

June 29, 2015

Jacqueline C. Charlesworth  
General Counsel and Associate Register of Copyrights  
United States Copyright Office  
Library of Congress  
101 Independence Ave. SE  
Washington, DC 20559

Re: Docket No. 2014-7  
Exemptions to Prohibition Against Circumvention of Technological Protection  
Measures Protecting Copyrighted Works  
Proposed Class 26: Software-3D Printers

Dear Ms. Charlesworth:

Thank you for your follow up questions. It is unlikely that the Librarian could draw a meaningful distinction between types of 3D printer users without inadvertently including or excluding many users. As such, I do not recommend differentiating between types of users for the purposes of this exemption. Instead, the Register should recommend this exemption for all 3D printer users.

### **Blurring Distinctions**

To the extent that there was ever a formal distinction between consumer and professional users of 3D printing, that distinction has long since eroded. Even Stratasys has positioned what may have once been considered a “consumer-oriented” printer - its Makerbot line - as a “prosumer” machine. This move towards prosumer branding of lower cost printers was noted as early as 2012<sup>1</sup> - making it old in 3D printing terms - and has only accelerated since.

Indeed the existence of the prosumer - whether you see the term as a portmanteau of professional and consumer, producing and consumer, or proactive and consumer - serves to highlight the challenges inherent in drawing distinctions between users in the world of 3D printing. Relatively low cost desktop machines are used in commercial and industrial settings everyday. The e-NABLE community uses them to create production prosthetic hands.<sup>2</sup> Medical device designers use them to prototype designs<sup>3</sup> and print anatomically correct surgical models.

<sup>4</sup> In fact, Stratasys’ own Makerbot has an entire section of its website devoted to professional

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<sup>1</sup> Juho Vesanto, *The Era of ‘Prosumer’ and 3D Printing*, 3D Printing Industry (Oct. 19, 2012)  
<http://3dprintingindustry.com/2012/10/19/the-era-of-the-prosumer-3d-printing/>

<sup>2</sup> <http://enablingthefuture.org/>

<sup>3</sup> Michelle Choi, *3D Printing in Medicine: Sutrue’s Surgical Prototypes*, Formlabs Blog (July 7, 2014)  
<http://formlabs.com/company/blog/2014/07/07/3d-printing-surgical-tools-sutrue-feature/>

<sup>4</sup> Salvatore Vilard, *Medical Uses for Formlabs*, Formlabs forums (Feb. 5, 2014)  
<http://forum.formlabs.com/t/medical-uses-for-formlabs/852>

use cases for Makerbot printers.<sup>5</sup> Conversely, services such as Shapeways and Techshop make traditional higher end business machines available at a low cost to users focused on more personal, non-commercial applications.

As the pace of innovation increases, even the functional distinctions between less expensive and more expensive machines begin to blur. Technologies that were once only available in machines costing tens or hundreds of thousands of dollars are migrating into machines available for three or four figures. The result of this is that any given model of machine is likely to be used by a broad spectrum of users for a broad spectrum of uses. Even machine cost cannot act as a reliable proxy for differentiating between machines for commercial or personal users.

Attempting to draw distinctions based on what is being printed is no more straightforward. An object can move from idea to prototype to final product on the same machine. Indeed, some objects that begin as personal projects may evolve into commercially available products over time. Similarly, a single object can contain elements printed on numerous 3D printers of varying levels of technical capability.

One of the advantages of 3D printing is that it blurs the line between prototype and final product. Another is that it puts the production of finished, professional products into the hands of everyday users. Without the need to retool between jobs, a single printer can easily begin the day printing personal trinkets and end the day printing components of a commercial product without ever changing the material used to print. In fact, sometimes a single printer has batched jobs and is printing both at the same time.

### **No Reason to Exclude the Commercial Supply Chain from the Exemption**

Some non-copyright-related objections to this exemption request focus on the use of 3D printers specifically in the commercial supply chain. To the extent that the Copyright Office is considering those non-copyright-related concerns as legitimate in the context of this exemption evaluation, it would seem to be especially nonsensical to prevent participants in the commercial supply chain from using third party consumables in their printers.

Setting aside the compelling reasons for all 3D printer users to be able to use consumables of their choice as they see fit, in many ways commercial supply chain manufacturers are the best positioned to evaluate the legal and safety ramifications of their preferred consumables. As a group, such manufacturers are more likely to have the type of technical and legal expertise to evaluate the impacts of using third party materials in their production. While this level of technical and legal expertise should not be a requirement to use third party consumables, it would be somewhat nonsensical to exclude the parties most likely to have such expertise from this exemption.

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<sup>5</sup> <http://www.makerbot.com/uses/for-professionals>

## **Industry-Specific Concerns Are Best Addressed Elsewhere**

3D printers are general purpose machines. That means that they can be used across industries for an almost unimaginably wide variety of purposes. Because a single machine can print multiple objects simultaneously, one 3D printer can be used across multiple industries at the same time.

Opponents have raised speculative concerns about the use of 3D printing in specific industrial applications such as airplane construction. With respect to the Copyright Office, such concerns are well beyond the expertise of this proceeding. The Copyright Office and the Librarian of Congress do not possess the expertise to evaluate the potential threats raised by the use of third party consumables in the construction of airplane parts. Nor do the Copyright Office or the Librarian of Congress have the expertise to evaluate the value of technological protection measures designed to protect copyrighted works in preventing the types of industrial sabotage described by opponents.

These types of concerns are beyond the scope of this proceeding in part because there are other parts of the Federal Government with a mandate to oversee them. For example, in the context of airplane safety, nothing in this proceeding will undermine the Federal Aviation Administration's mandate to protect the integrity of airplane parts. Similarly, anti-counterfeit laws, product liability, and supplier contracts will remain intact to maintain the integrity of commercial supply chains. None of these non-copyright-based protections hinge on the status of this exemption. To the extent that the Copyright Office feels the need to evaluate these threats, it is noteworthy that no representatives of industries such as airplane manufacturing, or of the commercial supply chain more broadly, felt compelled to raise concerns about the proposal.

## **Concrete Benefits Outweigh Hypothetical Harms**

While the Copyright Office and the Librarian are poorly positioned to evaluate airplane safety or supply chain integrity, both are well positioned to evaluate the impact that this exemption will have on copyright. Viewed in that context, the concrete benefits of this exemption outweigh the hypothetical harms described by opponents. Opening the door to consumable competition from third parties will have a direct impact on innovation in this field. Competitors can take steps to compete directly with manufacturers to provide existing types of consumables, driving down prices and driving up quality. Innovators can also move to bring new products to market, increasing what is possible with 3D printing. Any user can retain confidence that owning a 3D printer means being able to decide what types of materials are used in it without threat of 1201 liability.

Balanced against these benefits are harms that stray far afield from the purpose of both copyright law and this proceeding. By focusing on doomsday predictions related to supply chain

integrity, opponents tellingly avoided raising concerns about infringement to their software. Unable to credibly describe a concern related to copyright infringement, opponents instead fell back on speculative fears unrelated to copyright law. The lack of copyright-specific harms raised by opponents should give the Copyright Office comfort in recommending this exemption to the Librarian.

In light of these factors, I respectfully request that the Register recommend that this exemption be granted for all users of 3D printers.

Sincerely,

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Michael Weinberg