3D PRINTING: NEW TECHNOLOGY, NEW RISKS

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The construction industry was booming in the United States in the first quarter of 2020 – then COVID-19 hit. The industry has experienced project delays and shutdowns, supply disruptions, increased safety protocols, rising materials costs, and labor shortages in the past year. But with the lessons learned from the 2008 recession and the use of emerging technology, the industry is poised to emerge stronger after the pandemic.

3D printing in the construction industry is a fairly new technology with very few players actively using it. Most people are now familiar with 3D printing for producing construction models and even components. But what about an entire structure made by 3D printing? The majority of the 3D printers used in the construction industry, or under development, use concrete extrusion – typically a small continuous filament pumped through a nozzle. They can 3D print walls, foundations, and other concrete components; however, other trades, at least for now, will largely have to utilize traditional means and methods. 3D printing has the potential to become more normalized in construction and more entities will begin to use it.

Earlier this year, the first 3D printed house in the United States was listed for sale on Long Island, in Riverhead, New York. At approximately 1,400 square feet, with an asking price of $299,999, the home, built by SQ4D, Inc., touts lower energy costs, a stronger build than traditional concrete structures, and the use of a sustainable building process. SQ4D's website boasts that its construction process is three times faster than traditional construction, with a 70% reduction in costs, and can be done by a team of only three laborers. The ability to 3D print the concrete portions does offer several advantages to the construction industry, the biggest due to the lack of manual labor:

- Less expensive
- Faster
- Consistent

The consistency and exactness that can be achieved with 3D printing may result in fewer construction defects and, as a result, fewer disputes and less litigation at the end of a project. 3D printing largely removes the human error potential from the component being built. It works by using computer-aided design (CAD) to create three-dimensional objects by precisely layering building materials. In other words, the digital model is transferred to a physical model. Defects would be limited to faults in the original design or the material used. This is not to say defects will be entirely eliminated by reducing the number of laborers required for 3D printing. Weather, other environmental factors, and quality control – 3D printing still requires human oversight – could all result in defects.

Any business that prints its own 3D components or structures needs to be aware of issues that intersect with patent, copyright, and trade dress law. Some of the "text objects" that are used in printing a 3D item are non-copyrightable because they're too utilitarian, but someone may have a patent on the design, or hold a registration for the trade dress manifested by the printed item, or the design on the useful article may be

protected by copyright on its own. More importantly, if a business hires a contractor or third-party company to create '.stl' files for it to use, the business should ensure that it has the proper assignments, or at least licenses, with the creator so it can use, modify, and even share or sell, the files, on an ongoing basis. Additionally, businesses should be aware of indemnification language and licenses; downloading the Terms of Use policy whenever using a third party's text object file should be considered a best practice.

At the end of the day, whether 3D printed or built conventionally, all buildings and their components must meet building codes and safety regulations. However, there is currently very little regulation for 3D printing in construction. The industry will need to proactively create these standards and regulations to continue ensuring safe and defect-free construction.

Developers, contractors, architects, and other industry players should be careful to obtain all required or necessary insurance coverage if using 3D printing. This includes, but is not limited to, considering any damage to the project, bodily injury, and accidents involving the printer itself. As the technology is fairly new and not in wide use, premiums may be higher. Companies may need to engage a risk manager. Professionals, such as architects and engineers, should check that their insurance covers any professional negligence and errors or omissions that may result from the 3D printing design and process. The party's contract may not require additional coverages that should be obtained. So consultation with a lawyer and insurance agent or broker should become a matter of course.

3D printing can revolutionize the construction industry. However, there are still more questions than answers. As the technology becomes more widely used, everything from building codes to insurance to intellectual property rights will have to be considered and modified accordingly.

Berger Singerman is here to help. Berger Singerman's construction team is available to advise on a broad range of construction issues, from initial land acquisition through post-completion disputes. Further, when a business creates its own original 3D printing files, Berger Singerman is available to advise businesses as to when they can seek patent, copyright, and possibly trade dress protection for their original and distinctive elements of building components.

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