



VISION
GRAPHICS

The Vision Graphics Guide for Creating Photo Wall Murals

To help you get the best results when creating a full or partial wall mural, we have developed this three-part series of guidelines and tips. In this document, we'll discuss how to choose images and materials, present tips for resolution, wall measurements, printing, wall preparation and installation. We welcome questions and inquiries in order to give you the maximum results.



THE UTAH STATE UNIVERSITY AGGIE RECREATION CENTER INCLUDED OVER 13,000
SQUARE FEET OF CUSTOM WALL COVERING



PART 1

Choosing the Image and Media

Wall murals aren't new. From majestic cathedrals to private office space, mankind has been painting decorations, landscapes and text displays on indoor walls in an effort to transform the indoor experience. Today, the advent of large-scale, high-resolution printing equipment and techniques, environmental graphics are growing in popularity among retailers, architects, hotels, restaurants, museums, interior designers and homeowners.

Creating and installing a wall mural is easier now than when Michelangelo painted the Sistine Chapel using oils and brushes; however the process still requires attention to every detail in every phase of the process. Taking a methodical approach will inevitably pay off in terms of minimizing waste and do-overs.

Choosing an Image

The selection of an image for a wall mural can be a wonderful exercise in creativity, yet daunting in the number of possibilities. Not only should one consider the mind-boggling myriad of choices, but the shape, framing and context for the final outcome.





Sources: In many cases, the selected image will be provided by the end-user. In retail environments, for example, the image will be selected to support the theme or brand, but always with the ultimate objective of increasing sales. Some beverage wholesalers have started using brand images to produce wall murals for convenience-store clients who want a more attractive, permanent, alternatives to POS signs.

Murals for offices and other types of commercial and public spaces may be chosen to support an architectural vision or create a pleasant atmosphere. For these types of jobs, a company like Vision Graphics can help in image selection, as we have an extensive knowledge of what has worked well in similar projects and settings. The images under consideration may come from specialty stock photography services or may be custom designed and produced by our in-house design team.

Some of Vision Graphics' professional photography customers have started converting some of their own images into wall murals or other gallery-quality print products. For example a well-known photographer in Park City stocks his Main Street gallery with beautiful artistic works of his own vision and produced in Vision Graphics' state-of-the-art production facility.

In some cases, there are small-scale projects in local medical offices who want a comforting environment. Other projects may be coffee shops, bars and restaurants that work to create a particular ambience for their patrons.

Using images captured by an experienced professional is highly recommended because image flaws that are not visible in small prints become glaring imperfections when enlarged on a grand scale. While it is desirable to turn one's own photograph in a custom wall mural, more often than not, the flaws in such an image will take away from the final outcome. It is rare that an amateur photo image will translate into a high-quality wall mural no matter how much the client might wish that it were so.

Subject Matter: Although image selection is subjective, there are some reasonable questions that can be asked to help guide the process. Instead of simply asking: "What image should we use here?" consider rephrasing the question to get more effective results. For example:

- What do you want this space to accomplish?
- What is the "purpose" of the image? Is it to motivate, to relax, or perhaps to distract?

The answer to these questions can be useful in suggesting image themes or categories.



What do you want this space to accomplish? What is the purpose of the image? What does the space want to be?

Another question related to the first but asked from the opposite direction is:

- What does the space want to be? In other words, consider the characteristics of the entire space.
- What are the area dimensions, the height of the ceilings and the lighting conditions?
- Do these conditions require an image to make the space seem larger, maybe an extension of the outdoors, or make a huge space more human-sized?
- What about existing windows? Will the image be consistent with the view?

A related factor is viewing distance, which also affects the file-size requirements of your source image. Obviously, greater viewing distances allow you to get away with more (meaning less) in terms of image size. A wall mural that is installed in an auditorium or gymnasium will not require the same attention to detail as one that sits in your conference room, where observers will be within inches of the finished product.

Context: part of the mural planning process is to understand the context in which the image will be used. Because wall murals are increasingly used in conjunction with visual merchandising, the designer may want to add to the illusion created by the image by using other physical components. One obvious example is creating a window effect, which required adding faux hardware such as sashes and mullions, or perhaps even installing drapery. While this is normally the responsibility of the architect, designer or merchandiser, it may impact the overall preparation for the print as well as the installation.



