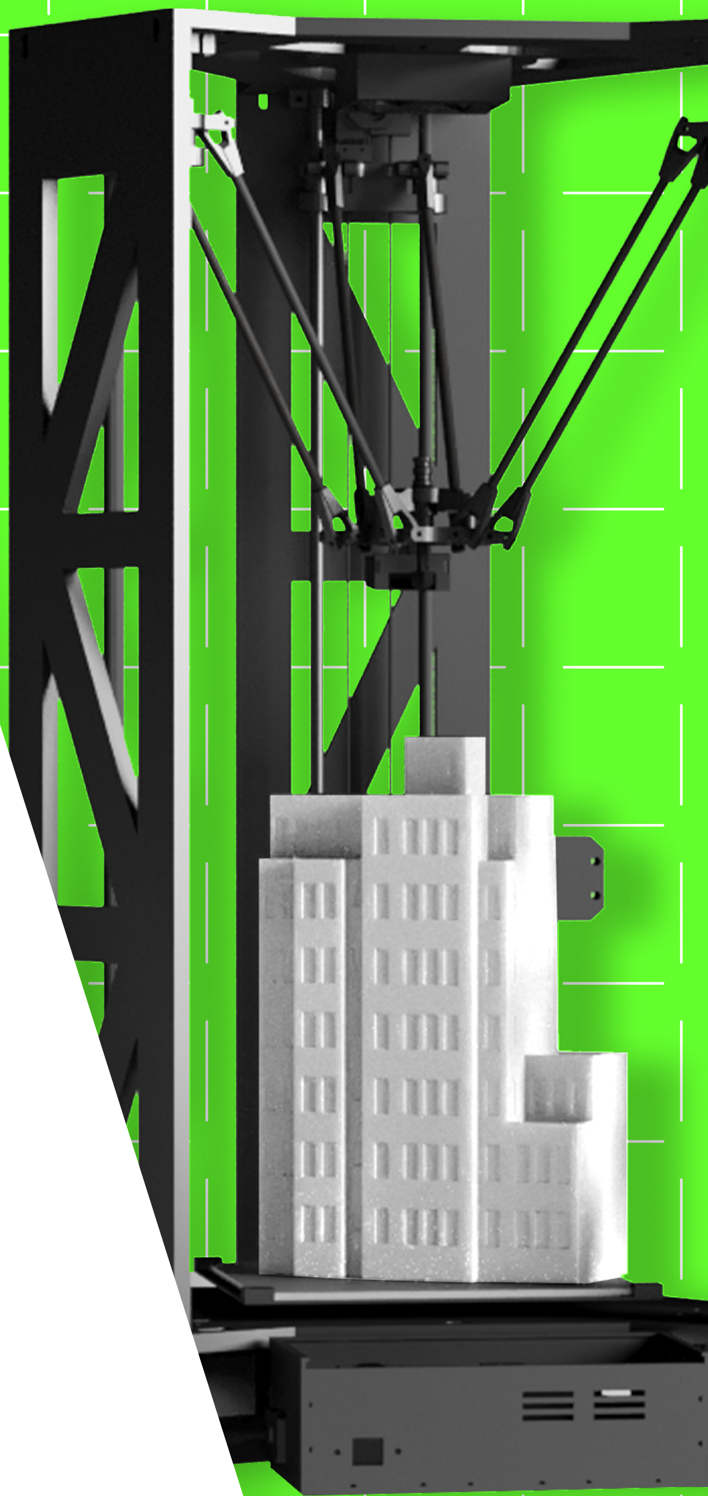
3D PRINTING FOR YOUR ARCHITECTURAL MODELING

Architect's Comprehensive Guide to Mastering 3D Printing



ARCHIT3D

SUMMARY

ABSTRACT

Architects have a vision and it's our job to help bring that vision to life.

The introduction of 3D printing technology has opened up new doors for architects to turn their designs into physical models, faster and more accurately than ever before. However, with so many different 3D printing options out there, it can be challenging to know which solution is right for your needs.

That's why we created this ebook, a comprehensive guide to help architects make informed decisions about using 3D printing in their work. We'll explore the different techniques and technologies available, the advantages and disadvantages of each, and help you find the right solution for your specific needs. Whether you're an experienced architect aiming to enhance their expertise in 3D printing, or just getting started in the field, this ebook will be your go-to resource.

In the following pages, you'll discover the latest advancements in 3D printing technology and how they can benefit you as an architect. We'll provide you with all the information you need to know about the different 3D printing materials and techniques, so you can make an informed decision about which solution is right for you. We'll also cover the key benefits of using 3D printing, from improved accuracy and speed, to the ability to create complex shapes and structures that would be impossible to make by hand.

By the end of this ebook, you'll have a clear understanding of the different 3D printing solutions available to architects, and the tools and resources you need to make the most of this exciting technology. We're confident that this guide will be a valuable resource for architects everywhere, and help you take your designs to the next level.

INTRODUCTION

Context

In the 1980s, the concept of 3D printing was still in its early stages when Chuck Hull, co-founder of 3D Systems, invented the first 3D printer. The advent of this technology was a major turning point for the architecture industry. Prior to its development, architects had limited tools and had to rely on conventional methods, such as hand-drawn sketches and physical models, to bring their designs to life.

3D printing has revolutionized the architecture industry, providing architects with a powerful tool for better design visualization and analysis. Highly detailed and scaled models allow architects to fully comprehend and realize their designs, leading to fewer mistakes and changes during construction, saving time and money, and ultimately ensuring client satisfaction.

With the rise of globalization and urbanization, the demand for innovative and efficient solutions has never been higher. In fact, recent statistics show that out of the approximately 2 million architects worldwide, more than 51% of them are embracing 3D printing as a daily tool for creating 3D architectural models. This trend reflects the technology's ability to provide architects with new possibilities and greater precision in the design process.

