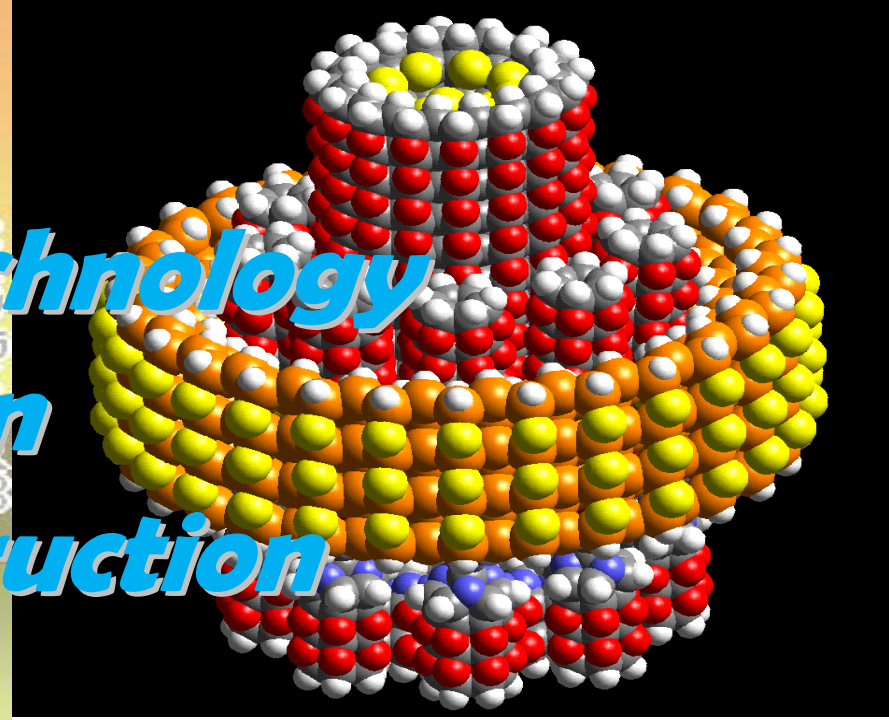
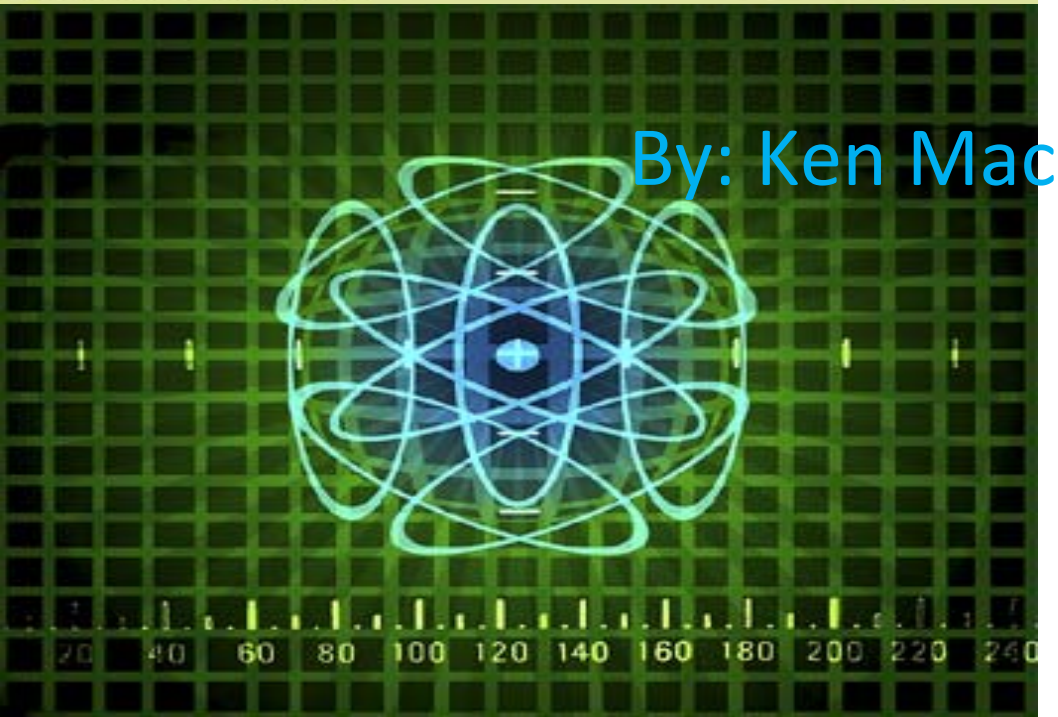
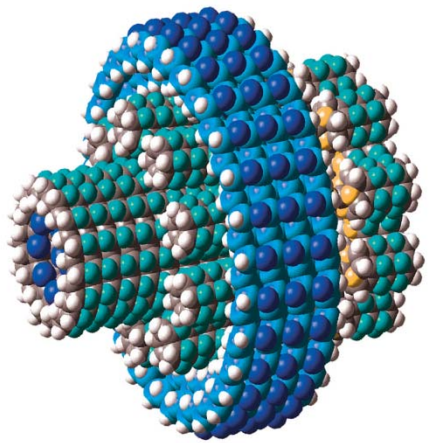
Nanotechnology in Construction





NANOTECHNOLOGY

By: Ken MacGilfrey



Why is it Used?

Concrete can be made stronger, more durable and more easily placed, steel tougher and glass self-cleaning. Increased strength and durability are also a part of the drive to reduce the environmental footprint of the built environment by the efficient use of resources.