Choosing the media

Another consideration connected to the image is choice of print media. Vision Graphics offers a wide selection of wallcovering materials including cloth, vinyl and other variations that can be used to produce murals. Each media has its own set of aesthetic and installation properties.

For example, the materials have different surface textures, whiteness levels, and opacities that can affect the overall look of the murals.

Vision Graphics offers a wide selection of wallcovering materials, ranging from wallpapers and adhesive-backed fabrics to vinyls that can be used to cover large or small wall areas.

Vision Wall Coverings is a line of bright-white, textured wall-coverings that are designed for producing optimal color gamut and image quality on materials designed for installation with traditional wallpaper paste. Because Vision Wall Coverings are manufactured specifically as wallcoverings, they have the thickness, texture, and opacity needed to fully disguise most underlying imperfections.



Vision Wall Coverings can subtly change the natural aesthetics of the image, depending on which texture is chosen: Bali Hai, which looks like a finely woven art canvas and is ideal for use in museums, restaurants, or hotels; Suede, with its smooth, softly textured surface often used in corporate, healthcare, or retail facilities; or Stardust Matte, which has the strongest finish and works well to provide significant texture behind images with softer details. Vision Wall Coverings are compatible with low-solvent, solvent, and UV-curable printers.

Visitex fabric is a lightweight, printable fabric backed with a repositionable adhesive that sticks to flat, non-porous wall surfaces and removes easily. Print-shop staff won't need any specialized training to install smaller-scale wall murals printed on Visitex. The surface of the fabric doesn't reflect glare from lights in the room in which the mural is installed. Visatex is compatible with aqueous, low-solvent, solvent, latex, and UV-curable printers.

3M 8624 Adhesive Vinyl can be used to produce wall murals on surfaces that don't work well with traditional adhesives, such as rough-textured concrete. It can be used to post murals and other public art in outdoor spaces. Depending on the surface, the vinyl removes easily for up to a year, but can hold a mural in place for up to five years. 3M 8624 Adhesive Vinyl is compatible with latex, low-solvent, solvent, and UV-curable printers.

Vinyl wall murals (also known as "wraps") are typically installed by individuals with specialized training in vinyl-graphics installation.

If you are a designer who wants advice on which material to use for a specific project, contact Vision Graphics. We have years of experience in providing the best results in wall murals and other environmental graphics.

Substrate	Type	Application	Durability
Vision Wall Coverings	Wall Fabric	Indoor use only	5+ years under controlled environment. UV coating will provide additional protection
Visitex	Adhesive Fabric	Indoor & outdoor wallscapes with low residual residue upon removal	At least 1 year
3M 8624	PSV	Indoor & outdoor graphics on up to moderately textured surfaces	Indoor, 2+ years Outdoor, 3-6 months in moderate climates
3M IJ3555 Opaque Short-term	PSV	Indoor & outdoor graphics & signs, cooler graphics, vending or dispensing machines	Repositionable, removable - 2 years
3M IJ40C Opaque Intermediate	PSV	Indoor & outdoor graphics, floor & carpet graphics, windows & dividers	General signage, 7 years Floor graphics, 1 year Carpets, 3 months
3M IJ80 Controltac Opaque Long-term	PSV	Indoor & outdoor graphics, signage, awnings, smooth walls, wall murals	Up to 10 years indoor/outdoor on flat, vertical surface



