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LARGE FORMAT PRINTER BUYER'S GUIDE

5 Considerations to Acquiring a Large Format Printer

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LARGE FORMAT PRINTER KEY POINTS TO CONSIDER

If you're planning to purchase a large format printer/plotter sometime in the near future, you've come to the right place. Even though on the surface a large format printer may seem more complicated than your small office printer, it really isn't. Many of the same factors you considered when buying your office printer apply to a large format printer.

The goal of this guide is to help you understand 5 key but simple considerations to look at when selecting a new large format printer.

There are 5 considerations when buying a large format printer:

1. **Types of large format printers:** With so many types of large format printers, we'll narrow the choices down to a few.
2. **Monochrome or color:** Color is not as expensive as you think.
3. **Costs:** Is it cheaper to outsource large format printing or buy a printer to print in-house?
4. **Speed and performance:** A printer's rated speed on a spec sheet can be a lot different from the time it takes to click print and have the drawing in hand.
5. **Image quality:** Is a higher dpi always better?

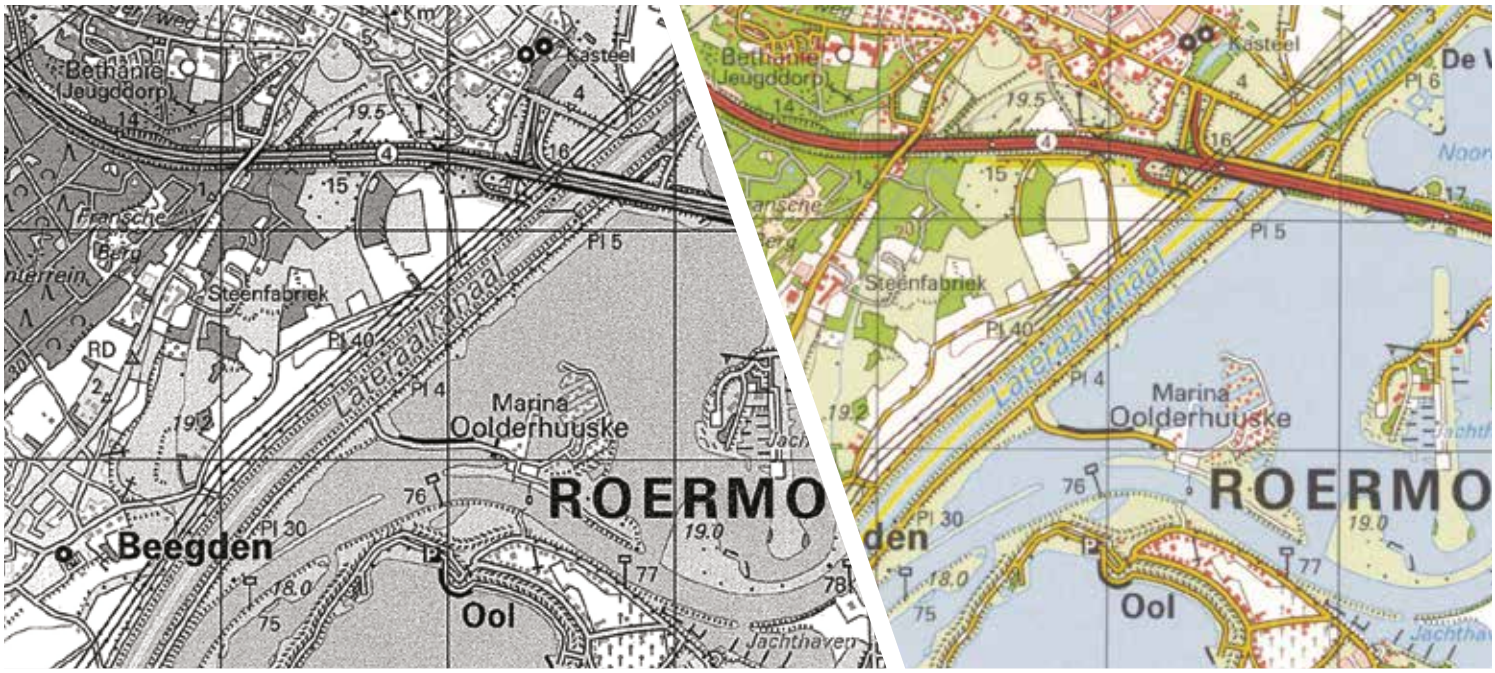
1. Types of large format printers

Large format printers generally come in one of two configurations: printer only or multifunction. Printer only configurations are just that; they print digital files either submitted from a user's desktop, from a history queue located on the printer's controller, or from a USB drive.

