

Theatrical Lighting in Traditional Spaces

A CASE STUDY BY **BECK STUDIOS INC.**

Using LED
Theatrical
Lighting for
Traditional
Worship

ST.PETERS CHURCH-CHILICOTHE, OHIO

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Why are traditional spaces reluctant to accept modern lighting techniques?

Beck Studios was recently approached by St. Peters Catholic Church in Chillicothe, Ohio, to assist with their outdated lighting. Though the original cathedral was destroyed by fire in 1947, the new church has all the classical elements one should expect in a cathedral. Upon entering the church, the most noticeable feature is the vibrant hand-painted mural adorning the wall behind the altar in the sanctuary. It depicts the moment Christ on the cross offers Himself to the Holy Father, stating, "Into your hands O' Lord, I commend my spirit" (Luke 23:46), with God the Father above, and The Blessed Mother and John the Evangelist below. The mural is twenty-three feet tall and eleven feet wide, and framed with ornate cherry moulding with gold inlay. Statues of the Blessed Mother and St. Joseph stand on individual pedestals on both sides of the altar area.

The churches' original lighting was not doing these artistically striking features justice, and



"Into Thy Hands" Mural, St Peters Church

the celebrants were also dimly lit during mass. The lack of front light became more noticeable when the church began streaming services in response to the pandemic. The original lighting consists of custom chandeliers in the naïve, and recessed can lights over the sanctuary. Downlight is not ideal for a situation where you want to see faces clearly, and with the high angles and dim lighting, it would cast a shadow over the presiders' faces and make it very difficult to make out their features on camera.

The lack of front light became more noticeable when the church began streaming services in response to the pandemic.



Christmas Mass Lighting, St. Peter Catholic Church



FINDING A SOLUTION

It is common for modern churches to incorporate proper lighting into their designs that will not detract from the overall aesthetic while adequately lighting the sanctuary and stage areas. But when it comes to retrofitting modern lighting into older cathedral-style churches such as St. Peter's, the task is a bit trickier. There is hesitation to use non-architectural style lighting in these areas, fearing they will look out of place and disturb the worship space's aesthetic. The priests assigned to these churches also have the added responsibility of being a steward of the building, and when it comes to making changes that may alter the church's look and feel, they are very cautious to approve any plans that may be received negatively by the present and future congregations.

Another issue that causes hesitation regarding upgrading the lighting in older churches is the style of lighting and its common description as "theatrical lighting." The point was made to us here at Beck Studios by the head of maintenance at St. Peter's, John Albright. He noted that the church leaders were hesitant to explore the idea of using "spotlights" or "theatrical fixtures" simply because the name suggests the extravagant style of lighting used in today's newer mega-churches. While church leaders agree there is nothing wrong with that style of lighting, it is not what members of the Catholic Church expect. People have different ways of worship, which is what these other churches provide to their specific congregation. The



Theatrical lighting fixtures can be used for more than creating the concert-like atmosphere common in modern churches.

Catholic Church is also subject to the rules of the Vatican when it comes to how mass is to be presented – its look, music, and overall feel. Catholic mass is intended to be reverent and subdued. When calling it "theatrical lighting," the image of being melodramatic may come to mind for those concerned with maintaining the church's correct atmosphere. Mr. Albright's point is that perhaps we should refer to lighting in the church by other names such as "worship lighting" to circumvent this issue. It sounds like marketing, and to an extent, it is. The benefit is that lighting professionals know what theatrical lighting fixtures can do and how they can improve visual elements, like the ones at St. Peter's. By taking this small hurdle out of the way, the task of presenting a solution with pars and ellipsoidal style lighting becomes less daunting.



Before



After

Side by side comparisons before and after the lighting upgrade. These are screen captures from the churches' web stream. Notice how the detail and color in the architectural elements are more vibrant, and you can clearly see the face of the celebrant.

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Installing the booms in the Sanctuary

WHY NOW?

Why should churches look to improving their lighting now? The answer comes down to three letters- L.E.D, short for Light Emitting Diode. The advances in LED technology over the past fifteen to twenty years have progressed rapidly. Innovation has replaced the traditional tungsten style with LED style fixtures that perform just as well as conventional fixtures and are less expensive to operate.

