Vol: 1 Issue: 13 June 2018

REalVIEW

a monthly realty news digest

ASSET

Responsibly Yours

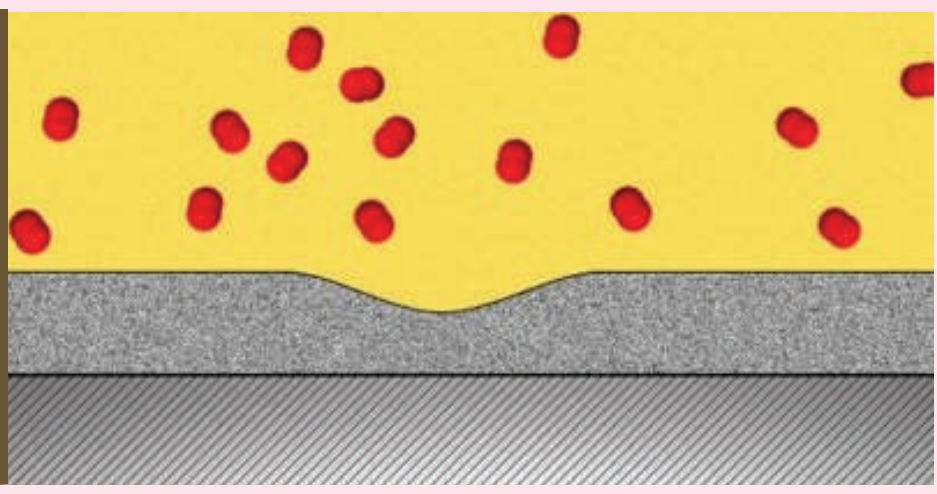
Dear Readers,

REalVIEW is a monthly news digest bringing to our clients and well-wishers news updates on major developments in the realty industry . The periodical will keep the readers updated on the significant changes and trends affecting real estate development within the country as well as globally, thus helping them in taking informed and calculated investment decisions.

Responsibly yours,

V. Sunil Kumar
Managing Director
Asset Homes

Self-healing metal oxides could protect against corrosion



Researchers have found that a solid oxide protective coating for metals can, when applied in sufficiently thin layers, deform as if it were a liquid, filling any cracks and gaps as they form.

The thin coating layer should be especially useful to prevent leakage of tiny molecules that can penetrate through most materials, such as hydrogen gas that could be used to power fuel-cell cars, or the radioactive tritium (a heavy form of hydrogen) that forms inside the cores of nuclear power plants.

Most metals, with the notable exception of gold, tend to oxidize when exposed to air and water. This reaction, which produces rust on iron, tarnish on silver, and verdigris on copper or brass, can weaken the metal over time and lead to cracks or structural failure. But there are three known elements that produce an oxide that can actually serve as a protective barrier to prevent any further oxidation: aluminum oxide, chromium oxide, and silicon dioxide.

It turns out that the old standby coating material, aluminum oxide, can have just that liquid-like flowing behavior, even at room temperature, if it is made into a thin enough layer, about 2 to 3 nanometers (billionths of a meter) thick.

Courtesy: https://www.sciencedaily.com/releases/2018/04/180404114710.htm

500-year-old leaning tower of pisa mystery unveiled by engineers

Why has the Leaning Tower of Pisa survived the strong earthquakes that have hit the region since the middle ages? This is a long-standing question a research group of 16 engineers has investigated, including a leading expert in earthquake engineering and soil-structure interaction from the University of Bristol.

Despite leaning precariously at a five-degree angle, leading to an offset at the top of over five metres, the 58-metre tall Tower has managed to survive, undamaged, at least four strong earthquakes that have hit the region since 1280.

Given the vulnerability of the structure, which barely manages to stand vertically, it was expected to sustain serious damage or even collapse because of moderate seismic activity. Surprisingly this hasn't happened and until now this has mystified engineers for a long time. After studying available seismological, geotechnical and structural information, the research team concluded that the survival of the Tower can be attributed to a phenomenon known as dynamic soil-structure interaction (DSSI).

The considerable height and stiffness of the Tower combined with the softness of the foundation soil, causes the vibrational characteristics of the structure to be modified substantially, in such a way that the Tower does not resonate with earthquake ground motion. This has been the key to its survival. The unique combination of these characteristics gives the Tower of Pisa the world record in DSSI effects.

Courtesy: https://www.sciencedaily.com/releases/2018/05/180509105004.htm

Engineers upgrade ancient, sun-powered tech to purify water with near-perfect efficiency

The idea of using energy from the sun to evaporate and purify water is ancient. The Greek philosopher Aristotle reportedly described such a process more than 2,000 years ago.

