Researcher at the University of Cambridge are making small batches of the artificial bone and are now in the process of scaling it up for production use. However, the biggest setback is the use of animal collagen. It isn't exactly eco-friendly - or even sustainable - so the researchers are hoping to perfect the mixture with an artificial collagen to bind with the mineral of the eggshell.

The researchers also recognize getting the building industry to use new materials is like pulling teeth and it could be a few decades before the industry is ready to use something like artificial bone to create the next apartment community.

Now to some this solution might seem backwards or even sound unusual, but it is a smart move to make. Concrete and steel account for 10 percent of carbon emissions worldwide. Natural materials like bone or eggshell should manage similar strength without the pollution.

"*What we're trying to do is to rethink the way that we make things,*" says team leader and bioengineer Michelle Oyen. "*Engineers tend to throw energy at problems, whereas nature throws information at problems - they fundamentally do things differently.*"

Oyen's lab has already made small batches of artificial bone and eggshell, and the process is really cheap to do. Now they just have to scale it up.

They made the bone by taking animal collagen, one of the most abundant proteins in the world, and created templates on layers of minerals.

The bone is made up of mineral and protein, with the mineral giving hardness and stiffness and the protein building up resistance. According to Engadget, the eggshell is thinner and lighter, making it more fragile, is about 95% mineral and 5% protein.

The hope is that they will be able to layer the materials. "*One of the interesting things is that the minerals that make up bone deposit along the collagen, and eggshell deposits outwards from the collagen, perpendicular to it,*" says Oyen. "*So it might even be the case that these two composites could be combined to make a lattice-type structure, which would be even*

*stronger - there's some interesting science there that we'd like to look into.*"

The building industry isn't really all that ready to use it yet. "*All of our existing building standards have been designed with concrete and steel in mind. Constructing buildings out of entirely new materials would mean completely rethinking the whole industry,*" says Oyen.

Sources:
http://www.i4u.com/2016/06/112804/bone-could-be-future-building-materials