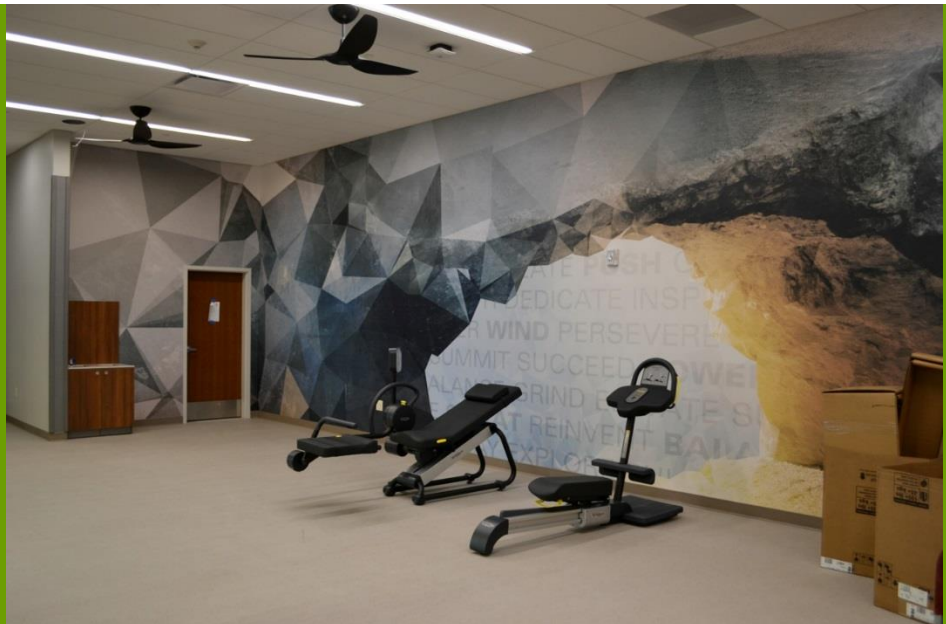
PART 2

Wall Measurements and Image Resolution

In Part 1, we talked about image and material selection. Part 2 covers wall measurements and image resolution. In Part 3, we'll discuss printing, wall preparation, and installation. Taking a methodical approach will inevitably pay off in terms of minimizing waste and the need for do-overs. If you have additional comments and tips you'd like to share, we would appreciate your input.

Although we might have discussed image resolution in Part 1 when we talked about image selection, you can't determine image resolution until you know: (1) how big the mural needs to be; and (2) from what distance most people will view the mural.

Accurate wall measurements are critical, not only in determining your image file-size requirements, but also in preventing problems during installation. The overall size and use of the room will determine from what distance the mural will typically be viewed.





Measuring the Space

If possible, visit the site where the mural will be installed and measure the wall yourself. Visiting the site will give you an overall sense of the space and alert you to any installation obstacles that may need to be resolved later.

It's not enough to simply measure the height and width of the wall. You must measure all four dimensions of the installation background.

Even in newly constructed buildings, you can't count on the intersections of the walls with the ceilings and floors to be level, or the intersections being square or parallel with the opposite edge. If any of these dimensions turn out to be off by much, you may need to consider ways to compensate for the visual dissonance that might appear in the installed mural.

How you do that will depend on the nature of the room or background wall and how the mural will fit into the overall area. The challenges of installing the mural with a border around the perimeter are different than challenges that may arise when installing the mural all the way to each edge of the space.

If you plan for the print to be installed flush (right up to the edges of the wall areas), you need to set the overall mural size to print slightly larger than the total room dimensions by about ½ in., creating what amounts to a bleed. This process requires extra attention to detail in the initial stages of installation, as it is imperative that the first (upper left) panel be applied level, and positioned so that the vertical and horizontal continuation will always cover the edges of the area.

If your mural will not take the entire space, then it is important to determine whether or not the edge dimensions are level (meaning level to the earth). If it isn't, you need to see how far off it is and determine how much you care. The potential challenge here is that if the top edge of the mural is installed level, but the intersection of the top of the wall and the ceiling is not, there will be an uneven border at the top. This may not bother you or your client; it's simply a matter of how high the standard is.



Working from an absolute reference point and using a level and T-square is the only way to remove the uncertainty of an uneven room from the process.

You may decide it's a better idea to apply the mural so that the upper edge is parallel to the intersection of the wall and ceiling but not technically level to the earth. The eye is likely to believe this illusion, but the solution can also cause further problems if the edges of the wall are not square with the ceiling intersection.

The point of mentioning these various scenarios is to emphasize that you can't take for granted that the dimensions of the room will be perfect and you need to decide on your strategy before you go further.

Ultimately, the easiest and safest policy is to use your level to create an absolute and square starting point for the first panel in the upper left area, and use that as a reference point for subsequent panels. Working from an absolute reference point and using a level and T-square is the only way to remove the uncertainty of an uneven room from the process. Trying to do it a different way is possible if you are a perfectionist, but it can also become a slippery slope as you install successive panels across the installation space.





