

Breakthrough Construction Technology or 'ConTech' Patent Issued by US Patent Office

The "ConTech" Patent is for a Vaulted Stay-In-Place Concrete Reinforcement System that also is Sustainable and is Made 100% of Recycled Materials such as FRP.

GARRISON, NY, UNITED STATES, January 6, 2026 /EINPresswire.com/ -- A patent for a

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The idea of using geometry such as arches or vaults when strengthening concrete is as old as Roman times. But using it for concrete flatwork reinforcement in place of rebar is -- remarkably -new.”

*Ashok Chaudhari, Founder
and Inventor, ST Bungalow
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breakthrough construction technology or "ConTech" has been awarded today by the US Patent and Trademark Office (USPTO). The patent is for a concrete reinforcement system that stays in place and uses geometry to push the concrete used in floors and other structures to pure compression. This compression greatly improves the overall strength of the flat concrete structure (e.g. roof, floor, bridge decking) while simultaneously reducing the amount of concrete needed. The stay-in-place (SIP) formwork system is made 100% of recycled materials such as composites from wind turbine blades and plastics from bottles and provides whatever tensile strength may be needed even with the added compression. No steel reinforcement bars or decking are therefore required. This

offers a major breakthrough providing cost savings by reducing labor, material, and transportation costs. By replacing costly and labor intensive steel rebar (or FRP rebar) and steel decking, while reducing concrete usage, the embodied carbon footprint of a building is also lowered.

The design uses shapes such as arches and vaults to achieve the high compression and, remarkably, modeling shows that a live load capability of 300PSF is possible. This is way over the standard live load requirements for residential and commercial buildings which are 40PSF and 100PSF respectively.

The idea of using geometry for forming and strengthening concrete structures is now trending in Europe. The patent is the third in a portfolio covering the novel approach to making concrete flatwork / structures and is owned by the inventors architect Michael Molinelli and Ashok Chaudhari, of [Molinelli Architects](#) and ST Bungalow LLC, respectively. The first patent in the portfolio was issued in 2015 and can be found here:

<https://share.google/Sbq6QGoznZVnVJ9Yn>

The second patent, issued in 2016, can be found here:

<https://share.google/dJoehwHU1sF3cHOM0>

The latest patent, issued today, now completes a robust patent portfolio covering the core concept and additional materials.

The past two years Molinelli Architects and ST Bungalow have been developing the patents from a [US grant award](#).

The commercial prospects are enormous. The steel rebar market value is > \$200 Billion. This means that a mere 1% slice of the market would amount to a >\$2 Billion dollar company. This is a highly conservative estimate given the ingenuity of the patents which could lead to a market share greater than just 1%.

The patented stay-in-place formwork system is expected to be of interest to contractors building data centers since it is designed to speed up concrete slab reinforcement and the material is non-metallic which in data center construction can mean reduction in heat. The vaulted / arched shape also means there is space to install wiring and improve acoustics.

In addition to the enormous commercial potential of the invention, it offers improved safety for workers since steel rebar is replaced entirely by composites or plastic and the vaulted / arched forms are simply lifted and put in place. The forms do not have sharp ends and require less intricate, risky labor. In fact, since the forms are left in place after concrete pouring there is no labor needed to take down and clean formwork. Formwork alone represents 30 - 60% of concrete slab cost.

The material cost of the vaulted stay-in-place non-ferrous formwork system is also low since a significant percent of each form is made from recycled fiber reinforced polymer (FRP) mechanically shredded from wind blades which currently is available by recyclers at no cost. The patented system would therefore consume large amounts of recycled wind blade material thus finally offering a sorely needed solution to what has been an intractable problem in the wind turbine blade industry, namely, what to do with all the recycled blade material. The patented system thereby "drives" the circularity in the recycling of wind blades by consuming large amounts of FRP via profitability. The solution is bankable.

In situations where moisture adversely affects steel rebar and decking, due to climate adverse conditions or cracks allowing moisture to contact steel causing corrosion, the patented system provides an additional advantage.

Molinelli Architects and ST Bungalow LLC are currently in discussions to license and

commercialize the patented technology and welcome any inquiries towards this end.

The patent number is: US 12,516,522 B2.

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