Multifunction devices are printers that also come with a scanner and are available in one of two configurations; those with the scanner mounted on top of the printer and commonly referred to as single footprint devices, or stand alone scanners which are separate devices that sit adjacent to the printer. Single footprint devices are smaller than their dual footprint counterparts, so consider these if your office space is tight. If you're not tight on space a standalone scanner may be a better choice, since a user may scan documents without getting in the way of someone else using the printer.

The additional scanner can be used to:

- Create copies from physical drawings. A common application is making copies of field mark-up drawings.
- Scan files to a digital folder destination in a variety of file formats including PDF so they can be referenced and shared with others in a digital format.



2. Monochrome or color

Just like the home office printer, large format printers provide the ability to print in monochrome, color, or both. If you primarily print 4-color graphics, posters, photos, or color construction documents, a color printer is a must. Same goes for monochrome if you're printing only monochrome CAD drawings.

However, if you print a combination of monochrome and color, such as architectural drawings that combine colorful images with line drawings or simple line drawings with a combination of monochrome and color lines, then your choice becomes a little more difficult; should you own a monochrome and a color printer or just a color printer? At lower print volumes, most color printer output costs will be the same for monochrome and color printing. It's only when you get to larger volumes that you really need to look at specializing and having two printers instead of one. Like your office printer, think of your color large format printer as a monochrome printer that also prints color.

Color printers typically use inkjet technology and range from small, inexpensive consumer models to large, more expensive machines used in a business environment. They are constructed with print heads and a series of nozzles to spray drops of ink onto paper. Inkjet printers use cartridge-based aqueous inks consisting of a mixture of water, dyes, or pigments. These ink cartridges can be expensive and the output is difficult to control on the surface of the media, often requiring specially coated media. While coated media helps to provide crisp quality images, it requires extra time to dry before prints can be used, doesn't lend itself to stacking, and may curl. However, there is dry toner color technology available today capable of printing on traditional bond paper. This technology provides the benefits of toner printing (for example, no drying time, stackable prints, and no paper curling), and the color quality benefits of inkjet printing.

3. Costs

In business, a key to success is effective control over expenses, no matter how big or small the organization. One area that often gets overlooked is the cost of printing large format technical documents. Because these documents are a critical part of Design and Construction firms, one consideration is whether you should print your large format documents in-house or outsource them.

There is no clear-cut answer because it depends on a number of factors. For example, if you consider just the drawing costs as measured in cost per square foot, it's generally less expensive to print in-house. Recent customer data shows it is not unusual to save 46% or more on your outsourced large format printing costs when printing in-house.

Since it's difficult to recommend which approach is best, we've outlined some pros and cons to consider.

Outsourced Printing Pros	Outsourced Printing Cons
No printer acquisition cost or maintenance fees.	Outsourced printing in general tends to cost more because of the smaller print quantities and paying a third-party vendor markup.
Free up capital to be used in other areas of the business.	Outsourcing can be complicated and require management of your vendors: • Is your vendor giving you the best price? • Is the quality meeting your requirements? • If not, what recourse do you have? • Do you have the internal resources to manage the vendor?
Print and pay for only what you use, but you may have to order excess prints that get thrown away.	You may have to pay for document shipping costs: • Because of paper weights, this can be expensive. • What is then the real cost of the outsourced print?
	If scans are ever required, this can mean additional cost.

