SUCCESSFULLY LIGHTING A SEATTLE SHOPPING CENTER: A CASE STUDY

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Opening a new shopping center in the current retail market is a sizeable challenge, if not a real gamble. Filling the spaces with the proper tenants and providing a successful environment for both the tenant and owner require marketing approaches that were not considered one or two years ago – including expert lighting design.

The owner of a new center opening in Seattle had secured everything needed to make his center a success – i.e. location, planning, construction, financing, and the right anchor tenants. However, the center was due to open and there were still tenants to be found and spaces to be leased. One aspect deemed to be of critical importance in leasing these vacancies was upgrading the visual elements of the center itself. Lighting the center became a primary task.

Designing the ideal lighting for a retail shopping center means successfully combining two radically different elements: light engineering and artistry. Lighting engineering means satisfying life safety issues, as well as applying standards and practices for specific areas as defined by the Illuminating Engineering Society, ASHRA, and perhaps OSHA. It is the design that construction codes require and therefore requires specific identification and categorization. Lighting engineering means safely illuminating practical areas such as parking lots, parking facilities, building surrounds, walkways and common areas for public use. Meeting facility requirements seems simple enough. However, the task of choosing the best lighting products and applying them to the project often falls in the hands of building contractors instead of lighting experts. Exploiting the cheaper lighting products while adhering to lighting standards may result in more costly systems that pay a higher benefit to the subcontractor than they do the developer's budget.

In the case of the Seattle shopping center, the infrastructure for the complex was already finished. We were able to move ahead with the next step in lighting design while returning to analyze and deconstruct the original infrastructure in later budget discussions – a decision that proved so significant that it will play a continued part in all future projects for the owner.

The next step in lighting design, the second element mentioned, is artistry – the art of visually dramatizing the architecture and environment of each unique facility. Masterful lighting can, and should, highlight a building's best features and the environment in which it is set. This part of lighting design is playing an ever more important role in center developments, as owners look to solve the more difficult problems of filling retail spaces with viable tenants. Hotels, restaurants and lifestyle centers have been using architectural lighting enhancements for years,

yet this seemingly well-kept secret is just now beginning to be utilized by neighborhood shopping centers.

The Seattle shopping center had everything going for it but lacked the lighting to bring life to its features at night. One of the owners had used our lighting design on several other types of properties with great success. He called us in for a consultation to see if we could do something to excite the architecture and the landscaping.

The center was already constructed when building enhancement became an issue. The parking lights were in and the life safety issues were already addressed. We were there for artistry: our challenge was to create an evening display of the key architectural features of the center. We wanted everyone within sight of the center to be drawn to it.

To meet our goal, a comprehensive study of the center's architectural design was conducted regarding both day- and night-time presentation. The graphic and architectural designers were developing new pole-mounted building and window graphics for the daylight hours. The renderings were very encouraging for improving the daytime presentation, and the building colors and design looked visually appealing. However, in the evening, even with the parking lot and walkways illuminated, the facility was virtually invisible.

For the evening presentation to be visually attractive (as well as visible), we not only needed to highlight the buildings themselves, but transform the nighttime image the center presents from what is seen during the day. The process is similar to highlighting from the negative of a photograph. In this case, the colors of the buildings contrast with the surrounding darkness; varying elements of the building design are accentuated during the night than what are dominantly seen during the day. The basic direction of light angles are changed; what is generally down during the day points up, or up-and-down, when viewed at night.

To achieve this effect, combinations of wall washing, grazing, and highlighting techniques were used to accentuate different surfaces of the buildings and call attention to subtle architectural features. Taking the Seattle weather into consideration, a major entrance was

sheltered by contemporary metal awnings, which were held in place by large steel columns. The awnings were then up-lit and shafts of light accented the vertical strength of the supporting columns.

Up-lights were placed on the surrounding building overhangs and were used to illuminate the upper building walls, showing textures and colors above the store fronts and providing interesting lit surfaces for business sign integration (without hard contrasts). Striking shafts of light and the introduction of more color into otherwise dark backgrounds created images that would draw very positive attention to the center.

The buildings ended with repeating single-sloped roofs, which defined the architectural style of the center. A fiber optic light was used to illuminate the space just below the roof line, offering star-gazers and other night owls a richly textured view of the center. Slopes that were not noticeable in the day were now visible at a great distance at night. In addition, the owner could change the lighting colors for events and holidays. This was a very exciting, innovative finish to surfaces people would otherwise seldom notice. Identifying the height and design of the center, and then accentuating these features through superior lighting effects, brought the architectural personality of the center alive at night. This victory was especially visible on the

surrounding residential hillsides. From an invisible beginning, our addition of artistic, well-placed lighting made the building proportions visible, as well as distinctive, attractive, and inviting.