The second part of the application challenge is making sure that each panel is installed in proper position relative to the whole, and that there are no seams between panels. (We'll talk more about that in Part 3 of this series).

Determining the Right Resolution for Images

Enlarging original images to the scale of wall murals most likely goes beyond the scope of your everyday work. Although RIPs and Photoshop plug-ins such as Genuine Fractals or PhotoZoom Professional can work wonders enlarging photographs, it is essential that image files for wall murals have enough resolution to produce a clear image when printed at the final size.

Whatever file size you start with, you must do some math to determine what the dpi will be when the image is enlarged to its final size.

Pros know that it is total file size that determines whether or not an enlargement will produce clarity. One long-standing rule of thumb has been to have 1.5 MB/sq. ft. of final image size, but that rule isn't hard and fast. Most sources agree that the image will need to be a minimum of 100 dpi when enlarged to its final size, with 200 dpi optimal for fine-art subjects and closer viewing.

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However, other factors can shift the requirements up or down. Subjects such as nature scenes, textures and abstract artwork are generally more visually acceptable at lower resolutions. Subjects such as human faces, logos, and photos of small subjects are less visually acceptable at lower resolutions.

When purchasing a stock image online, the files size specs should be clear on the website. However, images shot from many digital cameras can be problematic. Although the file size might be sufficient, there may be problems with other elements of the stock photo, such as composition, color balance, and aspect ratio. As we mentioned in Part 1, image flaws that are not visible in small prints become glaring imperfections when enlarged to grand scale.

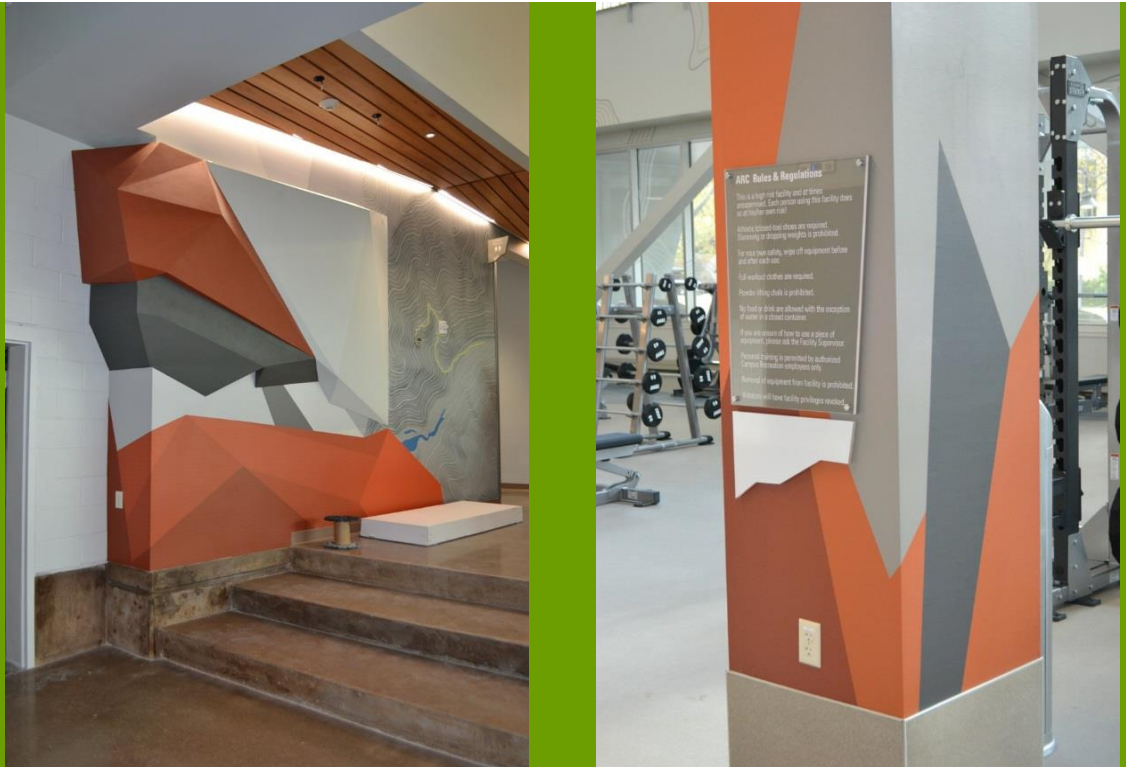
In most cases, the reviewers that accept images for stock-photo sites aren't thinking about what the image would look like as a wall mural. Most stock agency photo editors evaluate images on how they might look in websites, presentations, magazine articles, marketing collateral and print advertisements.