Concrete, and Steel

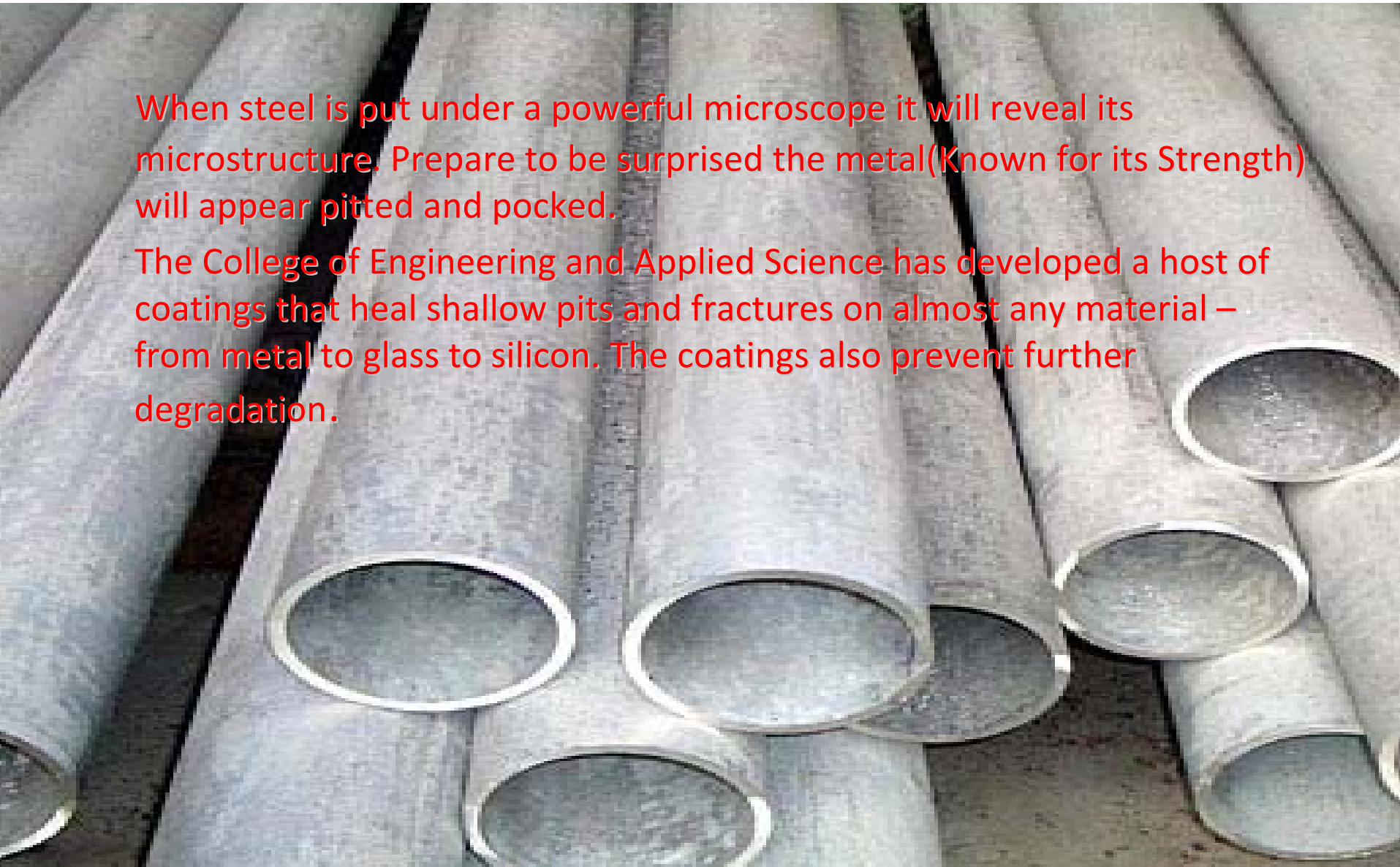
UP TO SIX TIMES STRONGER

How does it Work?

The strength of a material can be improved by using nano-silica which leads to the micro and Nanostructure densifying resulting in improved mechanical properties.

As a result,
the compressive strength of the refined material is about 3 to 6 times higher

Steel Made Stronger?



When steel is put under a powerful microscope it will reveal its microstructure. Prepare to be surprised the metal(Known for its Strength) will appear pitted and pocked.

The College of Engineering and Applied Science has developed a host of coatings that heal shallow pits and fractures on almost any material – from metal to glass to silicon. The coatings also prevent further degradation.

Glass Too?

When you use traditional glass the higher the transparency the more light is let in, and more heat energy entering a structure.

The development of special glass coatings means that a high level of light gain can now be achieved with a significantly lower subsequent thermal heat gain.

So what do these ‘coatings’ do?

Anti-bacterial, self-cleaning and photovoltaic versions of this coating is among the recent advancements in nanotechnology.

Benefits and Advantages

- Water repellent, and Dust Repellent
- UV Protection
- Conserves Air-Condition Load
- Protects glass from corrosion EX: Acid Rain etc.
- Easy application through spraying, polishing, immersion, smearing etc..
- Optically Transparent
- Low cleaning and Maintenance requirements.
- Resistant against Dirt, Algae, Scales etc.

Is it ‘Green’?

Imagine having a house made of glass, and never having to clean a pane of glass or turn on the heat or turn on the A/C. Impossible?
I think not with new advancements in Nanotechnology there is now Self cleaning glass. This glass can not only clean it’s self but it can absorb light and reflect heat. So your warm in the winter and cool in the summer.

Concrete

Concrete is now being made by using nano-silica which leads to a densifying of the micro and nanostructure resulting in improved mechanical properties

Could I do this?

Yes! Colleges all around the world are offering free schooling in nano technology as almost every country in the world is looking to find nano Scientists.

2year degree in material science has a 65,000 starting pay average.

Resources

- NanoWerk – Construction
- NanoForum – PDF
- Ican Nano Glass PDF