COPYRIGHT PROTECTION FOR AN EXACT DIGITAL 3D MODEL OF A COPYRIGHTED ARCHITECTURAL WORK

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I. INTRODUCTION

The Trump Tower Chicago completed in 2009 was designed by architect Adrian Smith and reaches 1,389 feet in height. The design of the building received acclaim from the architectural community and incorporates “three setback features designed to provide visual continuity with the surrounding skyline, each reflecting the height of a nearby building.”\(^1\) The building features rounded edges composed of a “curved wing-shaped polished stainless steel mullion system[,] brushed stainless steel spandrel panels and clear anodized aluminum.”\(^2\)

Expanded computing technology and increased availability of detailed digital terrain information and high-resolution photography from ground, aerial and space-based platforms have allowed designers to provide detailed digital 3D models of modern buildings including the Trump Tower Chicago\(^3\). These products are used by filmmakers, city planners, advertisers, videogame makers, law-enforcement agencies, academic institutions and emergency responders\(^4\). One particular company, “TurboSquid, Inc.,” prides itself as “the industry’s standard for 3D models” and maintains a library of over 200,000 models available for purchase and download.\(^5\) One model listed is the “high resolution and realistic, fully detailed and textured Trump Tower Chicago. Detailed enough for close-up renders.”\(^6\) Copyright law and the Architectural Works Protection Act (AWCPA) afford protection for artists of architectural works\(^7\) such as Smith’s Trump Tower Chicago; but these protections may or may not prohibit subsequent artists like TurboSquid from constructing and selling precise digital 3D models of those protected buildings.

The AWCPA provides copyright protection for architectural works by preventing artists from constructing buildings that copy a design.\(^8\) This protection, however, does not limit photography of buildings from public areas.\(^9\) Additionally, the fact that an architectural work is copyrighted does not mean that every element of that work is protected.\(^10\) Protection exists only for those “components which are original [...] and possess some creative spark.”\(^11\) Consequently, the law is not clear whether digital 3D model reproductions of real copyrighted buildings are [1] unauthorized derivative works, or [2] works that are original and capable of copyright protection themselves, or [3] works that are original but only capable of “thin” copyright protection which would only prevent other authors from exactly copying their product.

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6. Id.
8. Id.
9. Id.
11. Id. at 1282.
This paper investigates the intersection of copyright law with the AWCPA and whether the creation of precise digital 3D models of copyrighted buildings infringes on the original building’s author’s rights or, if instead, these models have individualized elements that lend some degree of copyright protection. Furthermore, this paper analyzes existing case law to predict the hypothetical outcome of a copyright infringement lawsuit between Adrian Smith, designer of the copyrighted Trump Tower Chicago building, and TurboSquid, a company which has created and sells a digital 3D model replication of said building.

II. COPYRIGHT LAW AND THE ARCHITECTURAL WORKS COPYRIGHT PROTECTION ACT

The two relevant areas of law that may prohibit companies like TurboSquid from creating digital 3D replicas of architectural works are copyright law and the AWCPA. This part will discuss the two in turn.

A. COPYRIGHT LAW

A copyright owner is granted exclusive rights in a copyrighted work, including the right to authorize reproduction, display the work publicly and prepare derivative works. The right to prepare derivative works allows an author to recast, transform, or adapt a preexisting copyrighted work. A derivative work consists of "elaborations, or other modifications which, as a whole, represent an original work of authorship." A creator of a derivative work using [protected elements] derived from another individual’s pre-existing work must have had the latter’s consent to use those [protected elements]. Without such consent, the creator of the derivative work would be an infringer subject to injunction, money damages, statutory damages, forfeiture of the infringing items or criminal penalties. However, when Congress afforded copyright protection for architectural works it refused to identify photographers of protected works as infringers nor the photographs as unauthorized derivative works.