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If you decide to go with stock imagery, one option is to use vector files instead of a photo. Or, you can use software utilities such as Live Trace in later versions of Adobe Illustrator to convert photo images into vector files.

If you would like additional information about choosing and enlarging images for optimal use in wall murals, a Vision Graphics design specialist can refer you to resources with experience in both professional photography and wall mural production and installation.





PART 3

Wall Preparation, Printing, Finishing & Installation

In Part 1, we talked about image and material selection. In Part 2, we looked at the importance of wall measuring and image resolution. In Part 3, we will talk about wall preparation, printing, finishing, and installation. As always, if you have additional comments and tips, we would appreciate your input.

If you plan to use LexJet's WallPro wallcovering materials or LexJet Simple vinyls for large projects, we recommend hiring professional, trained installers. But if you are tackling a smaller-scale, less permanent installation, these tips can help you do the job yourself—particularly if you opt to use Photo Tex PSA, which has a repositionable, reusable adhesive.

Whether you hire a pro or install the mural yourself, it's helpful to know what's involved in installation so you can anticipate what types of challenges might arise during installation and take steps to make the installer's job easier.

Preparing the Wall Surface

Before beginning the installation, it is imperative to take the time to properly prepare the wall surface—particularly if the mural will be permanent.

Overlapping panels at the edges is important for creating a seamless installation, because media can contract after drying as a result of changes in temperature and humidity.

Patch and smooth the wall. Dents, blemishes and other imperfections that may be barely visible when the wall is naked will telegraph in a most unpleasant way when the image is installed. Old wallcoverings need to be removed and grease and dirt needs to be washed off with warm water. Any cracks or holes should be filled with spackling compound and sanded until smooth. For maximum adhesion, both initially and over time, it is important to make sure the wall is painted properly.



Wall Surface Preparation and Painting Tips:

- Patch and repair the walls to make a smooth surface.
- Properly prime the wall; two coats may be required.
- Paint walls with semi-gloss silicone free paint.
- Allow paint to dry minimum of five days for proper outgassing. Mural may bubble or lift without allowing enough time for paint to outgas.
- Clean wall prior to installing mural. Freshly painted walls should be wiped down with a lint free cloth to remove dust. Existing walls should be washed with a mixture of 1 oz synthetic detergent per gallon of water. Allow wall to dry a minimum of one hour.

Plan how to handle light fixtures and switchplates. If the mural is going to cover them for good, you need to deal with sealing the electrical lines and covering the outlet hole. If you are going to continue to use them, then you need to mark their coordinates so you can cut holes in the installed mural in order to reinstall the plates.





Printing the Mural Panels

The installation will go more smoothly and the final mural will look better if you pay attention to a few important factors while setting up and printing the job.

Setting Up Panel Sizes, Overlaps, and Alignment Marks: Many RIP software packages include utilities that make it easier to output multiple panel jobs. Some RIPs let you vary panel sizes, set overlap dimensions, and place alignment marks according to your preference. In Photoshop, the process is more hands on.

Overlapping panels at the edges is important for creating a seamless installation, because media can contract after drying as a result of changes in temperature and humidity. Overlap controls in RIP software allow you to select an overlap that corresponds to the print media type as well as your own preferences. Typical overlap dimensions range from ¼ in. to 2 in.