Now, researchers are bringing this technology into the modern age, using it to sanitize water at what they report to be record-breaking rates.

By draping black, carbon-dipped paper in a triangular shape and using it to both absorb and vaporize water, they have developed a method for using sunlight to generate clean water with near-perfect efficiency.

As Gan explains, "Usually, when solar energy is used to evaporate water, some of the energy is wasted as heat is lost to the surrounding environment. This makes the process less than 100 percent efficient. Our system has a way of drawing heat in from the surrounding environment, allowing us to achieve near-perfect efficiency."

The low-cost technology could provide drinking water in regions where resources are scarce, or where natural disasters have struck

Courtesy: https://www.sciencedaily.com/releases/2018/05/180503142639.htm

New algorithm could add life to bridges

A new algorithm developed by the University of Surrey could help structural engineers better monitor the health of bridges and alert them to when they need repair faster.

Many authorities and organisations use structural health monitoring systems to keep track of the health of bridges, along with the weight of the traffic that it withstands on a day-to-day basis. This leads to a very high sampling rate of data, with some reaching at least 10 Hz and databases that have gigabytes worth of information on a singular structure -- which is expensive to house.

Courtesy: https://www.sciencedaily.com/releases/2018/04/180416121547.htm

continued to page 02

continued from page 01

Scientists create innovative new 'green' concrete using graphene

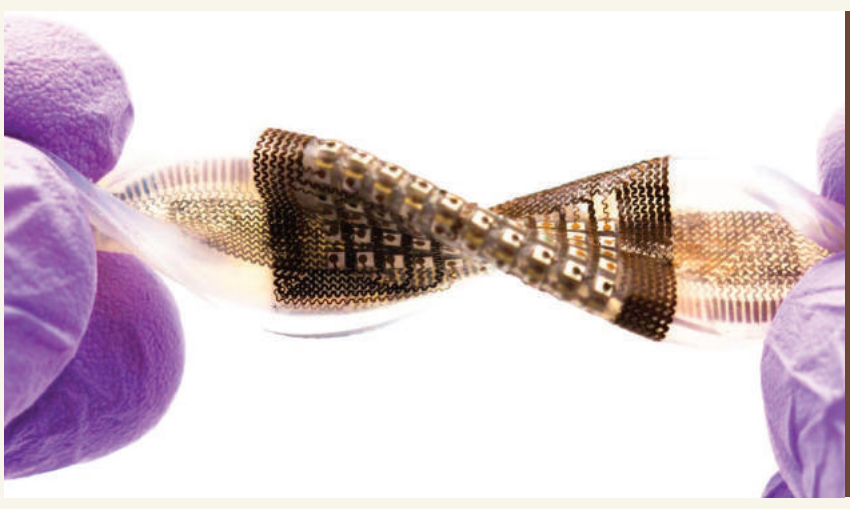
A new greener, stronger and more durable concrete that is made using the wonder-material graphene could revolutionise the construction industry.

Experts from the University of Exeter have developed a pioneering new technique that uses nanoengineering technology to incorporate graphene into traditional concrete production.

The new composite material, which is more than twice as strong and four times more water resistant than existing concretes, can be used directly by the construction industry on building sites.

Crucially, the new graphene-reinforced concentre material also drastically reduced the carbon footprint of conventional concrete production methods, making it more sustainable and environmentally friendly.

Courtesy: https://www.sciencedaily.com/releases/2018/04/180423110721.htm



Flexible ultrasound patch could make it easier to inspect damage

in odd-shaped structures

Researchers have developed a stretchable, flexible patch that could make it easier to perform ultrasound imaging on odd-shaped structures, such as engine parts, turbines, reactor pipe elbows and railroad tracks -- objects that are difficult to examine using conventional ultrasound equipment.

The ultrasound patch is a versatile and more convenient tool to inspect machine and building parts for defects and damage deep below the surface.

The new device overcomes a limitation of today's ultrasound devices, which are difficult to use on objects that don't have perfectly flat surfaces. Conventional ultrasound probes have flat and rigid bases, which can't maintain good contact when scanning across curved, wavy, angled and other irregular surfaces.

Now, a UC San Diego-led team has developed a soft ultrasound probe that can work on odd-shaped surfaces without water, gel or oil.

The probe is a thin patch of silicone elastomer patterned with what's called an "island-bridge" structure. This is essentially an array of small electronic parts (islands) that are each connected by spring-like structures (bridges). The islands contain electrodes and devices called piezoelectric transducers, which produce ultrasound waves when electricity passes through them. The bridges are spring-shaped copper wires that can stretch and bend, allowing the patch to conform to nonplanar surfaces without compromising its electronic functions.