~2 MILLION

Architects worldwide (1 in 4000 people)

World Architecture Community

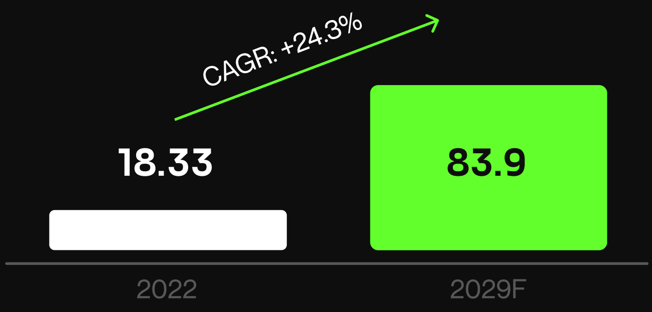
1.8 MILLION

Professional architects (90%)

200 THOUSAND

Student architects (10%)

Global 3D Printing Market (Billion Euro)



€150

The starting price of a 3D printer.

€40

Average cost to buy one simple 3D model online.

90%

of architecture schools using or plan to use 3D printing.

3D Hubs survey

70%

of architectural firms surveyed by All3DP planning to increase their use of 3D printing in the future.

All3DP

66%

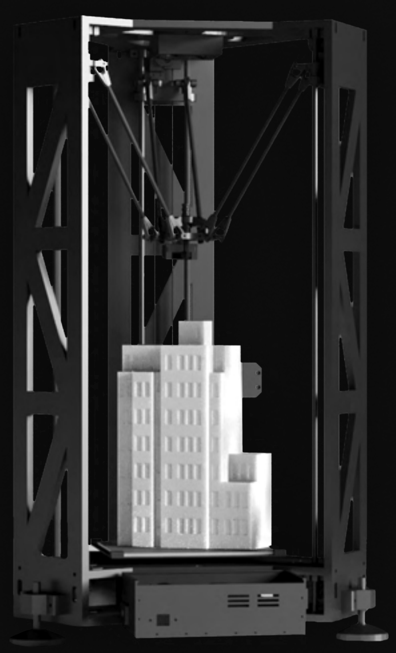
of architects, in Europe, gained 3D printing skills through self-education, with 17% receiving formal training and 31% gaining experience informally.

ACOE

87%

of architecture practices design private housing, generating 54% of avg. turnover.

ACOE



Europe

holds the second-highest market share in the global market. The demand for this technology is elevated among small and medium-sized industries that necessitate great-speed, dependable, and low-cost examples for manufacturing intentions.

University of Cambridge

Benefits of 3d Printing for Architecture Modeling

Faster

- Reduced time and effort required for prototyping
- Reduced need for manual labor and skill
- Quicker iteration and feedback loops
- Faster approval processes and reduced errors
- Increased efficiency and productivity
- Reduced reliance on physical models
- Models can be printed overnight

Cheaper

- Lower costs associated with prototyping and material testing
- Better cost control and improved profitability for architects and contractors
- Increased competitiveness and profitability
- Lower costs for storage and transportation of physical models

Better

- Enhanced visualization of the final product
- Increased design flexibility and customization
- Improved accuracy and precision
- Greater freedom to explore new and complex forms
- Easier collaboration colleagues and teams
- Enhanced final clients / teachers satisfaction

The Steps Involved in 3D Printing

Design

Create a 3D model of the object you want to print using computer-aided design (CAD) software.

Slicing

Use slicing software to divide the 3D model into horizontal layers and translate them into instructions for the 3D printer.

Preparation

Prepare the 3D printer by going through the calibration process specific to the machine, and ensuring there is enough material loaded for the print.

Printing

The 3D printer melts, solidifies or fuses the material together, generally layer by layer, building the object from the bottom up or top down.

Post-processing

Once the printing is complete, the object may need to be removed from the build area (build plate or chamber), potential support structures may need to be removed and the object may need to be sanded or polished.

Composition & Assembly

If the model was printed in parts, the pieces need to be assembled together and fixed through a mechanical or adhesive bond.

Finishing

Finally, the object may be painted, coated, or assembled with other parts to complete the final product.

MODELING PROCESS

In this section, you will discover how you can streamline your modeling process, save time and effort while achieving exceptional results.

What Results do you want to Achieve?

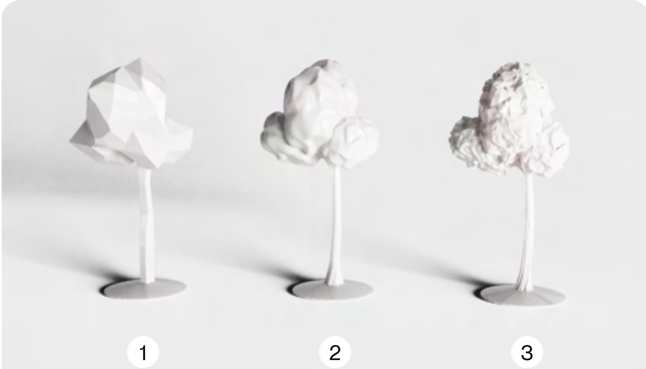
Developing a 3D printing strategy involves thinking about the goals of your projects and how you can use 3D printing to achieve them. As an architect, you need to consider the types of projects you want to undertake and what you hope to achieve through 3D printing. This could include creating accurate scaled models, exploring innovative design possibilities, or reducing costs and time associated with traditional model-making.

Next, think about how you plan to integrate 3D printing into your design process. This could involve investing in 3D printing hardware and software, training yourself to use 3D printing technologies, or partnering with external 3D printing providers.

You'll also want to consider factors such as the types of materials you plan to use, the complexity of your designs, and the level of precision required.