Congress understood that “architecture plays a central role in our daily lives, not only as a form of shelter or investment, but also as a work of art [...] that performs a very public, social purpose.” When tourists bring home photographs of well-known buildings or when architectural reference books incorporate photographs of copyrighted buildings, these activities do not detract from the market of designing and building architectural works. Therefore, given the “important public purpose served by these uses and the lack of harm to the copyright owner’s market,” Congress did not afford architectural works full copyright protection. In fact, it granted the production of pictorial representations of architectural works freedom from copyright infringement.

14. Id.
16. Id.
17. 231-DEC N.J. Law. 20, 21-22.
19. Id.
20. Id.
21. Id. at 22.
B. ARCHITECTURAL WORKS COPYRIGHT PROTECTION ACT

The AWCPA provides copyright protection to architectural, pictorial, graphic and sculptural works. An architectural work is the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings. The work includes the overall form [...] arrangement and composition of spaces and elements in the design. These works include 2D and 3D works of graphic art, diagrams, technical drawings and architectural plans. However, windows, doors, and other staple building components deemed “individual standard features” are excluded.

Although the AWCPA protects copyrighted buildings, this protection extends only to those which were substantially constructed after December 1, 1990. When drafting the AWCPA, Congress was concerned that architects might use the ability to copyright buildings to the detriment of the public. As a solution, Congress placed limitations on the rights a copyright bestows the author of an architectural work. In keeping with this mindset, Congress excludes “the right to prevent the making, distributing, or public display of pictures, paintings, photographs, or other pictorial representations of the work, if the building in which the work is embodied is located in or ordinarily visible from a public place.” While public areas include interior public spaces such as lobbies and auditoriums, “protection is not extended to photography of individual style elements (such as gargoyles and pillars).”

As one court stated:

If [an author wants] to copyright a building [...] and thereby prevent others from constructing buildings that copy [the] design, [an author must] permit people to take, display and distribute pictures of [the copyrighted] building without limitation. The driving purpose of the AWCPA [was] to protect the works of architects; the limitation on photography was an important but secondary purpose, concerned with confining the scope of this new right.

Congress clearly intended to allow an individual to capture and sell a photograph of a copyrighted architectural work if the photograph were taken from a public area. But does TurboSquid’s digital version of the Trump Tower Chicago derived from precise measurements, skilled 3D image manipulation and 360 degree photography go beyond what Congress intended?

III. DIGITAL 3D MODELS OF COPYRIGHTED BUILDINGS AND DERIVATIVE WORKS

Does TurboSquid’s construction and selling of a digital 3D model of the copyrighted Trump Tower Chicago building violate the AWCPA guidelines to prevent the construction of a building by copying another author’s design?

23. 17 U.S.C. § 101 (2011); See also Sturdza v. United Arab Emirates, 281 F.3d 1287, 1296 (D.C. Ct. App. 2002) (observing that an artist’s selection, coordination, and arrangement of color may be protectable, even though color itself is not).
27. Leicester v. Warner Bros., 232 F.3d 1212, 1228-29 (9th Cir. 2000).
28. Id.
30. Leicester, 232 F.3d at 1229.
31. Id.
32. 17 U.S.C. § 120(a)
A. TURBOSQUID’S 3D MODEL OF TRUMP TOWER CHICAGO IS A DERIVATIVE WORK

It can be argued that TurboSquid’s utilization of non-prohibited photography from public areas to construct and distribute its digital 3D model of Smith’s copyrighted building is an unauthorized derivative work that goes beyond what Congress intended. In Rogers v. Koons a photographer brought suit against a sculptor alleging infringement of his copyrighted photograph “Puppies” which depicts two people holding puppies in their arms.33 The sculpture “String of Puppies” arranged puppies and people in a substantially similar manner.34 The court explained that substantial similarity does not require identical copying of every detail and need only pass the ordinary observer test inquiring “whether an average lay observer would recognize the alleged copy as having been appropriated from the copyrighted work.”35 In Rogers, the sculpture was designed “as per [the] photo.”36 The court explained that had the sculptor “simply used the idea presented by the photo, there would not have been infringing copying. [Instead, the sculptor] used the identical expression of [...] idea; the composition, the poses, and the expressions were all incorporated into the sculpture.”37 Based on these facts, the court held that the sculptor copied the photographer’s work without authorization.38

