to silently and unobtrusively create the right lighting environment inside an art gallery without the need to move around blinds or take other measures”.

The technology has the potential to completely revolutionize architectural design as well because it enables a design team to do away with external fins or louvers to provide shading as a sustainable design element. With variable shading provided by the glass itself, energy consumption can be reduced while daylight is maximized, and the load on a building’s heating, ventilation and air conditioning system can be reduced, Bloom points out. “There’s a possibility that the air-conditioning capacity can actually be decreased, so you’re spending less money on the cooling equipment, replacing a larger chiller with a

smaller one,” he says.

The technology makes glass an active element in green design for the first time. However, while the benefits of being an early adopter of smart glass technology are tangible, especially for new construction, there are downsides, especially uncertainties about long-term performance. “A lot of building owners are still looking at technologies and saying,- ‘I really like this, and I’m even willing to pay for it, but I don’t want to have to replace all my windows in five years because the technology is starting to degrade. “So that’s another major issue—and partially, that’s only going to be solved through time, just because you do need the sort of reassurance from a product that’s been out on the market for ten years and is still working just as well as it did on day one.”

Bloom anticipates that the first three to four years of adoption will be driven by what he calls the “cool factor” of the technology. For such buildings as museums and art galleries in which controlling natural daylight is a high priority.

Compiled by

L.ANITHA

16761A0129

A good scientist is a person with original ideas. A good engineer is a person who makes a design that works with as few original ideas as possible

FREEMAN DYSON

ENGINEERING MARVELS

THREE GEORGE DAM

The **Three Gorges Dam** is a hydroelectric gravity dam that spans the yangtaze river by the town of sandouping in yiling district**,** Yichang , Hubei provience ,china. It is the world's largest power station in terms of installed capacity of 22,500 MW.

Country	**China**
Location	Sandouping, Yelling district, China
Coordinates	30°49′23″N111°00′12″E 30°49′23″N 111°00′12″E
Purpose	Power, flood control, navigation
Status	Operational
Construction began	December 14, 1994
Opening date	2003[1]
Construction cost	¥203 billion (US$31.765 billion)
Owner(s)	China Yangtze Power

Dams and spillways	
Type of dam	Gravity dam
Impounds	Yangtze River
Height	181 m (594 ft)
Length	2,335 m (7,661 ft)
Width (crest)	40 m (131 ft)
Width (base)	115 m (377 ft)
Spillway capacity	116,000 m^3/s (4,100,000 cu ft/s)
Reservoir	
Creates	Three Gorges Reservoir
Total capacity	39.3 km^3(31,900,000 acre·ft)
Catchment area	1,000,000 km^2(390,000 sq mi)
Surface area	1,084 km^2 (419 sq mi)
Maximum length	600 km (370 mi)
Normal elevation	175 m (574 ft)
Power Station	
Commission date	2003–2012
Type	Conventional
Hydraulic head	Rated: 80.6 m (264 ft) Maximum: 113 m (371 ft)
Turbines	32 × 700 MW 2 × 50 MW Francis-type
Installed capacity	22,500 MW
Capacity factor	45%

Nothing is so inspiring as seeing big works well laid out and planned and a real engineering organization.

-Frederick Handley Page

Annual generation	87 TWh
Specialities	• The Yangtze is the third longest river in the world, at almost 4,000 miles. It passes through some of China's most spectacular scenery, some of which has been lost due to the Three Gorges Dam. • The concrete and steel dam is 7,661 feet long, almost 600 feet high and used about 510,000 tons of steel – enough to build the Eiffel Tower sixty times. Some have claimed that the structure is visible from the moon, but this is not the case. • The power generated by the 34 generators is enormous. It is equivalent to burning 25 million tons of crude oil or 50 million tons of coal. • The reservoir that has been created measures 405 square miles in area and helps prevent flooding in a large area. It also allows huge ocean going freighters to sail into the heart of China. • There have been ongoing environmental concerns about the Three Gorges Dam. At least 1.24 million people had to be relocated, and some plant species have been endangered. • Although the dam can withstand a large earthquake, should it ever collapse, millions of people living downstream would be in danger. About 360 million people live within the watershed of the Yangtze River.

Compiled by
A.JASMINE
16761A0104

CAREERS

Top institutes for M.Tech in civil engineering in India

- India Institute Of Technology (Iits)
- Birla Institute Of Technology And Science
- National Institute Of Technology (Nits)
- Jawaharlal Nehru Technological University
- Anna University
- Bharathi Vidyapeeth College Of Engineering
- Symbiosis Institute Of Technology
- Lovely Professional University
- Chandigarh University
- School Of Engineering And Technology, Jain.
- Karunya Institute Of Technology And Sciences.

Improvement makes strait roads: but the crooked roads without improvement are roads of genius.

WILLIAM BLAKE

TRICK ZONE

1. Which is multiplied by itself will give the output as 12345678987654321?
2. Arrange four nines and a one and only one mathematician symbol to make it equal to 100?
3. 23,38,45,64,67,?
4. If 1111=R

   2222=T

   3333=E

   4444=N then 5555=?
5. single digits are average of themselves .example the average of is 7. Find the number with two digits that is the average of its digits?

Answers

1.11*11=121,111*111=12321 so, 111111111 is the answer.

2..199-99=100

3.12*2-1=23;12*3+2=38;12*4-3=45;12*5+4=64;12*6-5=67 ; 12*7+6=90. Answer is 90

4.1+1+1+1=four->R

2+2+2+2=eight->T

3+3+3+3=twelve->E

4+4+4+4=sixteen->N

5+5+5+5=twenty->Y

5.(4+5)/2=4.5

STUDENT ART GALLERY

ART BY
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