In addition to considering project goals and integration of 3D printing into the design process, you should also think about the scale of your models and the type of printing method that would best suit your needs. Determine if you require full-scale models or just scaled-down versions, and whether you will print structural elements or individual components. This will help you choose the appropriate 3D printing hardware and software, as well as the right materials for the job. By taking all these factors into account, you can ensure that you are using 3D printing to its full potential and maximizing its benefits.

By taking the time to develop a comprehensive 3D printing strategy, you can ensure that you are using this powerful technology to its full potential, improving your design process, and achieving your project goals.



Detail Level

1 Low detail - Low poly

Low-detail techniques are suitable for quick prototypes or large models that provide a basic idea of the building's scale and proportion. They are best for early-stage design reviews where the focus is on checking the massing and layout of the building.

2 Medium detail - Mid poly

Medium-detail techniques are more appropriate for detailed representations of a building required for presentations and design reviews.

3 High detail - High poly

High-detail techniques are suitable for highly detailed and realistic representations of a building for final presentations or creating models for display.

Modeling Splits

Depending on the desired design representation, model scale, and geometry, there are several assembly strategies available. These include splitting by program or structure, creating a section model, using aligners or joinery methods, or dividing buildings into programs. Choosing the right dimensions for splitting parts is crucial, considering the final model orientation.

Split by Seam

Section Model

Straight Cuts

Advantages

- Suitable for models with complex interior details
- Allows for the creation of a section model
- Can be presented as a complete single model before being disassembled to reveal desired interior details

Disadvantages

- Requires manual intervention to align and fix each piece with adhesive
- Pieces that are not dimensionally accurate may not fit well together

Split by Component

Split by Program

Split by Structure

Advantages

- Clear representation of all design components without plan and section drawings
- Can be used to separately print each floor slab or simply a distinct part of a building from the rest
- Easier assembly as parts fit together with less play

Disadvantages

- Model must be designed to be divided into logical components
- More parts to print, which can be more costly in terms of time and raw materials

You want to focus on answering questions like:

- Do you want to display the interior or exterior details?
- How easy can the model be divided?
- Is there a specific part of the design, such as the unit typology, structure, or floor layout, that needs to be showcased?

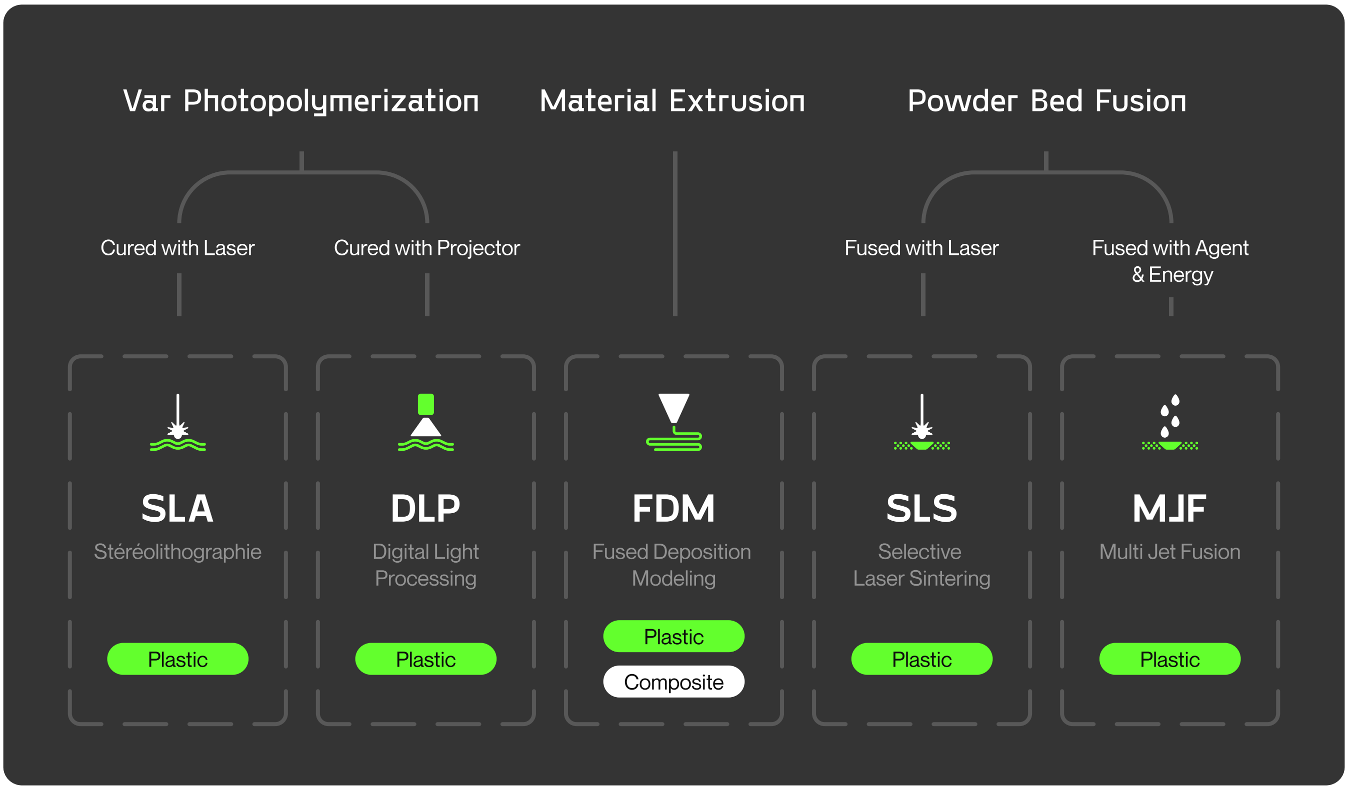
HARDWARE

Let's look at how to choose the right equipment to get the results you want.