In SHL Imaging v. Artisan House, a photographer was hired by a manufacturer to photograph preexisting mirror frames. The manufacturer used the photographs beyond their intended purpose and the photographer sued for copyright infringement. When considering whether the photographs were derivative works, the court used the analogy of a photograph of Jeff Koons’ “Puppy” sculpture in Manhattan’s Rockefeller Center. Such a photograph “would merely depict that sculpture; it would not recast, transform, or adapt Koons’ sculptural authorship.” Authorship of the photographic work would be separate from the authorship of the sculpture. This does not suggest, however, that photographs are incapable of derivative authorship. The court explained: “A cropped photograph of an earlier photograph would be a derivative work as the nature of the photographic authorship would have been recast, adapted, or transformed.” Since the plaintiff’s photographs depicted only the defendants’ frames and did not recast, adapt or transform any authorship that may have existed in the frames, they were not derivative works and therefore did not infringe on any copyright.39

In the hypothetical case of Smith v. TurboSquid, a court could consider the two cases above and find that TurboSquid’s utilization of photography from public areas to construct a digital 3D model of Smith’s copyrighted building went beyond making some “other pictorial representation.” A court following Rogers could find that TurboSquid had not simply used the overall idea of Smith’s building, but instead, had digitally sculpted the identical expressions inherent in Smith’s ideas, incorporating all architectural expressions into a digital 3D format. Otherwise stated, TurboSquid created “an identical expression of idea” of Smith’s protected work and is consequently an infringer. A court following SHL Imaging could distinguish the defendant’s innocent actions in that case with TurboSquid’s actions here by finding that TurboSquid’s actions went beyond mere “depiction of the building”, but instead recast, adapted, and transcribed Smith’s authorship in the real building into a digital environment. A court following this line of reasoning would find that TurboSquid created an unauthorized derivative work.

34. Id.
35. Ideal Toy Corp. v. Fab-Lu Ltd., 360 F.2d 1021, 1022 (2d Cir.1966).
36. Rogers, 960 F.2d 301.
37. Id.
38. Id.
However, since there is no prior case exactly on point, one can argue that TurboSquid’s digital 3D model of Smith’s copyrighted building is not a derivative work and therefore, does not infringe on the copyright embodied in Smith’s Trump Tower Chicago.

B. TURBOSQUID’S 3D MODEL OF TRUMP TOWER CHICAGO IS NOT A DERIVATIVE WORK

TurboSquid’s use of non-prohibited photography taken from public areas to construct and distribute its digital 3D model of Smith’s copyrighted building could be excluded from copyright infringement under AWCPA regulations which allow one to make and distribute “other pictorial representations” of copyrighted buildings. Taking this perspective, a court following SHL Imaging might find that TurboSquid’s actions were equivalent to the defendant’s in that case because its digital 3D model only depicts Smith’s building and does not recast, adapt or transform any authorship that Smith has in the original building. In other words, TurboSquid’s creation of its digital 3D model does not amount to an infringement equal to that of a hypothetical artist selling a “cropped” version of some other artist’s copyrighted photograph. A court following this line of reasoning would find that TurboSquid’s digital 3D model is solely a pictorial representation of Smith’s original building and, therefore, does not infringe on Smith’s rights as an author.

Support for this line of reasoning is found in the legislative history of the AWCPA wherein Congress exempted pictorial representations from copyright protection of architectural works based on the apparent lack of harm to the architect’s market. Because the AWCPA permits photography of copyrighted buildings, it could be argued that Congress would agree that Smith’s market for designing real buildings is not harmed by TurboSquid creating and selling a digital 3D replication of Smith’s copyrighted building. In other words, Smith’s market is designing real buildings, not selling digital 3D models of buildings he has already designed. Additional support for this interpretation of Congressional intent is derived from market effects analysis. Enabling the use of legal photography to create novel works based on preexisting structures broadens the preexisting artistic market and encourages artists to fill unique niches. This analysis holds true only if the new work does not negatively impact the original artist’s market. Following this line of reasoning, TurboSquid is not an infringer and their model is not a derivative work.