The savings in operating costs come in a few ways. Incandescent fixtures require lamps with wattage typically ranging from 250W to as much as 1000W. A typical LED ellipsoidal, such as the ETC Colorsource Spot, only consumes 166W (at 120V) at full intensity, versus its Source 4 incandescent counterpart, which uses a lamp ranging from 575 to 750W. Then we need to consider lamp replacement, which can cost anywhere between \$12-20 per lamp, not including the maintenance time it takes

to replace them. Lastly, running a setup of incandescent fixtures for an extended period can generate a substantial amount of heat, resulting in HVAC systems working harder to keep the space cool in any season. When all of these factors are considered, the addition of LED lighting or upgrading existing lights to LED can save up to 74% in energy costs, and more when you factor in labor for maintenance.

The next benefit of LED lighting is the lower impact and cost of installation. The addition of traditional lighting to a space would require individual circuits for each dimmer, as well as considerable electrical work. These systems also need more equipment and material in the form of dimmer racks, dimmer packs, cut off switches, wire, conduit, and more. Most LED lighting can be "daisy chained," allowing up to 9 fixtures on a single circuit and providing less painful additions to your system as the need arises. In our experience at Beck Studios, many clients choose to completely upgrade their system in a single project, or they can take a tiered approach by installing in phases.

LED technology has made it affordable and easy to correct the issues caused by poor lighting, plain and simple.

HOW DOES IT LOOK?

At St Peter's, the goal was to improve the lighting on selected architectural features and improve the sanctuary platform's lighting as a whole, without diminishing the aesthetic of the church. As luck would have it, the columns on the sides created wing walls that could conceal lighting booms from most of the congregation. To demonstrate how this would look

TEN REASONS TO UPGRADE YOUR LIGHTING TO LED

- LOWER MAINTENANCE COSTS
- LOWER ELECTRICAL BILLS
- NO NEED TO PURCHASE AND REPLACE LAMPS
- LOWER HVAC BILLS
- EASIER INSTALLATION
- EXPANDABLE
- CUSTOMIZABLE
- BUDGET-FRIENDLY
- UNOBTRUSIVE
- PHASED INSTALLATION

Computer Previsualization

These side by side comparisons show how the computer models were used to previsualize the lighting upgrade. Using Vectorworks Spotlight, BECK STUDIOS is able to show our clients how the equipment will look and perform in their space. In this case, it was vital that the equipment did not create any unsightly looks or distractions. Using these models, we were able to ease the concerns of the churches' leadership team before moving forward.



Model view from center aisle



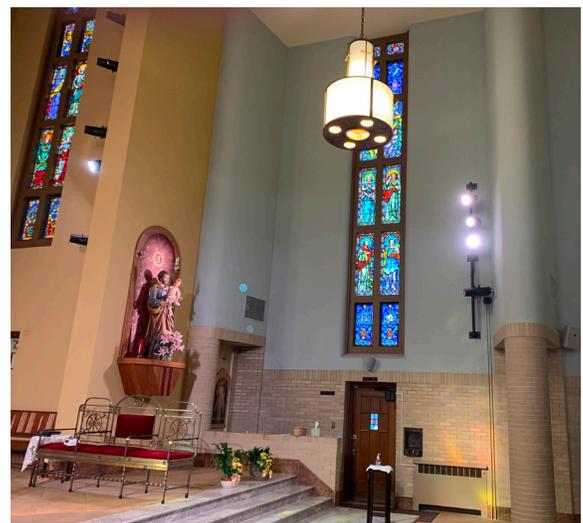
Model view vs actual view of Sanctuary



Actual view from center aisle.



