

# COLLABORATE newsletter

MARCH 2016

## 3D printing may change the global construction industry forever

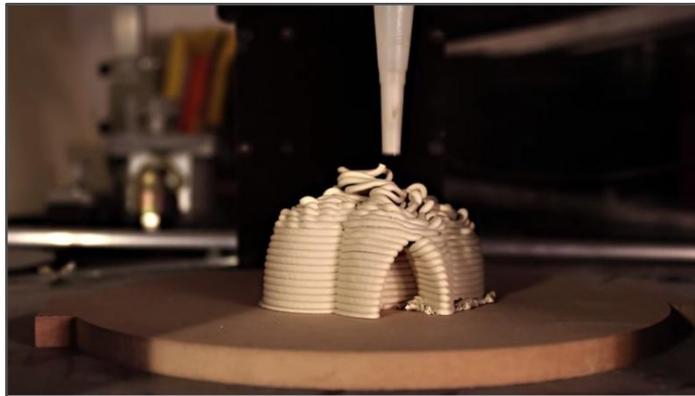
The concept has been around for some time but the actual adaption of 3D printing in the construction industry is starting to become a reality. Architects and contractors around the world are beginning to build the first 3D residential structures including houses and apartment buildings.

This is done using super-size printers which use a special concrete and composite mixture that is thicker than regular concrete, allowing it to be self-supporting as it sets. In addition, curved concrete structures created through 3D printing can be hollow, using less material and creating space for building services inside the structural elements.

Italian engineering company WASP has aspirations to solve the global housing crisis by building houses using sustainable materials. Their 40ft tall, 20ft wide printer is able to build structures using products like clay or dirt in order to maximise its use in areas with limited infrastructure or resources.

Consisting of a metal frame that suspends a nozzle, it uses very little

energy to gradually build up layers of



3d Printer Delta WASP 12m\_The reality of dream

clay, eventually forming a basic structure. Their project's first test of the prototype was last September. It can be viewed on YouTube: <https://www.youtube.com/watch?v=CZMTQLVTJdA> (*image attached*).

Chinese company Winsun claims to have built 10 3D constructed houses in one day at a cost of just US\$5,000 per house, a five-story apartment building and an 11,840-square-foot villa, on display at Suzhou Industrial Park. Their 3D printer fabricates the building parts in large pieces at the company's facility.

Winston then assembled the pieces on-site adding steel reinforcements and insulation.

In an article from CNET, Winsun says the 3D process saves between 30-60% of construction waste, can reduce production times by 50-70% and reduce labour costs by 50-80%. The company hopes to use its technology on much larger scale constructions, such as bridges and skyscrapers. A Dutch company intends to use 3D printers to build a bridge made out of printed steel, but where the bridge will be built is yet to be decided.

Dr. Behrokh Khoshnevis of University of Southern California has spent more than 15 years developing his Contour Crafting system and hopes to extend the fabrication process even further. "Contour Crafting technology has great potential for automating the construction of whole structures as well as sub-components." Khoshnevis hopes to develop a gigantic 3D printer that could print an entire house in a single run including the structure and all its conduits.

## The Money Pit

### Proposed changes to the Strata Legislation

Following the recent strata law reform process, it has been proposed that tenants be entitled to be given notice of scheduled general meetings and invited to attend those meetings. In schemes that are predominantly occupied by tenants, they'll also have the right to appoint a tenant representative to the executive committee. They can be excluded from discussion on certain financial matters and will not be entitled to address the meeting or vote, unless they hold a proxy. Though, it might become more common for tenants to request a proxy, especially with commercial tenancies.

