



## Building Your Laser Tag Arena Lighting Considerations

### Lighting in Laser Tag Arenas.

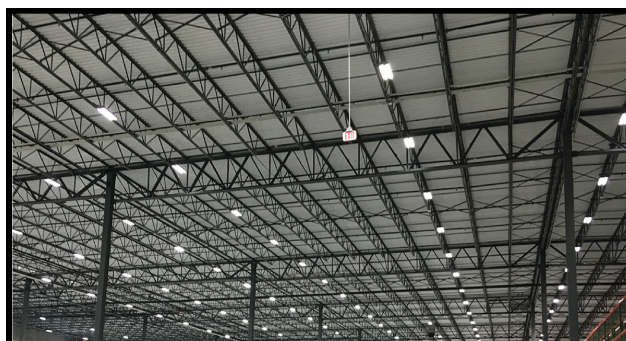
This article will detail what kind of lighting is required within Laser Tag Arenas. Getting this right from the start can save you a considerable amount of time and rework costs in the long term

In a Laser Tag arena there are normally three types of separate lighting systems to consider, these are: **Emergency lighting**, **Ambient lighting**, and **Special Effects Lighting**. Let's go through these now:

## The Emergency Lighting System

Usually, your Local Authority (or Fire Marshal) requires emergency lighting in the case of fire.

A grid of “white” lighting, normally fluorescent or halogen should be installed. These will also be handy for cleaning and working in the arena. Contact your electrician to determine suitable placement.



## The Ambient Lighting System

The term ambient light is referring to the main light source that is used during gameplay, (as opposed to the emergency lighting). The ambient lighting provides players with a constant low-level background light that doesn't flash or change during the game, This ensures players can see other walls and partitions at all times during their game.

Many operators advocate for blacklight illumination while others swear by multicolor LED lighting. Though there are some advantages to each, this really comes down to personal preference. Below we will dig into some details on both types of lighting, and you may find you prefer one over the other, or a combination of both.

## Blacklights ambient lighting

UV Blacklights have historically been a staple in laser tag arenas. They create an awesome glowing effect that players really enjoy. In every game, you will see the younger players come in and point to every piece of white clothing to showcase its glow.

The illumination doesn't stop at the player's clothing though. The paint used in the arena will be UV reactive which will cause the murals and maze partitions to have a 3D effect and stand off the walls. This is a critical element to any themed environment.



There are some other benefits to utilizing blacklights for the overall arena lighting beyond its glowing effect. Maintenance and upkeep of

your arena will be substantially easier with blacklight compared to LED coloured lighting. Blacklight hides every shade of black on the walls, touch-ups are no problem.

As you can imagine, the arena walls take their fair share of abuse during a high-intensity game of tag. As players rub up against them, chips and scratches show the unpainted surface of the wall. The light-colored scratches will stand out against the black paint of the rest of the wall.



In a blacklight arena, you can simply hit this with a little paint and everything will blend together regardless of sheen or shade.

There are typically two considerations for blacklights: Standard Fluorescent lamps. as a side note these come in the standard sizes: T8, T10, or T12 lamps.

Or the more modern alternative, LED blacklights.



Even though the initial investment is slightly higher, it is typically recommended that LED blacklights are installed over traditional tube lamps. The advantages of LEDs are typically threefold; cheaper to operate, less maintenance, easier on the arena.

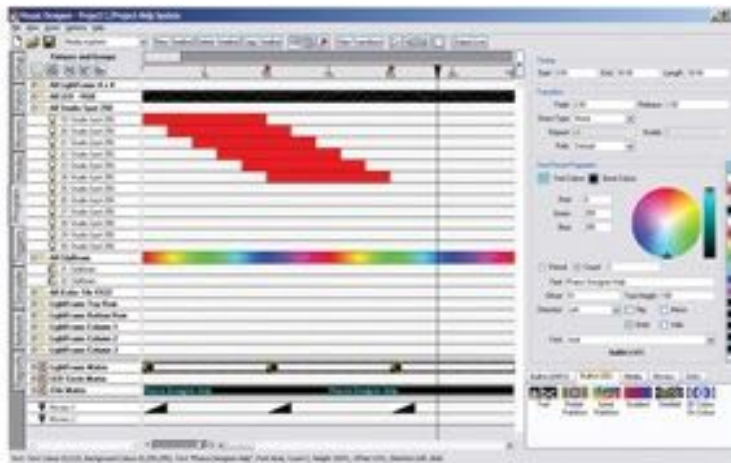


**Let's look at these three advantages in more detail...**

## 1. Power Consumption.

Though T8 lights utilize about 40% less energy than T12s, LEDs still come in approximately 30% below T8. The use of internal drivers rather than ballasts inhibits the power surge required to start up a tube style lamp, therefore, saving more power. The energy savings may not offset the initial investment for a number of years, but it is a major factor when considering the two options.

Beyond the lower power consumption while in operation, many LEDs can be operated with interactive DMX programming. This allows the laser tag game software to shut the lights off when there is no game in play and automatically turn them back on before the guests enter the arena. There is an obvious benefit for the lights to be off when no one is in the room and will save on energy and maintenance over the 10+ years these will be in operation.



