

# The AI Revolution In the World of Architecture: Perils and Promises

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**T**he artificial intelligence (AI) revolution is underway in nearly every industry, including the real estate industry, but have the consequences of such use in the world of architecture been fully considered?

### The Promises

The traditional design and construction processes are evolving through the technological automation of design. Generative AI tools permit a faster and innovative approach to designing buildings using machine learning algorithms and data-driven tools. With AI tools, architects and designers can efficiently generate several design options to meet tighter deadlines and the algorithms theoretically can enhance design accuracy and analyze data that can inform design changes.

The increasingly popular use of AI generative and early “ideation” tools assist architects, owners and developers to arguably achieve a more efficient and creative planning and design process with improved building performance, including lower energy consumption and reduced maintenance costs. However, this use comes with large risk to all parties involved.

### The Perils

In this article, we will discuss four of the perils that arise from the use of generative AI tools. First, these tools are only as good as they are “trained.” AI tools are trained to create architectural works by exposing the program to large amounts of design data and copying entire works and publicly available



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datasets. Training AI models requires the input of the correct data.

Currently, the use of AI tools is unpredictable and models trained with incorrect data will lead to mistake laden designs. Design professionals must be mindful of the fact that they will presumably be liable for errors in design, whether those errors are the result of incorrect data or due to issues with the use of this new technology.

Second, AI tools are being trained with human-authored designs that are the subject of affiliated intellectual property rights. Once these designs are inputted into the AI platforms, the inputted work product is not secured from other users and the use of the AI tool may actually render the output unprotected by copyright. This is a classic example of technology outpacing the law. In addition, creating copies of

works without permission presumably infringes upon another architect's intellectual property rights.

AI generated designs are raising questions about how copyrights are affected by authorship, fair use and infringement. The Copyright Office's current position is that AI generated designs may not enjoy copyright protection. The U.S. Copyright Act of 1976 affords copyright to original works of authorship created by a human being. While AI tools may produce content in response to the user's inputs, the programs are trained to generate outputs based on existing inputted works. Because AI tools are not (yet) capable of creating something novel, "borrow" from existing inputted designs, and do not determine the expressive elements of the output, the generated material is not the product of human authorship.

This raises two questions. Should the use of copyrighted works for purposes of training AI programs be considered "fair use" (that is, the legal doctrine that promotes freedom of expression by permitting the unlicensed use of copyright-protected works in certain circumstances)?

In addition, would the U.S. Copyright Office find that AI generated design is copyrightable where an architect uses an AI tool that includes copyrighted work by others, but refines the aesthetic design of the AI-generated output? Is that refinement sufficient to add enough human authorship to copyright the AI-generated work?

Third, the terms of use for the AI tools should be reviewed prior to use. One should fully understand what rights, including intellectual property rights, may be relinquished by use of these tools. If the AI-created works are eligible for copyright protection, architects should carefully consider who would own the copyright to the AI-generated design.

Ownership typically vests with the (human) author of the work. However, companies that provide the AI tools could attempt to retain ownership rights in the AI-generated output in their contracts or terms of service, including the requirement to assign all rights in the generated output to the company (which bypasses the copyright ownership question). In addition, one should

also understand the company's disclaimers on the use of the platform and risk of possible infringement of the intellectual property of others, as well as any indemnities the company may require in event of same.

Regarding the foregoing perils, architects must also understand that to the extent their rights and obligations are altered by their use of AI, those changes need to be clearly communicated to their employees. Accordingly, architects should review their policies governing their employees' use of AI.

Last, AI could potentially make architecture less interesting. AI tools could potentially limit the creativity of architects. AI generated designs are not designed by senses, feelings, needs, culture or history, which require human acumen. The idea of an ever-evolving automated design does not seem to hold a candle to the art of an architect's napkin sketch that evolves from an inspiring elemental expression, full of primal feelings, into an architectural masterpiece.

### Conclusion

While many owners and architects are embracing the AI revolution, many are doing so without fully understanding the perils, including whether AI-generated output is eligible for protection by copyright or if it infringes the intellectual property rights of others, who the actual authors are of the AI-generated work product, and whether AI could potentially make architecture less interesting.

Clearly, the perils associated with copyright protections, and possible infringements, need to be addressed through legislation or other government action. Architects should review the AI tools that they are using to ensure their intellectual property rights are not being violated. All parties using AI in the construction and design processes should consult counsel to ensure that their contracts are properly drafted to address the risks discussed above and each party's related liabilities.

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