

Projection technology in the worship space

By Jerry Meier

The emergence of nearly every successful technology follows a very predictable trend as it progresses from its initial introduction in a market to its peak. The introduction of video projection in worship spaces has followed this well-defined trend.

We are currently witnessing a phenomenal growth in large, dynamic congregations. These congregations are inspiring a whole new generation of believers with a powerful message that directly addresses the issues of the world they live in. One of the keys to the enormous success of these congregations is their willingness to employ the very sources and technologies used to advance the often questionable values of our society, in the promotion of the Gospel. Churches have been broadcasting their services on radio and television, and supporting remote or shut-in members with video and audiotape services for years. Recently, the use of very high-end sound and lighting systems has become more widely used to create a positive and comfortable worship environment. Music ministries have evolved to meet the needs and tastes of the worshippers. The use of video projection is following this same trend.

First, there were the early adopters, using small portable video projectors on carts to show mission video tapes or to display hymn lyrics for the congregation. Now we have progressed to a point where video displays have become an integral part of the worship environment. As Americans we are very visually oriented and we know that we have a much higher level of retention when a spoken message is reinforced with visual images. This growth trend has created in many church communities an awareness and desire for the benefits of video projection.

Unfortunately, this is the point where many churches run into challenges. Designing and installing video projection systems in worship spaces is a unique application with its

own distinct set of concerns and requirements. In many cases, it is almost impossible to find a consultant or integrator adequately schooled in these special characteristics. Consequently, it becomes very important that the church leadership understand some of the core issues involved in introducing video projection technology into your worship space. The aesthetics of churches and worship spaces present special challenges in terms of the appearance of the projector and screen. In a typical presentation system it is the system designer's goal that the projection screen dominate the attention of the audience when it is being used. Church installations differ from this standard in that the projected image is there to enhance the environment



The popular octagonal-shaped sanctuary made a dual projection system perfect for this application. The First Southern Baptist Church in Alton, Illinois, also opted to increase the communication effectiveness of their choir by implementing a third projector and screen in the rear of the sanctuary for choir view. (Photo courtesy of Fowler Productions.)



Aesthetic integrity was important in this new installation in Rye, New Hampshire. The use of acrylic screens rather than fabric provides for the best sight lines as well as a more finished look. (Photo courtesy of Fowler Productions.)

and reinforce the message, not to distract the congregation. The key is to design a system where the projector is out of sight, and the screen blends into the architecture of the church. The screen size must be large enough so the projected image is clearly intelligible to the entire congregation, but not so large that it detracts from the focus of the worship service. Many churches opt for multiple screens carefully placed to allow clear sight lines for the congregations. Often this includes screens positioned on the left and right sides of the stage.

Rear projection or front projection

There are two basic approaches to video projection; rear projection and front projection. Each approach has its own set of advantages and disadvantages.

Front projection

Front projection involves the projection of the image onto the front of a reflective screen surface. In this approach the video projector is pointing in the same direction that the viewers are looking. The light from the video projector reflects off the screen surface and back into the eyes of the viewers.

Advantages:

- Front projection does not require any additional space behind the screen. The projector can be installed in the choir loft or projection booth with a long throw lens.
- Front projection screens are less expensive and easier to install.
- Motorized front projection screens can be retracted so that they “disappear” when not in use.

In general, front projection screens have superior performance in terms of color and viewing angle.

Disadvantages:

- Front projection is more sensitive to the ambient light in the worship space. Because the screen is reflective, it reflects the light from the projector and light from other sources such as stage lighting and windows. With front projection the lighting in the worship space must be carefully controlled to keep it from washing out the screen.

- Front projection requires that the projector be installed somewhere within the worship space. In many applications it is impossible to place the projector in a location where it is not visible to the congregation.

Rear projection

Rear projection involves the projection of the image onto the backside of a rear projection screen. The screen acts as a lens passing the light from the projector through the screen and to the viewer’s eyes.

Advantages:

- Rear projection removes the projector from the worship space. It is behind the screen and out of sight.
- Rear projection is much less sensitive to ambient lighting. Rear projection systems will provide a bright image, even in a very well lit environment.

Disadvantages:

- Rear projection is more expensive. The screens are more costly, installation is more intricate and a large space behind the screen is required.

- Rear projection screen surfaces offer narrower angles of view and more “hot spotting.” The steeper the curve, the more limited the viewing angle. As the viewer moves off the centerline of the screen the image brightness drops dramatically.

Choosing the right projector

Selecting the proper projector for your installation can be very complicated. If you have tried to purchase a personal computer recently then you can begin to understand the deluge of specifications, options and models that you will encounter when you begin researching projectors. A careful consideration of the various technologies is beyond the scope of this article, but we can reflect on some of the important considerations.

Light output

Brightness is one of the most important specifications for worship

Helpful resources

Two resources that I have found to be especially helpful: Technologies for Worship Ministries: This Canadian based organization has very helpful resources. In addition to a magazine and other resources, they also sponsor an annual conference on the subject. This year’s conference is in late August in Atlanta. Most of their resources, including information on the conference, are available on the web at www.tfwm.com.

Fowler Productions: This group works almost exclusively with churches and has regional representatives serving all areas of the country. A helpful planning guide is available at no cost to congregations. Contact them at 1-800-729-0163 or find them on the web at www.fowlerinc.com.