Ensuring Color-Consistent Panels: The other significant challenge with mural output is maintaining color consistency across the entire job. It is especially important to minimize color variations between adjoining panels. There are two best practices that apply to almost any scenario:

- Run the entire job at the same time. The reason for this is that temperature, humidity and other factors affect the way inkjet print heads perform, so there can be differences in output characteristics from one day to the next.
- Run the entire job on the same batch of media. Even the best manufacturers' product can have slight variations from batch to batch. These variations can affect some color characteristics in the final prints.

If you are seeking perfection, there is an additional practice that can further improve your color consistency between panels. Due to the fact that inkjet printers can vary across the width of the printer, there can be advantages to rotating panels 180 degrees in alternate columns. This means that panels in every other column will be printed upside down. When the panels are reassembled in the mural, the edges that abut will have been printed on the same side of the printer, equalizing any color variations across the printer. While some RIPs allow you to perform this task automatically, most will require you to do it manually.



Finishing the Mural

For most applications, a protective finish isn't required. But if you know that the mural will be installed in a location in which the walls will be repeatedly touched, you may want to consider adding a layer of protection. Our printed materials can be protected with liquid coatings such as a UV Coating, which not only protects the finished product, but may enhance the overall color and luster. Wall vinyls can also be protected with an over-laminate.



Installing the Mural

Unless you embrace risk as a lifestyle, the only way to guarantee an accurate installation is start with a few common-sense procedures.

- Begin the application process by lining up the mural panels in position on the floor. This is a good time to check one more time for flaws or printing errors.
- Use a carpenter's level, T-square or plumb line to mark accurate guidelines on the wall with a pencil or chalk line. Ideally, these guidelines should be planned to line up with the marks you print on each panel. But even if you decide not to print alignment marks of the panels themselves, you still need to mark guidelines on the wall.
- Mark your initial starting point on the top left of your area, then use your carpenter's level and tape measure or steel ruler to mark the location of the right edge of your first panel column.



- Mark a straight and perfectly vertical guideline. The most effective method of making long straight vertical lines on a wall is to use a plumb bob and chalk line. A plumb bob is a simple but effective tool that uses gravity to establish a vertical line, in this case a weight that hangs from a string. Suspend the plumb bob from your top mark and when it stabilizes, mark the bottom reference. If you don't want to use a plumb bob, then you will need to locate these two marks using a carpenter's level and T-square. Once you have made the marks, a chalk line is the best way to make an accurate line. A chalk line is a small, teardrop-shaped case filled with blue or orange chalk and a heavy string wound up inside. There is a metal tab on one end for pulling out the chalk-coated string out, and a reel on the side for winding the string back in. To use it, hold the string very taut at both ends, then pull the line straight back five or six inches and let it snap back. This will leave a clean straight line of chalk. If you'd prefer not to mess with a chalk line, then draw a pencil line using a level and long steel rule.

Remember, the most critical part of the installation is getting the left hand column panel/panels applied square and true. Whether the mural consists of a single strip or multiple panels, it's worth the time to do this part right.

For most wall coverings produced by Vision Graphics, here are the steps a professional installer would use:

- Lay the first panel face down and evenly apply a thin coat of wallpaper adhesive to the back of the panel using a foam roller or pasting brush and brushing out from the center. Also apply a thin coat to the respective wall section.
- Don't apply the paste too thick. This can cause the paper to become soaked and could cause a tear.
- Once the panel is applied, check the alignment marks and double check with the carpenter's level.

The most critical part of the installation is getting the left hand column panel/panels applied square and true.

- Working from the top down, use a damp sponge or smoothing brush to lightly smooth out any bubbles or wrinkles. Avoid applying too much pressure to the surface.
- Finally, wipe the panel with a clean, damp sponge to remove any paste that may have gotten on the mural.



- Continue methodically, but don't rush. It is important to continue checking positioning as you go, because coming back to fix an earlier panel means ripping up everything back to that point, and printing more panels.

Other helpful tips

- Try to finish the installation job in one session so that any drying and shrinkage that might occur in the wallpaper material takes place on all panels at roughly the same time.
- Keep the room temperature between 60 to 75 degrees Fahrenheit.
- Minimize drafts.
- Wait until the entire mural is applied before you trim the outer perimeter with a razor knife.

If there are additional tips you'd like to submit, or if you have any additional questions you'd like us to address in this series, contact a Vision Graphics customer specialist.

