



Setting Up for Success with Video Walls

Tips for designing an effective video wall system



There are many things to consider when designing an effective video wall system. Let's review the necessary hardware to ensure your next project is a success.

A video wall is a true A/V system design “statement piece,” whether it is in a corporate office, a university, the local sports bar, or a private luxury home. It is the first thing people notice when they enter the space, and often becomes the target of conversation. Video walls have come a long way, and their popularity continues to grow as the underlying technology improves. Video wall system design entails several unique hardware considerations. When undertaking any video wall project, keep the following tips in mind:

Content

Content is king. Before specifying any devices, you must determine what will be displayed on the video wall. Will it be used for digital signage? Will the content be static image(s) or video? Will the video wall primarily show sporting events, and if so, what sports? Content is vital to solution success, and should inform practically every other design decision.

Resolution, Orientation, and Size

While discussing a system, you will need to determine the overall resolution and orientation of your video wall. Resolution directly impacts cost. For example, 1080P displays are often less expensive than 4K. However, when

1080P content is stretched over a larger video wall, image degradation becomes much more apparent. The larger the video wall, the more important it is to use higher resolutions.

In some instances, the environment or space dictates the size of the video wall. Ideally, however, the minimum size is determined by factors including distance from the audience, viewing angles, content, and viewer task—as well as, of course, the desired aesthetic impact of the video wall.

LCD displays are well-suited for installations where the audience is not far from the video wall while LED displays are great for large video displays with a farther viewer distance.

Display Technology

A video wall is made up of a group of small displays acting as a single large display. The displays can be either LED or LCD. Understanding the difference between the two technologies can help you choose the best option for your video wall design.

LCD Displays: Great place to start for those familiar with installing TVs and routing audio and video. With a plethora of options available from simple black boxes to network-based HDMI over IP solutions, LCD displays are well-suited for installations where the audience is not far from the video wall. Systems using LCD's usually have lower costs than LED video walls. However, it is important to specify commercial-grade display components. Residential displays can work in tight budgetary circumstances, but it is always best to use displays that are created specifically for video walls.

LED Displays: Great for HUGE video displays with a farther viewer distance. LED panels can be bezel-less, resulting in a more seamless videowall appearance. They are also more flexible in shape and size. LED video walls are often focal points in stadiums, malls, concert venues, and even city landscapes. Due to the size, labor, and quality of LED video walls, they tend to have higher upfront costs than LCD systems.

Video Wall Controller

A video wall controller helps to manage how content is displayed across multiple displays. It can take a single video source, or multiple video sources, and divide the signal into multiple signals that are shown on each display like interlocking puzzle pieces. Many video wall displays have some controller functionality built-in. However, a dedicated video wall control device allows for additional customization options such as 3rd party control integration, scaling, screen rotation, source switching, or even displaying multiple sources on a video wall at once, to name a few.



[EVSP24VW](#) Expandable 4K 2x4 HDMI Video Wall Processor from Evolution

Mounting Hardware

The mount is an often overlooked but important aspect of video wall design. Regular fixed display mounts can work and are cheap, but they can cause



[VWA3770](#) Video Wall Mount from Vanco



[ME-5006](#) Power Strip Surge Protector from Monster

Cable selection should be based on the distance, physical environment, and content.

headaches during installation and service. Video wall mounts allow you to make additional horizontal and vertical adjustments, giving you the flexibility to ensure the displays are securely attached and properly aligned. Many video wall mounts also have a spring-loaded feature. This allows you to make connections with the display extended and then push the display in place securely against the wall once finished. A spring-loaded mount also comes in handy during service calls: just ask anyone who has used fixed mounts on a 3x3 video wall to “save money” and then had a service call for the center display.

Power

Power must be readily available and adequate for all displays, source(s), the video wall controller, etc. A video wall is a major investment, in terms of both equipment and time. Additional surge protectors and wall taps are important to protect the valuable and sensitive gear. Depending on the purpose and location of the video wall, additional power products like a UPS (uninterruptible power supply) can be used to help limit or eliminate downtime.

Cabling

While some video walls allow for local content input, many applications require the content sources to be positioned far away from the video wall itself. You’ll need to run cables through a wall or ceiling to accomplish this, and it is always a best practice to run multiple cables as backups in case of any unforeseen incidents. Cable selection should be based on the distance from the source to the video wall, the physical environment, and content requirements: You need the right cable and extension technology to accommodate the application’s resolution and bandwidth requirements.

Distance

When it comes to copper, the longer the cable, the weaker the signal. There are many solutions to help maintain the video signal as it goes from A to B, from extenders to AOC (active optical cable) products.

Coax Extenders: Coax extenders are often used when coaxial cable is in place and there is not an optimal way to run other cabling.

Category Cable: Category cable extenders (Cat5e/6/7) are the most common type of extender for sending HDMI audio and video over long distances. These devices use relatively inexpensive, easy-to-service cables and connectors, and can extend 4K signals up to 100m.

Fiber Extenders: Fiber extenders allow for even greater distances. Multimode fiber is able to send HDMI audio and video up to 300m, and single mode fiber can reach distances of 6.2 miles/10km or greater.

Environment

Paying attention to the cable environment is critical. It is always a best practice to make sure copper cabling, for example, is run at least 12 inches away from electrical wires. If there is a history of electrical issues and interference on site, using shielded cabling can be very helpful. For commercial environments that have constant hand radio use for security or other purposes, fiber may provide a better solution than copper.



Visit us at www.vanco1.com to view our complete line of video wall products.

Designing a stunning video wall centerpiece to fit a specific application and budget requires careful attention to detail and a thorough understanding of the various components that make up the system. By making informed decisions about the various technologies and components available, and considering the specific needs of each project, integrators can deliver a tailored solution that enhances the overall user experience while adhering to budget constraints. Ultimately, a well-designed video wall not only serves as a statement piece that captures the attention of viewers, but also stands as a testament to the integrator's expertise in creating an immersive and engaging visual experience.