

2023 - 2024

## Appendix A - Field Overview and Specifications

# Appendix A - Field Overview

## Game Field Introduction

This document will provide Bill of Materials (BOM) information and detailed specifications for the Official Competition Field.

*Teams* who do not need an “official” field should refer to the separate low-cost field guide for cost reduction options. *Teams* assembling the full field should refer to the separate VEX Robotics Competition Over Under Field Build Instructions.

Please note: this field can utilize both the [VEX Portable Competition Field Perimeter \(276-8242\)](#) and the VEX Competition Field Perimeter (278-1501) developed by VEX Robotics. Instructions and specifications for these field perimeters are available in separate documents and are important for the field assembly.

This document is divided up into three sections:

1. Field Overview
2. Field BOM
3. Field Specifications

There is also an accompanying STEP file which can be imported into most 3D modeling programs (e.g., Inventor, Sketchup, Solidworks, etc.). This 3D model shows the “official” setup of a VEX Robotics Competition - Over Under competition field, as well as detailed models of individual Field Elements.

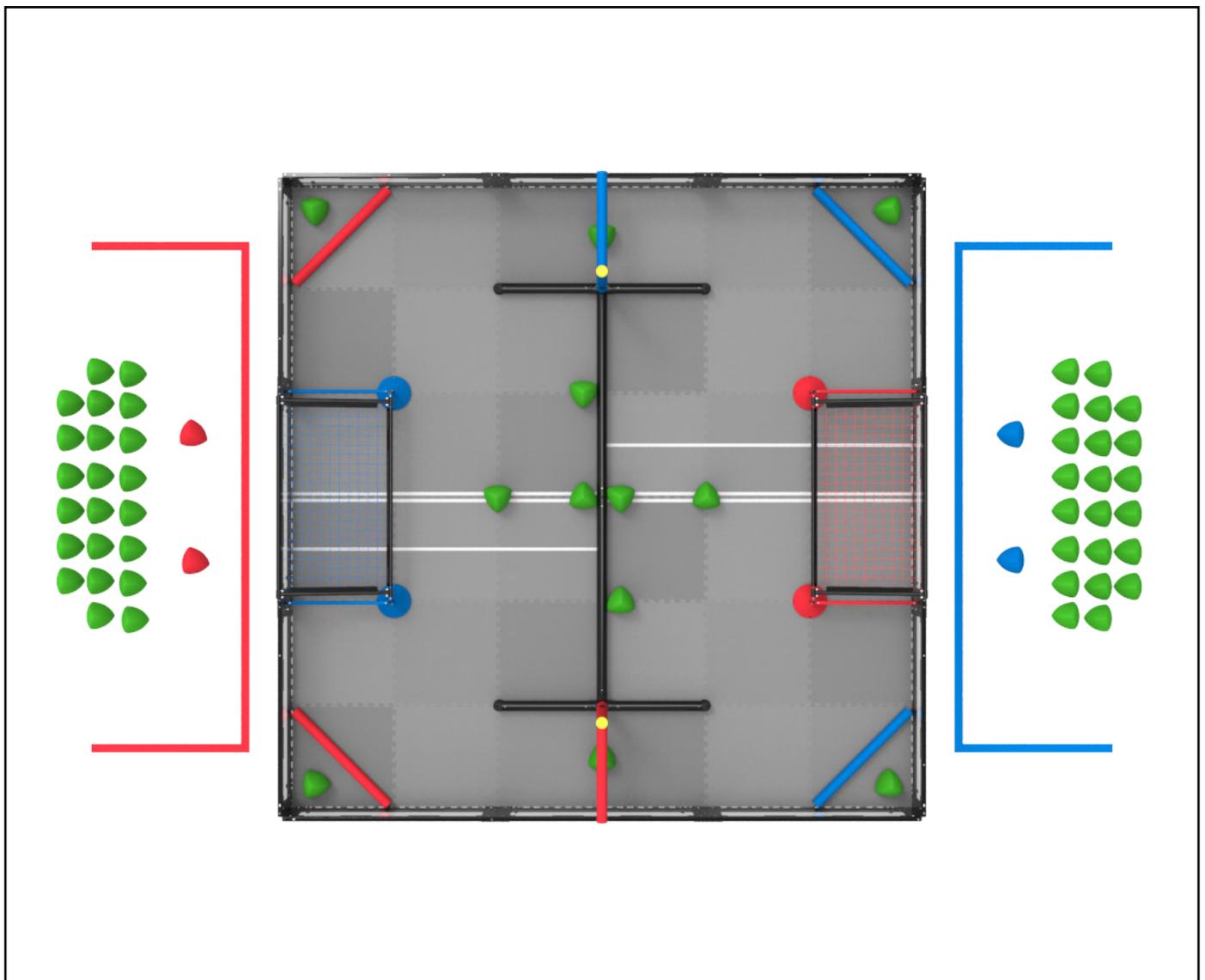
For additional game-play detail, please refer to the VEX Robotics Competition Over Under Game Manual.

# Field Overview

The game VEX Robotics Competition Over Under is played on a 12ft x 12ft foam mat, surrounded by a perimeter, and divided in half by a barrier spanning the length of the field.