- The level of precision required
- The size of the model
- The materials that will be used
- The budget
- Ease of use

Techniques & Comparison

It is important to compare and contrast the various techniques and hardware options available for 3D printing, including common types of 3D printing technologies are Fused Deposition Modeling (FDM), Stereolithography (SLA), and Digital Light Processing (DLP).



In addition to this, there are other printing methods like:

- PolyJet
- Direct Metal Laser Sintering (DMLS)
- Electron Beam Melting (EBM)

Professional printing services will generally be equipped with a wider variety of machines, with technologies such as Multi Jet Fusion, SLS, DMLS and SLA readily available. Given the cost and complexity of these above-mentioned technologies, in-house printing is usually limited to FDM, DLP and SLA.

Materials & Comparison

The most common materials used in architectural 3D printing:

1. **PLA (polylactic acid):**

This is a biodegradable thermoplastic material that is easy to print and has a low melting point. It's ideal for creating detailed models and is commonly used in architecture due to its low cost and ease of use.

2. **ABS (acrylonitrile butadiene styrene):**

This is a strong and durable plastic material that is resistant to impact, heat, and chemicals. It has a higher melting point than PLA and is commonly used in architectural 3D printing for creating larger, more robust models.

3. **PETG (PET-modified glycol):**

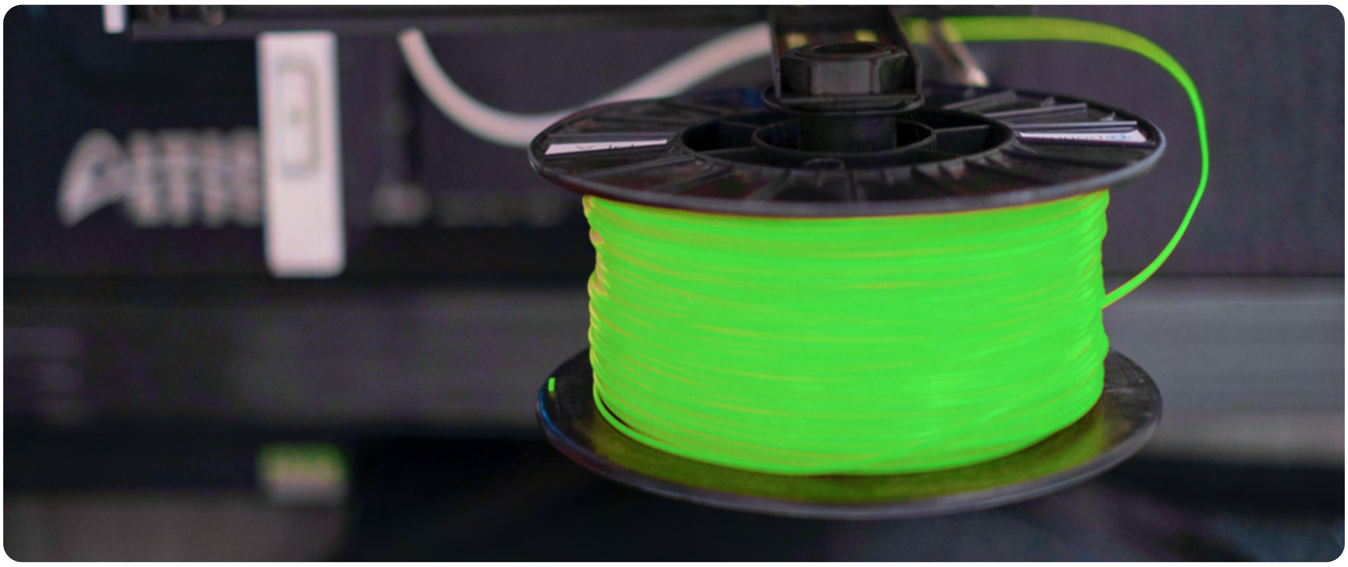
This is a clear, strong, and flexible material that is resistant to impact and heat. It's commonly used in architectural 3D printing due to its durability and ability to create transparent parts.

4. **Composite Materials:**

These materials are a combination of two or more materials, such as wood, stone, and metal. They are commonly used in architectural 3D printing to create models that replicate the look and feel of real-world materials.

5. **Photopolymer Resin:**

This is a light sensitive material that changes property when exposed to a UV light source. It comes in multiple variations, such as engineering, TPU, ABS-like, and more. It is used in architectural 3D printing due to its very high surface finish and accuracy.



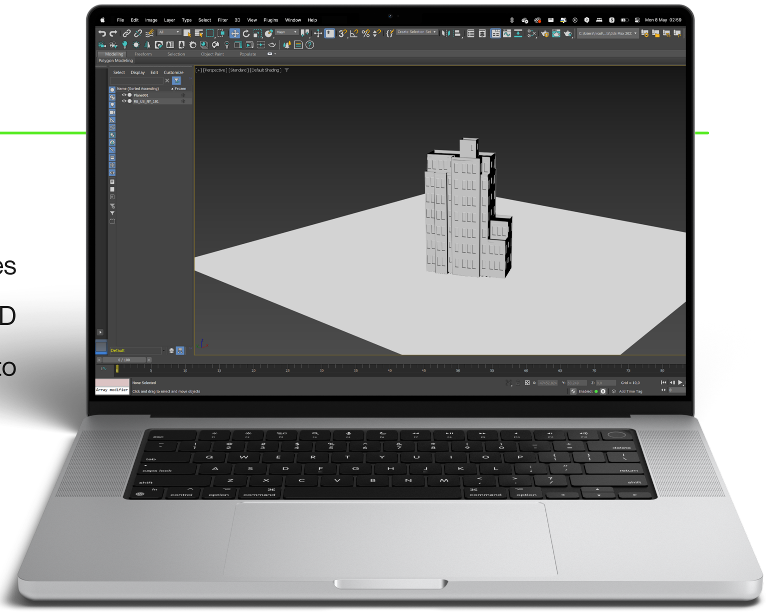
Printer Types & Comparison

Since the most common types of 3D printing technologies are Fused Deposition Modeling (FDM), Stereolithography (SLA), and Digital Light Processing (DLP), here is a comparative chart of these 3 main technologies to assist in your choice:

	FDM	DLP	SLA
Resolution	★★★☆☆	★★★★☆	★★★★★
Accuracy	★★★★☆	★★★★☆	★★★★★
Surface finish	★★★☆☆	★★★★☆	★★★★★
Complex design	★★★☆☆	★★★★★	★★★★★
General ease of us	★★★★★	★★★★☆	★★★★☆
Post processing needs*	★★★★★	★★★★☆	★★★★☆
Cost*	★★★★★	★★★★★	★★★☆☆
Cost of material*	★★★★★	★★★★☆	★★★☆☆
Pros	Fast, easy to use, easy to troubleshoot & repair, affordable machines & material, interesting materials	Fast, high resolution, smooth finish	Very high resolution, crisp details, interesting materials
Cons	Surface finish, accuracy	Heavy and messy post-processing (wash bath in alcohol, UV curin	Heavy and messy post-processing (wash bath in alcohol, UV curing), hard to troubleshoot and repair
Technical expertise required	Minor	Moderate	Moderate
Print volume	Up to 500x500x500mm	Up to 280x160x300mm	Up to 300x335x200mm
Additional equipment	Finishing tools	Wash and cure stations, finishing tools, safety goggles, disposable gloves, respirator	Wash and cure stations, finishing tools, safety goggles, disposable gloves, respirator
Environment requirements	Office space with airflow	Well ventilated workspace	Well ventilated workspace

* Higher is better

SOFTWARE



To print your architectural models, you will need two types of softwares: a design software that is used to create 3D models and designs, and a slicer software that is used to prepare those 3D models for printing.

Some of the key differences between programs include:

1. **Ease of use:**

Some software prioritize a user-friendly interface, providing a simpler and more intuitive experience, while others may cater to advanced users who require more customization options and in-depth settings.

2. **Supported file formats:**

Different programs may support varying 3D model file formats, such as STL, OBJ, or AMF. Compatibility with a specific file format may dictate which design or slicer program is best suited for a user's needs.

3. **Printer compatibility:**

Not all programs are compatible with every 3D printer model. Some programs may be designed specifically for a certain brand or model, while others might support a wide range of printers.

4. **Advanced features:**

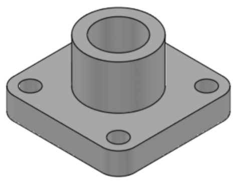
Some programs offer advanced features, such as customizable support structures, adaptive layer heights, or specialized infill patterns, which can enhance print quality and performance. These features may be essential for specific applications or desired outcomes.

5. **Cost:**

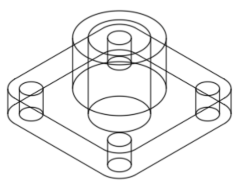
Design and slicer programs can range from free, open-source options to paid, professional software. The price may reflect additional features, ongoing support, or a more polished user experience.

Design Software

Design software is where you can create their 3D models, add textures and colors, and modify the designs as needed. There are different categories of design software, as there are different types of 3D modeling. The two main types are generally known as Solid Modeling and Wireframe modeling.



CAD Model
Surface or Solid Model



Wireframe Model
(Lines, Arcs & Curves in 3D)

Source:
https://transport.itu.edu.tr/docs/librariesprovider99/dersnotlari/dersnotlarimak537e/notlar/lecture-6---wireframe-modeling.pdf?sfvrsn=2

Solid Modeling

Solid modeling is a technique in which a three-dimensional object is created as a single entity. The object is built from its exterior surfaces, which are combined to form a solid shape that can be manipulated and viewed from any angle. This technique is commonly used in 3D printing for designing basic objects with precision.

Examples of applications:

Landscape, Floor plans, Basic shapes and structures

Wireframe Modeling

Wireframe modeling is a technique in which a 3D object is created by connecting lines and curves to form a skeleton or framework.
The object is built from its interior structure, which is then filled in to create a surface. This technique is typically used for creating complex objects or organic geometric shapes.

Examples of applications:

Interior design, Organic components, Complex structures

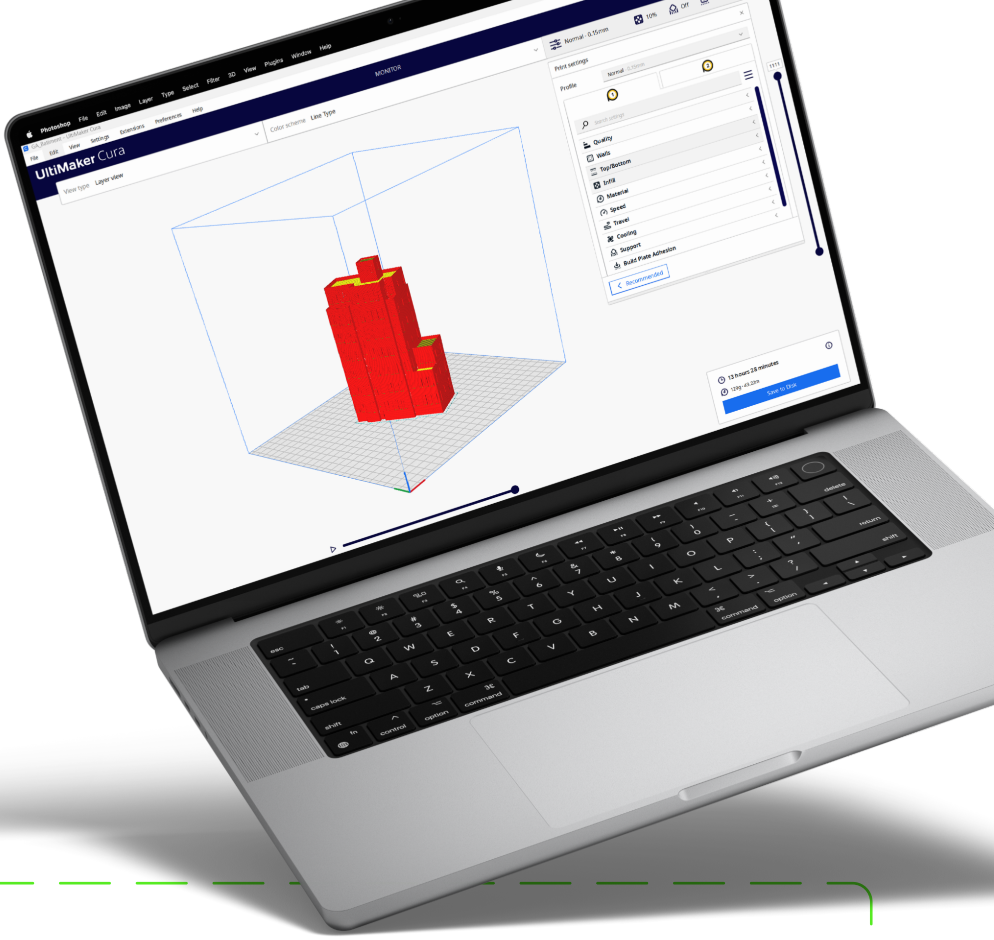
Here is a list of the frequently used design softwares for 3D printing:

BEGINNERS	Type	Ease of Use	Functionality	Complexity
Thinkercad	Solid Design	Easy	Basic 3D modeling and design	Simple to Intermediate
SketchUp	Solid Design	Easy	Basic to advanced 3D modeling and design	Simple to Intermediate

INTERMEDIATE	Type	Ease of Use	Functionality	Complexity
Blender	Wireframe Design	Moderate	Basic to advanced 3D modeling and design	Simple to Complex
Fusion 360	Solid Design	Moderate to Difficult	Parametric modeling, assembly modeling, surface modeling, and sheet metal design.	Simple to Complex

ADVANCED	Type	Ease of Use	Functionality	Complexity
ZBrush	Wireframe Design	Moderate to Difficult	Advanced 3D sculpting and modeling	Intermediate to Complex
Solidworks	Solid Design	Moderate	Advanced solid modeling and simulation, parametric modeling, assembly modeling	Simple to Complex

Slicer Software



A 3D printer slicer software is a program that translates a digital 3D model into a set of instructions that a printer can follow to produce a physical object.
The slicer software essentially "slices" the 3D model into thin layers and generates the necessary code, which dictates the printer's movements, extrusion rates or light exposure, temperatures, and other settings required for each layer.
The code is then sent to the 3D printer to create the object layer by layer.

		User expertise	Complexity	File format	Compatibility
Cura		Intermediate	Simple to Intermediate	STL, OBJ, AMF	Compatible with most 3D printers
PrusaSlicer		Intermediate	Simple to Intermediate	STL, OBJ, 3MF, AMF, PLY, VRML	Compatible with most 3D printers
ChiTuBox		Intermediate	Simple to Intermediate	STL, OBJ, AMF	Compatible with most 3D printers
Simplify3D		Advanced	Simple to Advanced	STL, OBJ, AMF	Compatible with most 3D printers

POST PROCESSING

Once the model is printed, it may require post-production work to ensure that it meets the desired level of quality. The process is different depending on the technology used for 3D printing.

An object printed with **FDM** technology, fresh off the build plate, may require removing the supports, if they were necessary. With good support settings, it can be fast and as simple as tearing them by hand, while being careful not to damage the print. If they are tenacious, tools may be required, such as an exacto knife and cutting pliers.

A print freshly finished by a **DLP** or **SLA** printer requires more work before it is ready to use. The first step after removing the print from the build plate, is to give it a wash into a cleaning agent. Except when using a special resin, such as water washable, the cleaning agent is traditionally isopropyl alcohol. Automated wash stations are available from several known brands, such as Elegoo, Anycubic and Formlabs, and can ease the process.

It can still be done manually by agitating the print into the alcohol to rinse it from the uncured resin left on it, for a few minutes. Once the print is free of uncured resin and dry, it will need to be cured using UV light, and sometimes, heat. Once again, automated cure stations from the above mentioned suppliers will help, but the idea is to expose all surfaces of the print to either a strong UV light (or a bright sun) for a few minutes to make sure the resin is fully cured and hard.

COMPOSITION & ASSEMBLY

The next step in the process of 3D printing an architectural model involves integrating the various elements and assembling them into the final product. This step requires skill and precision to ensure that all the parts fit together seamlessly.

If assembly pegs were integrated into the model during the design process, they can be used to align the parts accurately during assembly. For extra solidity, glue can be used to secure the parts together. Traditional superglue may work, but for hard plastic components, a specific glue may work better. It is important to maintain pressure on the parts while the glue takes hold to ensure a strong bond.

FINISHING

After assembling the 3D printed model, the final step in the process is finishing. This involves sanding, painting, and coating the model to achieve a polished and professional look.

Sanding is typically the first step in finishing. It involves smoothing out any rough surfaces or imperfections on the model using sandpaper. This can be done by hand or with a power sander, depending on the size and complexity of the model.

Next, **painting** can be applied to add color and texture to the model. Architects can choose from a variety of paints, including acrylic and spray paint, depending on the type of material used for the model.

Finally, **coating** the model helps protect it from damage and adds a final layer of gloss or matte finish. Coatings can be applied through various methods, including spray or brush application, depending on the type of coating and desired effect.