There will be increased scope for by-laws regulating occupation of lots, e.g. limiting occupant

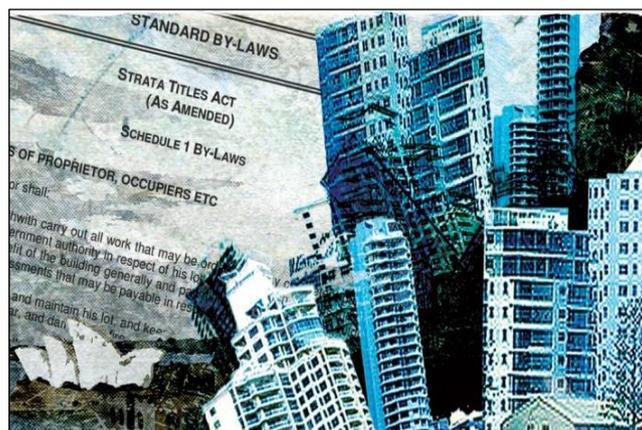
numbers. By-laws will take on a greater importance, with greatly enhanced enforcement powers to be available.

An abandoned goods provision is to

be made for disposal of abandoned goods, often left behind by tenants on vacating rented apartments.

In addition to making life easier for lot owners and strata managing agents, this may pre-empt some disputes between owners' corporations and investor lot owners.

Owners' corporations and their strata managing agents should take advice on how these changes can be used to enhance the amenity of their building.





# Signature message

- by Dean Gavrilovic

I know you're interested in the work that SPM does, so I thought I'd briefly highlight something we're working on at the moment which has us buzzing. It is a real example of how diverse our spectrum of projects is. We are proud of every project we do, but this has us

particularly excited due to its very nature.

Nature being the key word! It is the development of a **NEW Zoo** over 16.5 hectares in Bungarabee, western Sydney. The \$35M project is still at DA stage and the community consultations period has just closed, but when given the "green light" it will have a significant

impact on the lifestyle of Sydneysiders, not to forget the income potential from tourism.

It is a challenging project but also exciting to be part of something that will bring such enjoyment to our great city. Maybe we'll see you there after its planned opening at the end of 2017!

## Too much negativity?



The Australian in February reported that according to top property industry executives cutting back negative gearing would add nothing to the government's bottom line and could create more investor uncertainty in a time of increasingly volatile share markets.

Assistant Treasurer Kelly O'Dwyer said on ABC radio she "was not convinced yet" of the need to reform negative gearing. "We have to be very,

very careful when we examine these sorts of changes, like any other taxation changes, that we're not going to lead to unintended consequences that might in fact damage our economy," she said.

It is unclear what path the government might take if the issue is pursued; whether cuts to negative gearing would apply retrospectively and whether they would apply to all rental housing or just existing properties. Other possible changes could include limiting the number of properties that could be negatively geared or capping the amount that could be claimed.

Grattan Institute Chief Executive John Daly said the simplest solution would be to restructure negative gearing "so you can't claim losses against wages and salary income. You could ultimately claim those losses from the profit when

you sell the property - in the short run that would improve the commonwealth budget balance by about \$4bn, but that would decline to about \$2bn over time, because people would accumulate losses and pay less tax on their capital gains in the future." The Business Council of Australia's position seems to concur with this.

This approach echoes parts of the policy being advanced by Labor: it wants to quarantine losses from existing properties against investment income. However, the Business Council does not suggest any limits on the number of negatively geared properties, or a limit on deductions or a limit to only new properties, as Labor proposes, saying these measures would distort the market..

## Latest News

### Outstanding Results

We would like to congratulate our collaborative partners SDA Structures on their win this month in the Association of Consulting Structural Engineers' (ACSE) Awards 2015. They won the "Small Building Projects" category for the New Entry Foyer Crystal Hall project at the Australia Museum in Sydney. Being on a public Heritage

building, the new Crystal Hall is unique and is something to be admired by all. SDA Structures were commended on providing a strong engineering solution. The structural design exceeded the brief by using innovative stability solutions and made a feature of the glass facade while maximising visibility of the original heritage listed building. The

architectural detailing of the steelwork and its integration with the facade was described as an engineering highlight of the project. The result provides an energy efficient entry and circulation area while adding the first new exhibition space to the Museum in 50 years. Signature Project Management was involved as Project Manager.

### Thought of the month ...

"Do the kind of job that if at the end of the day, your employer had to pay you what you were worth, they couldn't afford to keep you, rather than for you to owe them."

Christine Brown



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