The VRC Over Under field consists of sixty (60) Triballs. Each Alliance has one (1) Goal, two (2) Match Load Zones and one (1) set of Alliance Elevation Bars. Each half of the field includes an Offensive Zone, which is partially defined by the Barrier and Goals. A Goal is located alongside the wall closest to each Alliance Station.

For more details and specific gameplay rules, please refer to the VEX Robotics Competition Over Under Game Manual.



# Game Objects & Field Bill of Materials

All of these items are available for purchase from [www.vexrobotics.com](http://www.vexrobotics.com)

## Generic Field Elements - Reusable Each Year

Part Number	Description
278-1501	VRC Field Perimeter Frame & Hardware
276-8242	VRC Portable Competition Field Perimeter
276-6905	VRC Anti-Static Field Tiles (18-Pack)
275-1401	VRC VEXnet Field Controller

## Official VEX Robotics Competition Over Under Specific Elements

Part Number	Description	Quantity per Full Field
276-8354	VRC Over Under Full Field & Game Element Kit	
276-8355	VRC Over Under Game Element Kit	2
276-8356	VRC Over Under Field Element Kit 1	1
276-8357	VRC Over Under Field Element Kit 2	1
276-8905	VRC Over Under Field Element Kit 3	1

## Practice Elements

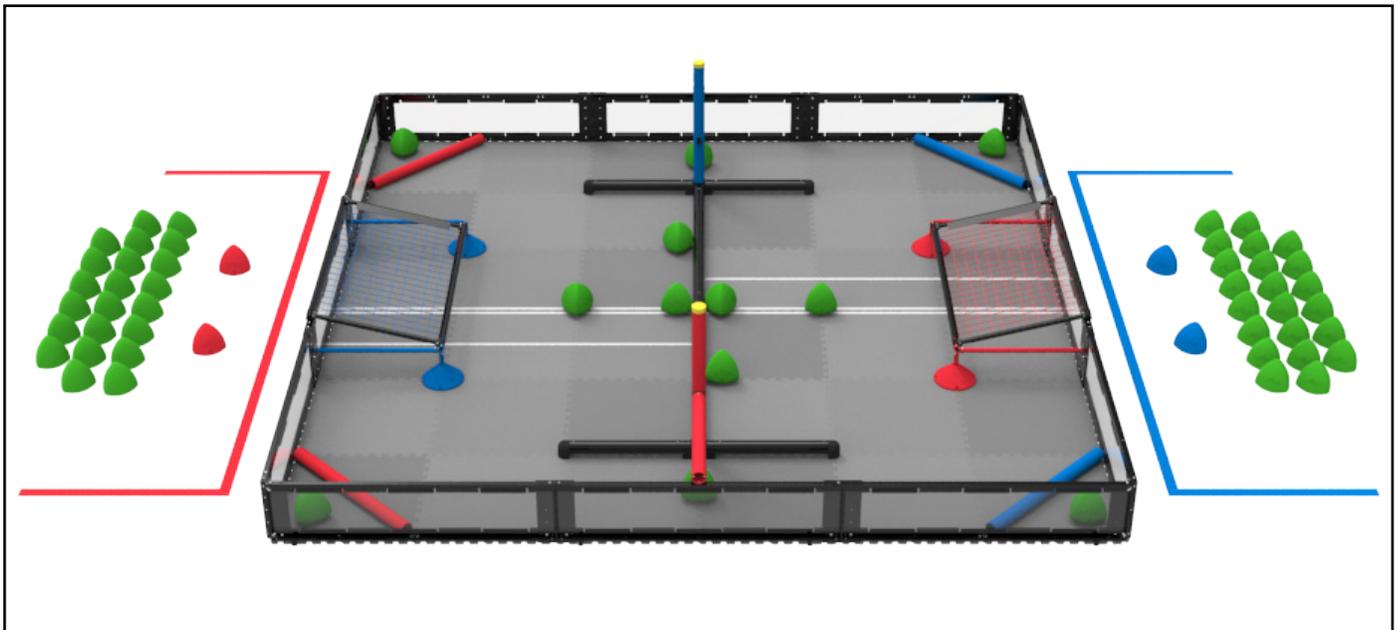
Part Number	Description
276-8355	VRC Over Under Game Element Kit
276-8358	VRC Over Under Scoring Element Kit

# Field Specifications Introduction

This section will outline the specifications that are most important to *Teams* designing a *Robot* to compete in the VEX Robotics Competition Over Under. Though many of the critical dimensions are included in this section, it may be necessary to consult the separate assembly guide and 3D CAD models of the field for an additional level of detail. If you can't find a dimension in the specifications, we include a full model of the field to "virtually" measure whatever dimension is necessary.

Field components may vary slightly from event to event. This is to be expected; *Teams* will need to adapt accordingly. It is good design practice to create mechanisms capable of accommodating variances in the field and game pieces.