Along with light engineering and artistry, successful lighting design has a responsibility to be energy efficient. Efficiency means that a building will fall within its given energy code. Efficiency also means that developers meet their budget constraints, so that leasing rates remain affordable.

After the Seattle shopping center lighting project was originally budgeted, the owner decided that the additional costs of lighting design and lighting equipment needed was important to protect the successful completion of the project. The new design for lighting the center went forward and created the dramatic visual change we discussed earlier.

The owner felt that highlighting the center was so important, especially after early tell-tale results, that it should be part of his future design plans from the get-go. The question was then proposed to us: *Should this extra cost be added to future budgets or can it be folded into the original design budget more effectively?* Reviewing the price of integrating our exterior lighting design into the budget led us to examine the entire process of lighting the center – from the beginning stages of life safety and facility requirements, of which we had no part. Were costs a fixed part of construction or was it impacted by methods employed by the design-build team? We were able to pinpoint where money was allocated. The results were astonishing even to the general contracting managers.

LIGHTING ANALYSIS OF THE SEATTLE SHOPPING CENTER

The largest cost of lighting the center concerned the parking lot and associated roadways. This is typical of most project shell developments and while this was only a medium sized facility of 362 parking stalls, we discovered that $60,000 to $100,000 in installation costs could have been saved or reallocated. Two distinct parts of the developmental process contributed to this excess cost of completing the required parking lot lighting.

But first, let's review the criteria required by the anchor tenant. The lot was engineered at face value to satisfy the following language: “(a) For surface parking areas a minimum average of (5) foot-candle at the height of 36 inches using poles with metal halide fixtures and a height to be approved by the Tenant.”

This wording is misleading and creates a dilemma for any lighting professional. For instance, 'average' and 'minimum' are distinctly different measurements – measurements are recorded as minimum and maximum and today we compare Max to Min as a ratio, we do not use 'average' as a measurement because we cannot see average. In addition, the measurements for a parking lot are done at ground level because that is where the task is, not at three feet above the ground or car window level (in the driver’s eyes). It is a good idea to improve visual conditions by increasing light levels from those defined in “standards and practices” but we would like to provide the best see-ability in the process.

Theoretically, we could light the parking lot with the anchor tenant’s criteria by spiking a small area to raise the average, or flooding light across the lot into driver’s eyes instead of on the ground where drivers and pedestrians are looking, and produce an environment where it is very difficult to see anything.

However, it wouldn't be responsible, safe, or attractive lighting. Anchor tenants are understandably very important to please, so a clarifying discussion with the tenant would have been very beneficial – and a money saver – before the lighting was executed. We would have been able to explain how light levels could be raised using full cut-off lighting fixtures, which reduce glare (not mentioned in the criteria). These lighting fixtures are also designed to raise the minimum light levels, thereby lowering area contrast, so drivers and pedestrians can see better. This conversation educates, and benefits, both the developer and the tenants occupying the facility.

Such a discussion would demonstrate how to accomplish what is being requested but with the correct industry language and how to achieve the appropriate results according to today’s lighting science.

The anchor tenant's criteria did call for Metal Halide as a light source and this was – and is – a good choice. It provides white light. We see better at night with it than we do with lamps

producing yellow illumination. Lighting professionals are now evaluating how we see at night – scotopic – verses how our eyes see during the day – photopic – to produce better evening visibility. White light sources such as Metal Halide are preferable for the evening.