—Ryan D. Hazen

environments. Your screen size and the level of ambient light will determine the answer to the question of how bright the projector must be. ANSI lumen output is the standardized way of measuring light output or brightness of a specific image. It is a very specific standard that allows for a truly objective measurement regardless of screen size. It takes into account the overall brightness of the image rather than just the center of the image. Thus for a high ANSI lumen measurement a projector must have good luminance uniformity over the entire image. Consider any non-ANSI measurements very suspect and ask the manufacturer if they guarantee that the performance of the specific projector that you purchase will meet or exceed their published ANSI specifications.

Resolution

This specification should address both the native resolution of the projector and its compatibility resolution. Native resolution refers to the actual physical resolution of the display device used by the projector to create the picture. Compatibility resolution refers to the highest resolution input source that the projector will accept.

Ultimately, the sources that you are planning to display on the projection system will determine the required resolution of the display. If your application strictly involves the display of video images from cameras or a VCR, a lower resolution projector will be more than adequate. But, if you are planning on displaying computer sources such as Power Point presentations and hymn lyrics you may want to consider a higher resolution projector.

Reliability and serviceability

Once you install your projection system you want to be confident of consistent and reliable performance. Ultimately, you should be able to enjoy the benefits of your projection system without ever having to think about the technology. To a great

extent this will be determined by the core technology of the projector. Look inside the machine and see how complex it is. How easy is it to service the machine and change lamps? How difficult is it to set up the projector for new sources and does it require on-going adjustment to ensure the best possible picture? Ultimately, seeing is believing. The best way to ensure that you are selecting a projector that will meet your needs is to schedule a demonstration in your worship space. If your budget does not allow you to purchase a projector with adequate performance to provide a good picture in your environment, you are better off waiting than purchasing a projector that is not well suited for your unique requirements.

Choosing the right consultant or integrator

Finally, the selection of the right company to design and install your projection system is perhaps the most important consideration of all. As stated above, it is important to choose a system integrator who has experience in working with churches. Interview them carefully and ask for recent church references. If you select a company with extensive experience in working with churches, they will

be able to offer you a wealth of insight into how to properly use your new projection system, and how other congregations are enhancing their worship with video projection. In the end you need to be able to work with an integrator who can deliver a wide spectrum of products, a skilled system design, professional installation, and conscientious service after the sale. Most importantly, find an integrator with whom you can develop a true partnership—someone you can trust to work with you through the inevitable challenges that will occur during the design and installation phase and as time goes on.

Conclusion

Video projection technology is in a period of phenomenal growth. This offers a unique opportunity where the price of projection systems is remaining fairly stable for rapidly increasing levels of performance. Only recently has high quality projection become accessible to a wide range of church communities. The more educated you can become, the better equipped you will be to bring all the benefits of video projection to your worship experience.

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Notes from the editor

Almost every church I have visited in the past couple of years has been dealing in some way with the issue of “contemporary” worship. Just the mention of it conjures up the image of political land mines for many clergy and other church leaders. What “it” is and how to do “it” with integrity are just two of the myriad of loaded questions. Programmatically, much good material has been written on starting additional worship services and I will leave it to folks who know much

more than I to help you.

However, at Board of Church Extension, we have seen an increase in calls pertaining to the equipment that is many times a part of a “contemporary” worship experience. At the heart of the equipment issue is the introduction of recent technology into the worship environment.

The information in this issue will hopefully help as you consider this step, either for the first time or in upgrading current equipment. Best wishes in your ministry. — *Ryan D. Hazen*

Questions to ask a video projection installer/designer

1. Is our design flexible enough to accommodate change? Change is not restricted only to future expansion of the system. Some events (musical and dramatic productions, for example) need extra flexibility due to their very nature. A design consultant who understands churches can suggest variations in your design so that you can produce these events (usually with little or no extra cost).

2. Are we buying into “bleeding-edge” technology? While you want your projection system to be up-to-date, this does not always mean that cutting-edge technology should be used! A common mistake is to adopt a new technology before it is fully proven and debugged. A good design consultant can help you select the most effective and practical solution with the least risk. If you decide to use an *emerging* technology in your system, make sure you know the potential problems and anticipate them in your design.

3. Will this design require customizing the hardware/software?

Before you invest in expensive customizing, check with your consultant or designer/installer. Sometimes, you can't avoid custom development, like programming a control system to operate your particular equipment. But often there is an already-existing product that will do exactly what you need without modification. If you include a custom product in your design, it can impact the reliability and “debugging” time of the system. If you can't avoid customization, be sure to allow extra time for it.

4. What will this design actually cost? Your consultant or designer/installer will be able to prepare a list of specifications, or “spec sheet”, that details each piece of equipment and accessory you'll need. It should also include a complete description of the work that needs to be done. Without it, bidders are forced to make assumptions, and may even be adding in generous contingencies to cover your vagueness. Further, without clear specifications, you won't be able to accurately compare the bids.

5. What are the “extras” that may come up during the installation? The lowest bidder may be the lowest bidder not because of competitiveness, but because they overlooked or underestimated something. Some contractors routinely underbid, hoping to “make it up on extras.” Again, a detailed technical specification that clearly defines the scope and quality of work is your best ammunition against this practice.

6. What training and documentation will be provided by the installer/designer? A frequently overlooked part of system installation is training of your operations and maintenance staff. Even more frequently lacking is proper system documentation. Both should be contractual requirements laid out in the system specifications.

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