In-house Printing Pros	In-house Printing Cons
Because large format documents for an AEC organization are mission critical, control over quality is very important. Large format printing is not the same as making office copies. Sometimes this quality assurance can only be done in house.	Device acquisition cost (purchase or lease).
In-house printing in general tends to cost less because you are able to control what you print, and how it is printed, to help keep costs as low as possible.	Device maintenance and upkeep cost.
Print only what you need and stop paying for excess that you might not need, or don't ever use and end up throwing away.	Cost of supplies (toner and inks).
Better manage your time by printing on your own schedule and meeting demanding deadlines.	Potential headache factor. Installation, maintenance, application compatibility, and lost productivity.
Have more flexibility and make small unplanned print runs: • Don't worry about planning and preparing to outsource large jobs. • Better manage schedule and peak printing requirements with the ability to print on your terms.	Future technology upgrade costs (computer workstations, servers, and software).
Flexibility to provide document scanning when needed. Many printers today have the option to add an integrated color scanner.	Opportunity cost of the facilities space used to place the printer.

4. Speed and performance

Don't evaluate a printer just by the numbers. Most comparably priced models will have almost identical speed specifications; however, their productivity may vary substantially. What this means is that when you calculate the amount of time it takes for the printer to warm up, the time it takes the printer to physically output a document, and then the time spent to retrieve, collate, and handle the paper, a printer that is specified to print four D-size pages per minute (ppm) may output substantially fewer documents when you consider all the above added productivity factors.

Printers are rated to output a designated number of D-size (24" x 36") pages per minute. Output will range from 1–2 ppm in the low-volume segment, 4–9 ppm in the mid-volume segment, and 10–20 ppm in the high-volume segment. These speeds represent the physical speed of the print engine. You should also consider what the printout time is when printing from sleep mode. Some printers take less than a minute to wake up and print while others take 3–4 minutes. This is an important factor to consider since most office printers sit idle for the majority of the day, so you don't want to wait at the printer once you've sent your documents.

5. Image quality

When you think about large format printers and image quality, the first thing that springs to mind is resolution, which is expressed in dpi (dots per inch). However, the higher the resolution does not necessarily always mean the best quality. Compare it to digital cameras; more megapixels are not always better, since the way in which a camera processes and interpolates data will impact the quality. The same applies to large format printers; the way they interpret the data is as important as the print technology itself.

When printing technical construction drawings, it is essential that dotted, fine lines are printed clearly. You don't want to lose information. Losing a dotted line that represents electrical wiring or a supporting wall at a construction site can have catastrophic consequences. Also, when you are presenting design concepts, images speak louder than words. Insufficient print quality may lead to losing a bid or a contract. Meaning, insufficient image quality may impact your bottom line.

For monochrome large format printers, no matter what media you use, the print quality is more or less the same. When using a color inkjet printer however, quality can vary tremendously depending on your media selection. When printing on glossy or photo paper versus bond paper, differences can occur in color output and quality of thin and fine lines.

The best way to objectively judge image quality is to see it for yourself. Take some of your typical files to a sales demonstration and have them printed out. Make sure when comparing image quality that the prints are made on the same material using the same quality and output settings. Base the quality decisions on the aspects of the output that are most important to you.

EXPLORING 5 MAIN KEY POINTS

When looking to acquire a large format printer that meets your business needs, you have many factors to consider prior to making an investment; however, this doesn't have to be complex if you know what key pieces of information to consider. There is no such thing as a one-size-fits-all solution. Taking a little extra time to learn about the main functionality offered by a large format printer, along with your key functional requirements, will help you decide which printer best compliments your business while providing a competitive edge.

The main points to consider again are:

Large Format Printer Types: Choose a printer only or a multifunctional device with a scanner.

Monochrome or Color: Color enabled inkjet printers that let you print color and monochrome all in one or monochrome only devices.

Costs: Printing in-house is less expensive than you may think and provides excellent cost reduction opportunities with the right mix of print volumes and applications.

Speed and Performance: Look beyond a printer's rated speed and consider other productivity enhancing features.

Image Quality: All dpi ratings are not always the same, so look closely at your application requirements and test the printer's output.

Next time you are searching for the optimal large format printer specifically geared for your business needs, turning to this 5-step guide will help you to navigate through your buying decision quickly and easily, leaving you with a productive and efficient large format printer and a step ahead of the competition.