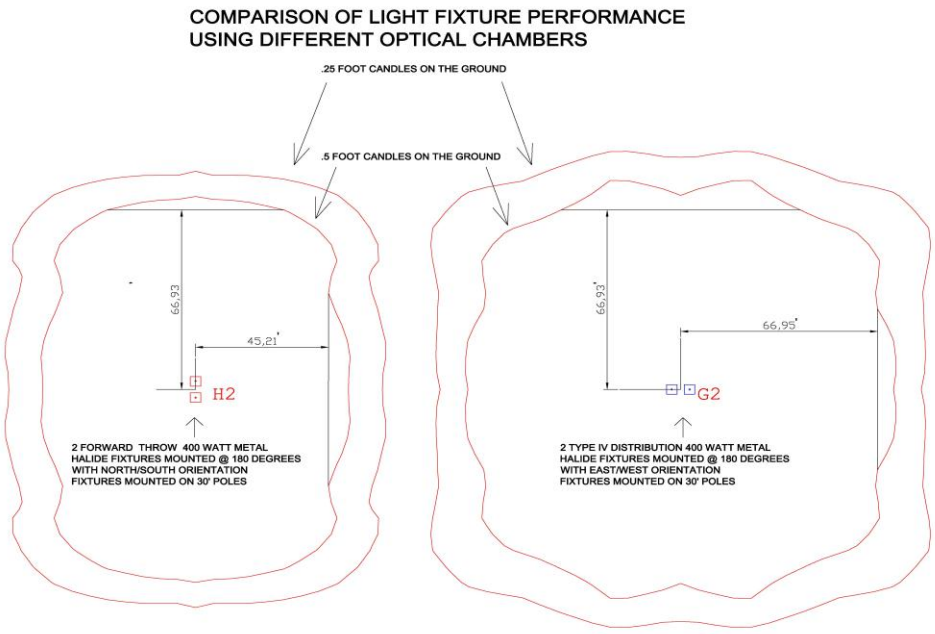
Responsible lighting designers adhere to the Lighting Standards and Practices, established by the Illuminating Engineering Society of North America. Meeting these standards means providing a lighting condition that is deemed sufficient to deflect liability (from a lighting point of view) should some person be injured in the lighted area during evening business hours. Major retailers commonly require installations that exceed these standards for increased safety and better location visibility. The written lighting criterion that was provided by the Seattle center's anchor tenant is demonstrative of exactly this situation: over-lighting. However, without smart planning, too much lighting can be an energy and money waster. Parking lot lighting can exceed what is required by standards, and it can be accomplished while meeting set energy standards. Just how is it done, you ask?

We began by re-designing the parking lot for the facility in Seattle with just enough lighting to meet standards and practices. We followed this template with designs for progressively higher light levels. This gave the building managers a platform to help understand our process and provided a basis for future negations with tenants to reach mutually agreeable conditions. The first design that met standards would have saved the developer as much as $150,000.00 in installation costs, a significant amount of over $400.00 per parking stall. The final design, meeting the intended criteria of the anchor tenant but using a more comprehensive design, still budgeted at $60,000.00 less than was actually spent on this task.

The design of the installation dramatically affects the cost of installation, even without changing the criteria of the anchor tenant. We began by asking what the cost of erecting lighted poles would average, as charged by the executing contractor. Using the returned costs, we redesigned the lot with more efficient, and as it happened to be, more expensive fixtures. By using more efficient optical chambers in the lights, we were able to reduce the number of poles significantly. The extra price of the fixtures was added (approximately $200.00 per fixture) then the reduction of poles was subtracted. As mentioned earlier, we would have ultimately recovered $60,000.00 in installation costs.

A simple demonstration of the importance of design is depicted below in Diagram “A”. This diagram compares the performance of two different fixtures when mounted at the same height and utilizing the same 400 watt Metal Halide lamp. Fixture H2 was the one recommended by the design-build contractor and Fixture G2 was our comparison product.

DIAGRAM "A"



These fixtures are both produced by leading manufactures. The fact that the weaker performance comes from the less expensive manufacturer, while noted, is irrelevant. Both fixtures could originate from the same manufacturer and the results would still be evident. This is about understanding optical performance. The significant difference is the application of professional design and performance evaluation.

A better layout of the parking lot lighting could have covered a majority of the building enhancement lighting project. Today we could take yet another step and change the ballasts operating the 400 watt Metal Halide lamps and decrease energy consumption by as much as 60%. Especially in high energy cost areas, this is another significant benefit to understanding and utilizing the latest technologies available.

Both the owner of the center and its anchor tenants would have been well served by professional observation of lighting applications early on in the lighting design process. The language for requirements, and the design to satisfy those requirements, could honor both parties and provide sound architectural design enhancements. We have found that negotiating with anchor tenants provides opportunities to decrease the costs of lighting facilities while improving conditions for everyone.

The most rewarding part of this project, however, was establishing the wonderful evening light display the center now displays. Its owner has received very positive feedback regarding the new lighting design, which has positively impacted the center's development by attracting new tenants, which was the owner's original intent.

Arguably, the most important part of this process for the owner has been learning that a comprehensive lighting design plan positively effects budget control, building enhancement, and marketing (regarding both tenants and consumers). He is eager to implement this knowledge in future projects. Our detailed cost analysis provided an unexpected revelation, but more importantly, it mapped out a step-by-step design method that will benefit the owner and future tenants. As for our design team, our new motto is this: *You will believe it when you can see it but don't have to pay for it.*