## 2. Maintenance

Most LEDs have a rating of 50,000 hours vs. 30,000 for a T8 light. Given that most locations operate a maximum of 75 hours a week, LEDs will give you an additional 5 years of life span before needing replacement.



### 3. Easier on the Arena

The UV emitted from either variation of the blacklights will have a dulling effect on the UV reactive paint on your walls and maze panels. The LEDs will not impact the paint to the same extent as the tube lamps. Tube lamps you can anticipate needing to have touch-ups done every 6 - 7 years, whereas with LEDs you may be looking at as much as 10.

There has been some consideration to adding the blacklights into a DMX show to create theatrical effects while the game is in play. Typically speaking we do not recommend doing this unless there are very special circumstances, as mentioned earlier the ambient lighting should provide a constant background, to allow players to see their environment at all times. Dimming and strobing the blacklights may give an awesome effect, it can jeopardize the safety of the guest.

## Multi-Coloured Ambient Lighting

One trend that has been promoted over the last 3 or so years is the utilization of multi-colored LED panels instead of UV blacklights. This is said to give a more theatrical effect and provide an arena space that is tailored to an older demographic.

There are certainly some incredible effects that can be implemented by using colored LEDs; however, some safety considerations will need to be accounted for. Mainly, the lumen output must remain at a safe level no matter what color, brightness, or special effect is being projected.

This is accomplished and automated with smart DMX programming through the Delta Strike software programs.

Another alternative to standard multicolored LED panels are products that can do both UV blacklight as well as other colors. These have a higher price point than any of the other options but can give you the best of both worlds. These lights can be programmed to operate in the same manner for every game or change based upon the format you are running.

For example, if you are operating a lot of birthday parties and running basic games for them, the program may be heavier on the blacklight environment. Then, when it is later in the evening and you are operating more advanced types of games, you may choose to use dimmed red lights.

Other than cost, the main drawback to using colored LEDs is that it will show the wear and tear of your arena. The hiding effect of blacklights will be lost with just colored lights.



## The special effects lighting system

This system also utilises UV Blacklights or Multicolor LEDs, however, unlike the Ambient light system, the Special effects lighting is designed to **flash, dissolve and fade** in time with the gameplay events to enhance the experience. Driven by the **Delta Strike DMX system**, these lights will bring your laser tag theater to life.

What these lights look like, how they operate, and their output will vary from fixture to fixture, and oftentimes multiple lights are used to accomplish the desired effect. If you've ever been to a concert, you would have certainly noticed the incredible light displays that amp up the experience. These effects are able to be integrated with audio and interactive gaming to create an amazing energy level.



Special effect lights will generally be in one of the following categories:

1. **Stationary Spotlights** - Used as spotlights and wall washes
2. **Laser Lights** - Create the feeling that laser beams are tagging you from everywhere
3. **Moving Head Lights** - These can dynamically move to highlight a player or an area of the arena.
4. **Bar Lights** - Most often used inside props for inside-out illumination

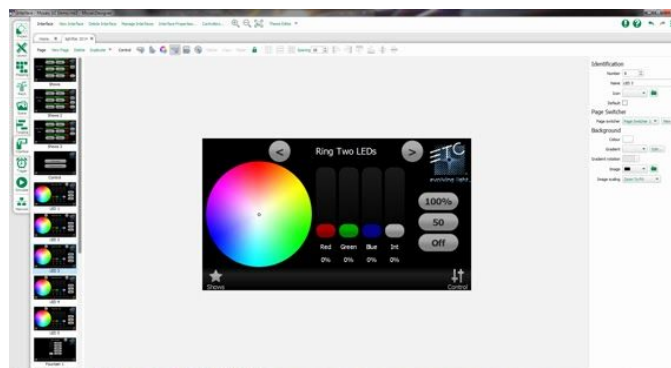
## DMX Lighting Control.

To understand the impact these lights can have on your arena, we must first explain DMX.

**DMX (Digital Multiplex Signal)** is a lighting system traditionally used to control stage and theatre show lighting effects.

Affordability of DMX lighting control has improved substantially over the decades, many laser tag centres now incorporate this technology into the game play - and for good reason.

Effectively the lighting within the arena can be controlled by the laser tag game software. Colours, flashes, movement etc can all be coordinated and triggered by events that occur during the game. A simple example is that if the blue team takes the lead, all lighting in the arena can start flashing blue. The system can change the effect of each light based on three factors:



1. **An Individual Event** - Something that happens in the game such as a player tagging a base or a prop tagging players.
2. **Timing** - At a specific time, a light show is triggered. This is great to create a theatrical event such as a thunderstorm.
3. **A Global Event** - Something that happens to multiple players such as a team score reaches a threshold or one team takes the lead.

For each of these situations, the Delta Strike software can instruct a light event to occur. This can happen to an individual light or a group of lights to achieve the specific effect and multiple events can happen simultaneously. Your vision for special effects can almost always be achieved.

Special effect lights are placed through-out the arena as well as inside props and other themed features. They are designed to enhance the ambient light system, but will not replace it. Delta Strike will work with you, your arena provider, and your contractors to provide a set-up that brings your visions of interactivity to life.