Courtesy: https://www.sciencedaily.com/releases/2018/03/180323141345.htm

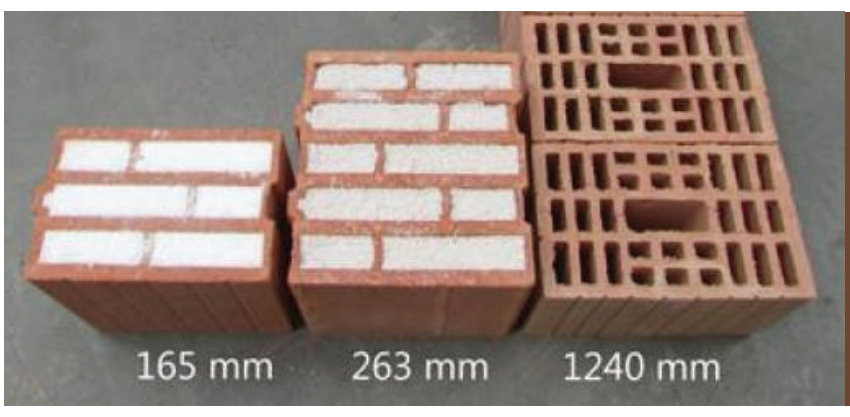
Suiker's equations prevent 3-D-printed walls from collapsing or falling over

3D-printed materials commonly are soft and flexible during printing, leaving printed walls susceptible to collapse or falling over. Akke Suiker, professor in Applied Mechanics at Eindhoven University of Technology, had a Eureka moment and saw the solution to this structural problem. He developed a model with which engineers can now easily determine the dimensions and printing speeds for which printed wall structures remain stable. His formulae are so elementary that they can become commonplace in the fast growing field of 3D printing.

Conventional concrete deposited in formwork typically is allowed to harden over period of several weeks. But 3D-printed concrete is not. With no supporting formwork, it almost immediately has to bear the weight of the subsequent layers of concrete that are printed on top of it. Everybody can feel the tension rising in their body as the structure gets higher. Is it already stiff and strong enough to add yet another layer on top? It is one of the most important issues in the new field of 3D printing.

When asked whether his results will be important for the field of 3D printing, Suiker is without doubt. "They should be. The insights provided by the model create essential basic knowledge for everyone who prints 3D structures. For structural designers, engineering firms but also, for example, for companies that print thin-walled plastic prostheses of small dimensions, because that is where my equations also apply." The first interest is already there: he has been invited by Cambridge University to give a seminar lecture about his work.

Courtesy: https://www.sciencedaily.com/releases/2018/02/180214093847.htm



Insulating bricks with microscopic bubbles

The calculation is simple: the better a building is insulated, the less heat is lost in winter -- and the less energy is needed to achieve a comfortable room temperature. No wonder, then, that the Swiss Federal Office of Energy (SFOE) regularly raises the requirements for building insulation.

Traditionally, the insulating layers are applied to the finished walls. Increasingly, however, self-insulating bricks are being used -- saving both work steps and costs and opening up new architectural possibilities. Insulating bricks offer a workable compromise between mechanical and thermal properties and are also suited for multi-storey buildings. They are already available on the market in numerous models: some have multiple air-filled chambers, others have larger cavities filled with insulating materials such as pearlite, mineral wool or polystyrene. Their thermal conductivity values differ depending on the structure and filling material. In order to reach the insulation values of walls with seperate insulating layers, the insulating bricks are usually considerably thicker than normal bricks.

A comparison in a special measuring device for thermal conductivity at an average temperature of 10°C shows that the perlite-filled bricks with the same structure and thickness insulate by about a third less than the aerobrick. In other words, in order to achieve the required insulation values, a wall of perlite brick must be about 35% thicker than an aerobrick wall.

Even more impressive is the comparison with ordinary brickwork made of non-insulating bricks: These conduct heat up to eight times better. A conventional wall would therefore have to be almost two metres deep in order to insulate as well as an aerobricks wall of just 20 centimetres in depth. With a measured thermal conductivity of just 59 milliwatts per square meter and Kelvin temperature difference, the Aerobrick is currently the best insulating brick in the world.

Courtesy: https://www.sciencedaily.com/releases/2018/01/180115121637.htm

This east Delhi colony is now powered by Sun

Courtesy: https://timesofindia.indiatimes.com/city/delhi/this-east-delhi-colony-is-now-powered-by-sun/articleshow/64151773.cms?utm_campaign=andapp&utm_medium=referral&utm_source=whatsapp.com

Prepared By

ASSET
Responsibly Yours

Follow Us :