



Building Your Laser Tag Arena Lighting Considerations

Fire Code

This document will detail some of the considerations on Fire Code considerations with respect to laser tag Arenas.

When building your laser tag arena, it is very important to consider what your local fire marshal will look for when reviewing your plans and inspecting your facility.

Most municipalities will use the **NFPA 101 Life Safety Code** which is published by the National Fire Protection Association.

Here is a description from the NFPA website that describes what this code provides:
“The Life Safety Code is the most widely used source for strategies to protect people based on building construction, protection, and occupancy.” Visit [NFPA dot org](http://NFPA.org) for more details.

Please note however, much of the interpretation of this code can be at the discretion of the local Fire Marshal.

A good architect or general contractor will help you to ensure compliance is met with all applicable codes. We highly recommend **scheduling a preliminary meeting** with your local inspector to thoroughly explain your plan and get ahead of any potential issues they may have. Years of experience have taught us that a good relationship and preplanning with the Fire Marshal will save you countless hours and expenses in the long run.

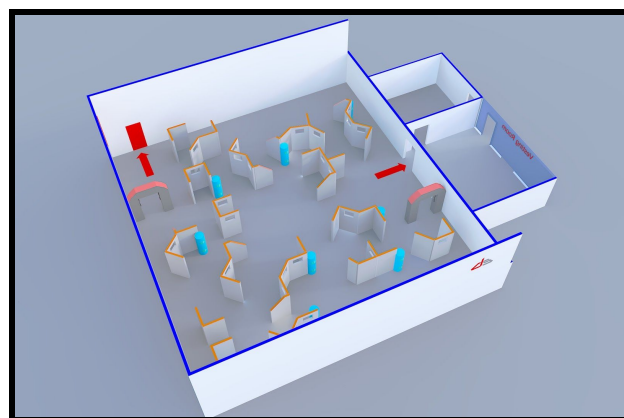
There are standard considerations which are very common throughout most of the industry.

Egress

The Fire Marshal will commonly review the “means of egress” for your arena. Means of egress accounts for the ways available for your guests to exit the space in case of an emergency.

Arenas will require 2 means of egress from all areas, so it is likely that an **additional exit door** will need to be installed in the arena.

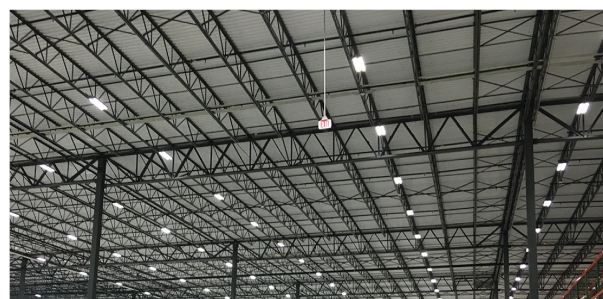
Oftentimes this exit will need to lead to the exterior of the space. The other egress route will go through the briefing/vesting room and back into the main lobby. All ramps, platforms, and ASA structures will need to have two ramps leading to the main floor of the arena as well.



Game Interruption and Lighting Activation in cases of Emergency

It is very common that a shunt trip circuit breaker will need to be installed. This works in conjunction with your fire alarm system to trigger events.

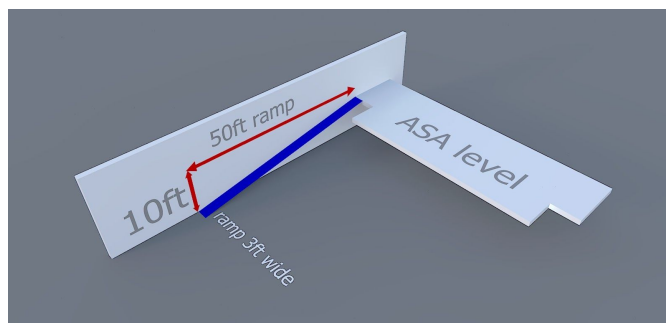
If a fire is detected the **shunt trip is activated** and it will disconnect power to the sound system to allow for messages to be heard, the game will discontinue operating, and the emergency and overhead white lights in the arena will turn on.



The Fire Marshal will oftentimes check for the functionality of this set-up during your inspection prior to issuing your **Certificate of Occupancy**.

Ramps and Stairs

A typical elevated structure requires a **12:1 slope rating**, but because of the exceptions we detailed in the Elevated Structures section, a typical laser tag ramp can have a **5:1** slope and in some cases as steep as **4:1** or even **3:1**.



This may be an issue with your local Fire Marshal, some facilities have been requested to do a maximum slope of **8:1** or in some rare cases, install stairs. These are not ideal alternatives and both of these will have a significant impact on your business. Working with your arena provider in conjunction with your architect it is often possible to successfully make the case for the steeper ramps - the most preferred options for Laser Tag arenas.

If you are allowed to continue with the steeper ramps, you may be required to install some additional safety measures such as; adding additional emergency exit signs, illuminating ramps, placing safety tape on the ramps, installing handrails, or changing the arena barriers. No matter the changes requested, your team, your architect, and your arena provider should be prepared to make alterations to the original designs.

Fire Sprinklers

The vast majority of family entertainment centres will have **sprinklers installed**. These provide excellent safety for your guests, equipment and building facilities in the event of a fire.

If you already have sprinklers installed in your space, you will need to extend the reach of the sprinkler system to any **additional structures**, including the multilevel structures within the arena.

During your initial inspection of the mechanical plans, the size of the main-line coming into the building will need to be reviewed to ensure it is sufficient for any additional load.



Depending on the height of the ceiling, the sprinkler heads may need to be moved upwards to ensure proper clearance. A distance of **18"** from the sprinkler head to the top of the wall panels is typically required.

Fire and Heat Alarms

The utilization of the smoke and haze will definitely cause issues with the majority of fire detection systems. Smoke and haze will trigger these smoke detection systems due to the change in **air density** around the detector.



The preferred detection system utilises **infrared heat detectors**. These will not be impacted by the fog-filled arena, however, this will require an exemption from the Fire Marshal.

In addition to switching from a smoke sensor to a heat detection system, you will need to be granted an exception to disable the smoke detector in the return air duct of the HVAC system.

Most of the time, all of these exceptions are granted but it is not uncommon for this request to be denied, at least initially.