The next question is, if TurboSquid is not an infringer, does its product deserve any degree of copyright protection?

IV. COPYRIGHT PROTECTION FOR TURBOSQUID’S 3D MODEL OF TRUMP TOWER CHICAGO

If the court in Smith v. TurboSquid finds that TurboSquid’s digital 3D model is not a derivative work and does not infringe on Smith’s copyrighted authorship, the only remaining question is whether copyright protection would extend to original and individually created elements. If so, would this prevent others from digitally copying the Trump Tower Chicago in the future? Or would only a “thin” copyright be granted? If only a “thin copyright” were granted, others would be permitted to produce similar, but not identical duplications of TurboSquid’s digital creation.
A. TURBOSQUID’S 3D MODEL OF TRUMP TOWER CHICAGO SHOULD NOT BE GRANTED COPYRIGHT PROTECTION FOR EXPRESSED ELEMENTS

The fact “that a work is copyrighted does not mean that every element of the work may be protected.”40 Protection exists only for those components which are original, possess some minimal degree of creativity, and are independently created.41 “The requisite level of creativity is extremely low; even a slight amount will suffice. [A work may] possess some creative spark, no matter how crude, humble or obvious it might be; Originality does not signify novelty.”42 “Copyright protection subsists in original work of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.”43

It can be argued that a digital 3D replica of a building lacks unique features necessary to substantiate copyrightable matter or expression. In Meshwerks v. Toyota Motor Sales U.S.A., Meshwerks created digital images of Toyota’s vehicles by meticulously measuring the cars and mapping them onto a computerized grid. Modeling software converted data points into wire frames and employees sculpted digital lines to resemble each vehicle as closely as possible.44 This process took up to one hundred hours per vehicle due to the difficulty of portraying a three-dimensional car as a two-dimensional image.45 The end products were colorless, unadorned digital models.46 The court found that Meshwerks’s models were “copies” and not independent creations because they lacked individualizing features. The models were “untouched by a digital paintbrush; [were] not depicted in front of a palm tree, whizzing down the open road, or climbing up a mountainside.”47 Therefore, the court concluded that there was no copyrightable matter or expression to protect Meshwerks’s work.

Other circuits have ruled similarly, including the Second Circuit in L. Batlin & Son, Inc. v. Snyder. In that case, the appellant obtained a copyright registration for a plastic version of a non-copyrighted cast-iron “Uncle Sam bank.”48 The court found appellants' plastic version merely “reproduced” the cast iron bank with only proportionately reduced height and trivial variations, and thereby concluded no copyrightable matter or expression to protect appellants’ work.49 A court following Meshwerks should find that, no matter how much work TurboSquid invested into the creation of its digital 3D replica of Trump Tower Chicago, the creation constitutes an exact digital “copy” devoid of “individualizing” elements. In essence, TurboSquid’s model captures reality; the surrounding roads, shrubs, trees and fountains of the original building are replicated in exact detail. No individualizing features exist to differentiate the 3D digital reproduction from the original. For these reasons, the court should declare that TurboSquid’s product does not possess copyrightable matter. Furthermore, a court following L. Batlin should find that TurboSquid’s product reproduces Smith’s original building without variations and does not warrant copyright protection.