By taking the time to properly finish the 3D printed model, architects ensure that their final product is both visually appealing and durable.

THE FUTURE OF 3D PRINTING FOR MODELING

The construction and architecture industries are currently facing a significant shortage of manpower, which poses challenges to meeting the growing demand for new buildings and infrastructure. Advancements in technology, especially in the field of 3D printing, are set to help address these challenges by revolutionizing the way architects design and create.

Since its inception in the 1980s, the 3D printing market has continually evolved, broadening its impact across various industries. Two significant developments are currently shaping the future of 3D modeling in architecture and construction:

3D Printing in Construction

This new method uses 3D printers to construct houses and other buildings more quickly and accurately than traditional techniques.
Architects can take advantage of this by enhancing their 3D printing skills. This enables them to design better, more cost-effective buildings while keeping up with fast construction timelines. As the importance and growth of 3D printing in construction increases, architects will need to create more complex 3D models that are ready to be sent directly to construction sites.

AI in 3D Modeling:

In the future, artificial intelligence (AI) will play a bigger role in making 3D models, especially with new design methods. AI programs will be able to turn pictures into detailed 3D objects quickly, helping architects make better and faster designs. By learning about 3D printing, architects can use AI to make designing easier and bring their ideas to life.

Embrace the future of 3D modeling and harness the power of technology to revolutionize your architectural practice. By first improving your existing processes and staying informed on the latest developments, you will be well-equipped to navigate the rapidly changing landscape

General Advice

Unlock the full potential of your architectural designs with our following curated expert tips, essential resources, and cutting-edge tools for 3D printing and modeling.

1. **Set clear goals:**

Define your goals and objectives for your 3D printing project to ensure that you stay on track and achieve what you set out to do.

2. **Choose the right printer & materials:**

Select a 3D printer and materials that are appropriate for your project, taking into consideration the size, complexity, and desired outcome.

3. **Manage your printing parameters:**

Adjusting parameters such as printing speed, temperature, and layer thickness can improve the quality of the print.

4. **Consider the minimum layer height:**

Printing with excessively thick layers may affect the quality of the print.

5. **Select appropriate support material:**

Choosing the right support material can prevent problems related to adhesion, stability, and deformation of the print.

6. **Select appropriate support material:**

Optimize your design for 3D printing by considering factors such as print orientation, support structures, and infill density to ensure the best possible outcome.

7. **Select appropriate support material:**

Choosing the right support material can prevent problems related to adhesion, stability, and deformation of the print.

8. **Use support structures correctly:**

3D printing often requires support structures to prevent the model from collapsing during printing. Use support structures only where needed to avoid unnecessary material waste and to simplify the post-processing.

9. **Use the right slicing software:**

3D models need to be sliced into layers for printing, and using the right slicing software can improve print quality and optimize printing time.

10. **Take advantage of post-processing techniques:**

Post-processing techniques can improve the overall quality and appearance of the 3D printed object. These include sanding, painting, and polishing.

11. **Test & refine:**

Don't be afraid to test and refine your design until you achieve the desired outcome. This may require multiple iterations, but it's important to get it right.

12. **Learn from others:**

Take advantage of online communities, forums, and tutorials to learn from others and get inspired. Sharing your own experiences can also be helpful to others.

13. **Practice good maintenance:**

Regularly maintain and clean your 3D printer to ensure it's operating at its best and to prevent any unnecessary downtime or issues.

14. **Stay up to date:**

Keep up to date with the latest developments in 3D printing technology, materials, and techniques to ensure you're getting the most out of your printer and producing the best possible results.

Practice, Experiment & Learn.

3D printing can be a complex process, and the more you practice and experiment, the more you will learn and improve your skills.

Technical Tips

FDM-focused Tips

1. Printer:

If you are looking for a plug and play experience, with as little work as possible and decent surface finish, look for a pro-sumer FDM printer, pre-build and with automated calibration.

2. Slicer:

For slicing, FDM 3D printers use a common format known as G-Code, though the specific G-code created by slicing an object is not universally usable on all FDM printers, as it is compiled for a specific machine.

3. Post-processing:

If the removal of the supports left white impressions on the print, it is possible to make them disappear with a heat source, such as very briefly passing a flame or vapor from boiling water over the object. Be careful not to melt the print by not leaving it exposed for more than a second or two, and repeating the process after a brief pause if needed.

4. Finish:

If the quality layer lines are not an issue, the print is ready to be used. If however, the print needs to be smoothed, manual labor is needed. There are smoothing techniques using chemical vapor baths that can smooth prints, giving them a glassy surface, but only available for ABS prints and remains a somewhat hazardous process. Otherwise, filling the layer lines with a filler, such as wood filler or other filler pastes found in most automotive shops is the way to go. It is best to work with thin coats, then sand using sand paper and repeat the process until satisfied with the result.

DLP/SLA-focused Tips

1. Printer:

If you are seeking clean, crisp details, have a well ventilated space available and don't mind the somewhat lengthy and often messy post processing, look for a good size DLP printer, a better value for money than SLA printer especially if you have no use for special engineering material (flexible, ultra-resistant, medically approved...).

2. Slicer:

For slicing, DLP and SLA printers usually use proprietary formats of code and file type.

3. Post-processing:

When manipulating liquid resin or prints fresh off the printer, always wear gloves, goggles and a respirator, in addition to always working in a well ventilated space. The resin and the alcohol can be hazardous for your health, potentially irritating your skin, eyes and lungs. If you have resins on your skin, wash thoroughly under fresh water and soap as soon as possible.

4. Finish:

After the print is cured, supports can be removed. Depending on the settings, they can be easily removed by hand, or they can require tools such as an exacto knife and cutting pliers. The surface finish of DLP/SLA print is usually a lot higher than FDM prints, with layer lines often invisible. However, if needed, the print can be sanded directly without the need for filler material, and by using finer grits of sandpaper The print is then ready to be painted, or used as is.