Model from front pew, far left



Actual view from front pew, far left

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to the church leaders, Beck Studios created a fully detailed 3-D digital model of the space, a service we provide free of charge for the time being. Using Vectorworks Spotlight and Vision, we visualized the sight lines from key areas of the church, such as the center aisle, front pews, side entry, and the sanctuary platform from the presider's chair. The lighting positions were 10' vertical pipes for the front of house on the last set of sidewalls on either side, and a set of vertical pipes behind the sanctuary platform wing walls to carry the mural's lighting. The ceiling was not an option as the angle would be too steep, and to move further out over the pews, the chandeliers would be in obstruction. The organ loft at the back of the church was not an option because the throw would require unsightly larger degree lens housings, and the angle would be too flat.



ETC Color Source Junior mounted to its boom.



ETC ECHOTOUCH screen offers simple control for church staff



Wall boom Installation



ETC Color Source Junior Fixtures offer a sleek profile

We were then able to place digital models of the exact fixtures we recommended on these lighting positions and demonstrate how they would perform. Programs like Vectorworks Vision make it possible to control lighting in these programs with real-world consoles and controls. It also allows you to "record" lighting cues and changes and save them as movies. We met with the church leaders to present these models to them, and with the ability to model our proposal in their space, they accepted the solution and decided to move forward. Thanks to these fantastic tools, the client understood precisely what they were getting and how it would look.

THE EQUIPMENT

As mentioned, it was vital that the chosen fixtures would have minimal impact on the look of the church. Commonly, you will see white fixtures as opposed to black in public spaces such as a church. At St. Peter's, white would have the opposite effect, contrasting to the churches' paint color and the lighting pipes' corner position. We were ready to suggest the ETC ColorSource Spot, but ETC debuted the new ColorSource Junior just in time. With zoom features, a sleeker design, and a shorter lens housing, this fixture was perfect for their needs. We decided to use ColorSource Juniors for the statues and the mural, and ColorSource Pars for general wash. The church opted for



Cutaway elevation from model showing lighting positions

an extra par to use as a "special" during certain parts of the liturgical year, like lighting the nativity scene during Christmas.

The next issue was control. ETC offers a myriad of solutions that can be tailored to any need, both simple and complex. The goal here was to be simple, so we installed an EchoTouch, mounted in the audio rack in the sacristy. The EchoTouch is simple to program and completely customizable. Most importantly, it has different access levels for individual users, so only authorized users can make changes. Operators can create and save presets that can be recalled at the push of a button, or use slider control for each fixture or group of fixtures, which is again, completely customizable. We also included an external DMX input in case there was a situation where a console would be used in the future.

An ETC Foundry Mini Panel controls power to the lighting positions. The Mini Panel offers four or eight zones of power using fully-rated 20 Amp relays. This device controls the power to the outlets, and uses DMX to turn the circuit on and off. Its purpose is to automatically turn the fixtures off when not in use, saving power and prolonging the life of the fixture.

THE RESULT

The goal was to have the new system installed by Christmas, for the chance to use it during their Christmas celebrations. We were able to get them set up and ready to go with time to spare. We took great care to protect the building and its delicate contents, especially around the altar and sanctuary while installing. We are proud to say that the church and its members are ecstatic with the results. Mr. Albright told us, "*Comments have been all positive. Father Tim was taking pictures the first time he saw the new lighting arrangement. Our*

person who is in charge of the live streaming also commented on the difference the lighting makes in the quality of the streaming. He said you could actually see the celebrant's face now... I haven't heard any negative comments from the priests that they can't see because the lights are blinding them so the levels and aiming of the PARS are fine."

It was also reported to us that "*A parishioner had sent the previous pastor (Fr. Hahn) a text after Midnight Mass on Christmas that "the lighting on the mural was heavenly tonight" and he'd spent many hours praying in front of it. Father Tim even made it a point in his Midnight Mass homily ."*

CONCLUSION

Church lighting can benefit significantly with the use of "worship lighting," and you should not hesitate to explore the possibilities. As seeing is believing, we can take the stress out of deciding to move forward with the added help of previsualization and computer models. We feel the cost-saving benefits of LED lighting over time, and the dramatic and positive changes they can provide are well worth exploring. Theatrical lighting and worship lighting can reference the same kind of lighting; it's only difference is how it is used.

Are you ready to upgrade? Give us a call to get started. We look forward to helping you make well-informed decisions and ensuring you get precisely what you have in mind!

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