40. Feist Publications, 499 U.S. at 344.
42. Feist Publications, 499 U.S. at 345.
43. Value Group, 800 F. Supp. at 1231.
44. Meshwerks v. Toyota Motor Sales U.S.A., 528 F.3d 1258, 1260 (10th Cir. 2008).
45. Id. at 1261.
46. Id.
47. Id. at 1265.
48. L. Batlin & Son, Inc. v. Snyder, 536 F.2d 486 (2d Cir. 1976).
49. Id. at 489.
In *SHL Imaging*, after the photographs were identified as non-derivative works, the court had to consider whether the photographs satisfied the requirement of originality to be copyrightable. The court noted that, “the measure of originality becomes more difficult to gauge as one moves from sublime expression to simple reproduction.” The defendant in that case attempted to minimize the plaintiff’s creativity by describing the photographs as identical copies of framed mirrors. These copies were obtained by photographing the mirrors one after another, faithfully copying them to film.\(^5\)

In *Osment*, the plaintiff created train depot models based on a real building known as “Jefferson Station.” Unlike the modeling procedure used in *Meshwerks*, the plaintiff in *Osment* did not simply “copy” or scale down the measurements of Jefferson Station into a different medium. Instead, the plaintiff “selectively compressed” certain parts of the building resulting in differences between the plaintiff’s train depot and the actual station. The court found these differences were not trivial and amounted to original and copyrightable expression.\(^6\)

The Court notes ostensible visual differences in the setting of the depots, color scheme, signage, bracket design, number of chimneys, window frame design, and back-of-the-building door and awning design. These differences, combined with selective compression, exceed the ‘copying’ in *Meshworks* and the ‘trivial’ modifications in *Batlin*. Unlike the car models in *Meshworks* and the plastic bank in *Batlin*, Plaintiffs’ models do not appear to be mere replications of other objects in a different medium.\(^7\)

A court following *SHL Imaging* or *Osment* should find that TurboSquid’s digital 3D model accurately copies the appearance and scale of Smith’s original building and transcribes that information into a digital medium. A court following this logic would find that TurboSquid did not produce any original expression and therefore its digital 3D model of Trump Tower Chicago contains no copyrightable matter or expression. As a result, other artists will be able to create similar digital 3D models of the Trump Tower Chicago.

Even if TurboSquid’s digital 3D model could be deemed original or independently created, a court might still find that the model does not contain any protectable elements. In *Oravec v. Sunny Isles Luxury Ventures*, the plaintiff contended that several of his designs were copied for the construction of a different Trump building.\(^8\) The designs included alternating concave and convex sections and three prominent elevator shafts that protruded above the roof of the building.\(^9\) The court noted that the similarities were not exact, existed only at a conceptual level and could not be substantially similar without finding that Oravec owned a copyright on an idea.\(^10\) Furthermore, Oravec’s design contained five alternating concave and convex segments, while the Trump Building had only three.\(^11\) Oravec identified other elements such as rounded building ends and a rooftop pool. The court characterized these other elements as individual standard features representing ideas, not expression.\(^12\)

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52. *Id.*
54. *Id.* at 1226.
55. *Id.*; See Edward R. Hyde, Legal Protection of Computer Software, 59 Conn. B.J. 298, 306 (1985) (observing that copyright protection is limited to expressions of ideas; patents are limited to embodiments of ideas.)
56. *Id.*
57. *Id.* at 1228.
The copyright claimed by Oravec would encompass any building that combined a concave/convex structure, three external and protruding elevator towers, and various common building features, however any of these elements might be expressed. Were we to grant him such a right, we would effectively bar all other architects from incorporating these concepts into new and original designs [...] leading to ‘a diminished store of ideas’ available for future works.  

A court following Oravec would likely find that even if TurboSquid’s digital 3D model of Trump Tower Chicago contains original elements or that the model was independently created, the court would find that all of TurboSquid’s elements might be expressed. As a result, the court would refrain from extending protection to any of TurboSquid’s elements for fear that it would be effectively barring all other digital 2D and 3D building model creators (TurboSquid’s competitors) from making similar models of the Trump Tower Chicago. This result would lead to a diminished store of ideas available for future works. Therefore, the court is not likely to find that any of TurboSquid’s elements are protectable, even if some meet the requirements for originality or were independently created. While individual elements would not likely be protected, the court should nonetheless afford TurboSquid a relatively small degree of protection, often referred to as “thin” copyright, to prevent other authors from “exactly” duplicating TurboSquid’s creation.