Generic Tips

1. **Composition & Assemby:**

To make the assembly of parts easier, incorporating alignment pegs may prove useful not only to align precisely the components, but also to create a better bond between the pieces when adhesive is used.

For 3D printed components made of ABS, a special technique can be used to achieve a very strong bond. Acetone can be applied to both sides of the components using a small brush or Q-tip, and then the parts can be pressed together. The acetone will melt the ABS, fusing the parts together for an even stronger bond.

2. **Techniques:**

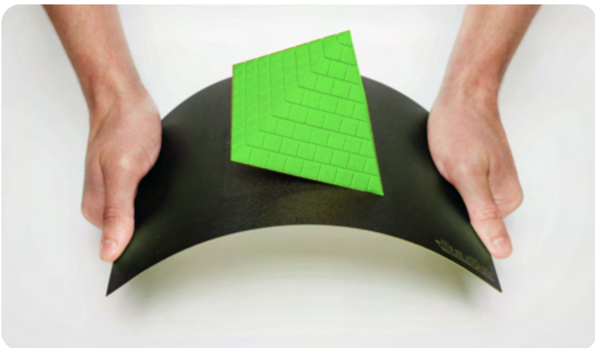
Experiment with different settings and techniques to achieve the best results. Try different print speeds, layer heights, and temperatures to find the optimal settings for your printer and materials.

3. **Materials:**

Create unique properties or special aesthetic effects by combining materials.

4. **Tools:**

Use a flex plate to avoid any injury. It is a removable printing bed made of a flexible material such as spring steel or PEI (Polyetherimide) that allows for easy removal of printed parts without damaging them. It is commonly used in 3D printing as an alternative to traditional fixed printing beds, which require scraping or prying to remove prints.



Library

Communities

1. **3D Hubs:**

An online platform that connects people who need 3D printing services with local 3D printing providers.

3. **Quora:**

A question-and-answer platform where users can ask questions, share knowledge, and gain insights from experts and enthusiasts in various fields, including 3D printing and architecture.

1. **Autodesk community:**

An online community for Autodesk software users, including architects, where they can ask questions, share knowledge, and collaborate on projects related to 3D printing and architecture.

1. **LinkedIn groups:**

A social networking platform where users can join groups related to 3D printing and architecture, connect with other professionals in their field, and discuss relevant topics.

Reddit's 3D printing & Architecture subreddits:

A list of online forums and communities where architects can connect with other professionals and enthusiasts in the 3D printing and architecture fields.

1. **Makerbot Thingiverse:**

A platform for 3D printing enthusiasts to share, download, and print 3D models, as well as connect with other members of the community to discuss and share ideas related to 3D printing and architecture.

Trends

A list of relevant publications, blogs, and news outlets where you can stay up-to-date on the latest trends, news, and innovations in 3D printing and architecture.

1. ArchDaily

Provides architecture news, projects, products, events, interviews, and competitions.

2. 3DPrint.com

Covers news and updates in the 3D printing industry, including 3D printing applications in architecture and construction.

3. Dezeen

Offers the latest architecture and design news, projects, and competitions, including 3D printing and architectural models.

4. 3D Printing Industry

Provides news, reports, and insights on the 3D printing industry, including 3D printing applications in architecture and construction.

5. Architizer

Offers architecture and design inspiration, projects, products, and competitions, including 3D printing and architectural models.

6. 3Ders.org

Provides 3D printing news, reviews, and updates, including 3D printing applications in architecture and construction.

7. Architectural Digest

Covers architecture and design news, trends, projects, and products, including 3D printing and architectural models.

8. Building Design + Construction

Provides news, analysis, and insights on the architecture, engineering, and construction industry, including 3D printing and architectural models.

9. 3D Printing Media Network

Offers news, analysis, and updates on the 3D printing industry, including 3D printing applications in architecture and construction.

10. Archinect

Provides architecture news, projects, products, events, and competitions, including 3D printing and architectural models.

Online courses

1. Coursera Coursera

Additive Manufacturing

2. Lynda.com

3D Printing Essential Training

3. Coursera Coursera

Additive Manufacturing

4. Simplify3D

3D Printing Mastery

5. Skillshare

3D Printing for Beginners

6. Shapeways

Learn 3D Printing

Services

1. **Sculpteo:**

A professional 3D printing service that offers a wide range of materials and finishes.

2. **MakerBot:**

A popular brand of 3D printers and 3D printing accessories for professionals and educators.

3. **Shapeways:**

An online marketplace for 3D printed products and custom 3D printing services.

4. **MyMiniFactory:**

A platform for downloading and sharing 3D printable designs, with a focus on high-quality and curated content.

5. **i.materialise:**

Reliable and affordable 3D printing service.

6. MatterHackers, Hatchbox & Formlabs:

A list of reputable suppliers for 3D printing materials, including filament and resin.

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Your support in architectural model making.

Introducing Archited.io - a new platform aimed at revolutionizing the way architects create models. Our team is dedicated to providing architects with efficient, affordable and easy-to-use solutions for 3D printing architectural models.

While we are perfecting our platform, we invite you to join us and stay tuned for updates on our progress.

In the meantime, we offer free advice, tips, and tricks on 3D printing to help architects of all levels create stunning models.

At Archited.io, we are passionate about making a positive impact on the architectural industry. We want to help you enhance your creativity, speed up your workflow, and improve your work quality. Join us on our mission to make architectural 3D printing quicker, easier, and limitless!

With our cutting-edge technology and commitment to simplicity, affordability, and endless possibilities, we are confident that we will empower you to bring your visions to life with ease and precision. Don't miss out on the future of architectural 3D printing - join us on our journey to revolutionize the industry and stay up-to-date with our latest developments.

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