B. TURBOSQUID’S 3D MODEL OF TRUMP TOWER CHICAGO SHOULD BE GRANTED “THIN” COPYRIGHT PROTECTION

The scope of artists’ copyright protection is centered on whether similarities between works involve protected original elements. If the quantum of originality just meets the bare minimum, the scope of protection afforded will be limited to prohibiting identical copying by an alleged infringer. As the court in Ets-Hokin remarked, “The less developed the characters, the less they can be copyrighted; that is the penalty an author must bear for marking them too indistinctly.” However, expressions that are standard or common to a particular subject matter are not protectable under copyright law.

Once more referencing SHL Imaging, the court in SHL stated:

While plaintiff’s photographs meet the minimal originality requirements [...] they are not entitled to broad copyright protection. Plaintiff cannot prevent others from photographing the same frames, or using the same lighting techniques and blue sky reflection in the mirrors. What makes plaintiff’s photographs original is the totality of the precise lighting selection, angle of the camera, lens and filter selection. In sum, plaintiff is granted copyright protection only for its contribution. Practically, the plaintiff’s works are only protected from verbatim copying.

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58. Id. at 1227.
60. Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930).
61. Ets-Hokin v. Skyy Spirits, Inc., 323 F.3d 763, 766 (9th Cir. 2003) (finding that the similarities between the photographs of the alleged infringer’s and those of Ets-Hokin’s were “inevitable” because they shared the same idea of photographing a vodka bottle, and after removing all of the un-copyrightable elements, the only protection that remained for Ets-Hokin was that from “virtual identity.”).
63. SHL Imaging, 117 F. Supp. 2d at 301.
A court following *Ets–Hokin* or *SHL Imaging* should find that even if TurboSquid’s digital 3D model does have some copyrightable elements, the product as a whole will only be afforded “thin” copyright protection, thereby protecting TurboSquid from another party producing a “verbatim” copy. It should be noted that if TurboSquid were to incorporate unique atmospheric conditions or custom-designed fountains into its digital 3D models, stronger copyright protection might apply to those original elements. Even then, a court following *Oravec* might be hesitant to grant such a right, for fear that it would effectively bar all other architects from incorporating those concepts into future digital 3D models of Trump Tower Chicago or other copyrighted buildings.

V. CONCLUSION

At present, the law determining whether digital 3D replications of copyrighted buildings are unauthorized derivative works consistent with infringement on the original author’s rights is vague. Therefore, the hypothetical court deciding Smith v. TurboSquid will consider the cases discussed herein, existing copyright law, and Congress’ intent when it passed the AWCPA to decide whether TurboSquid is an infringer. The court should determine that TurboSquid’s use of legal photographs from public areas to construct and sell an accurate digital 3D model of Smith’s copyrighted building is a means of pictorially depicting Smith’s architectural work. The AWCPA expressly allows this function and provides the right to distribute such a final product, so long as it does not interfere with the original author’s right to market. In the hypothetical case, it does not appear TurboSquid’s product interferes with Smith’s right to market his designs for the creation of real buildings. For these reasons, a court should find that TurboSquid has not created a derivative artwork and is not liable for copyright infringement.

Regarding a 3D building model’s own right to copyright protection, the more accurate and realistic the model is, the less likely it will be afforded any protection for any original elements in the model. Even if some elements have been individually created, a court would most likely be hesitant to apply copyright protection to elements that may naturally be expressed by ideas. Given the fact that TurboSquid intended to make an identical 3D recreation of the Trump Tower Chicago, the hypothetical court should provide only “thin” copyright protection to TurboSquid’s product. A “thin copyright” protects TurboSquid from duplicate copies, but still supports future artistic expression in a similar medium.