*Note: Minor field repairs are permissible, provided that the repairs do not affect gameplay. Examples of minor field repairs include (but are not limited to) threadlocker applied to Field Element mounting hardware or tape over a hole in a damaged Net. Be sure to check the Official Q&A for specific examples or to get an official clarification.*



## 确保球门正常使用的提示

确保粽横天下的球门正确搭建、组装和应用，对于比赛来说至关重要。如下是一些小提示，可以确保球门正确组装并根据要求与粽球进行互动。

1. 确保场地围边与地面/场地架高台及泡沫垫齐平。场地围边及地板和/或泡沫垫与场地围边之间不应有空隙。详见本附录内相应图纸。
2. 确保短垂直管完全插入泡沫垫下方的底座中。可以通过测量底座上部管子的长度，以确保与本附录中提供的尺寸相匹配。赛事主办方应定期检查该连接处，确保球门在赛事中不会离开底座。
3. 组装完成后，手动操纵粽球以确保在整个球门区域，球门和粽球之间有轻微的摩擦。如果粽球在没有摩擦的情况下划入球门，则说明球门没有正确搭建，必须检查并修复。
4. 测量管子确保其在周长的规定公差范围内。测量位置应为从管子底部到泡沫垫。参考本附录相关内容及 **<T10>**，确保测量值符合球门高度的许可公差。

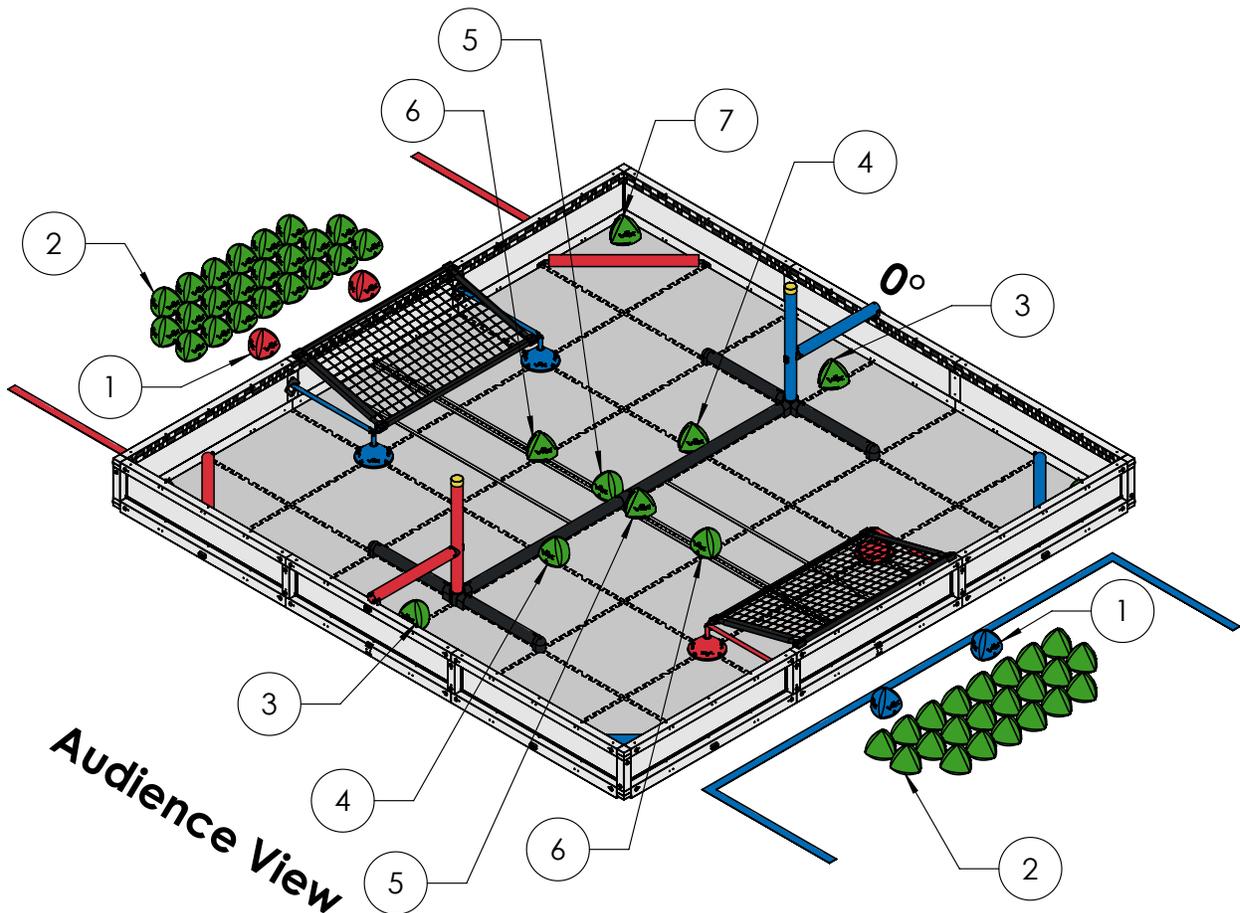
## 无障碍事项 - 标记粽球

在联队粽球的角上可以画一个1-2英寸黑色圈圈（可使用油性马克笔），用以帮助红绿色盲的参赛人员区分粽球类型。如有类似需求，请在赛事前与赛事主办方或赛事经理沟通。



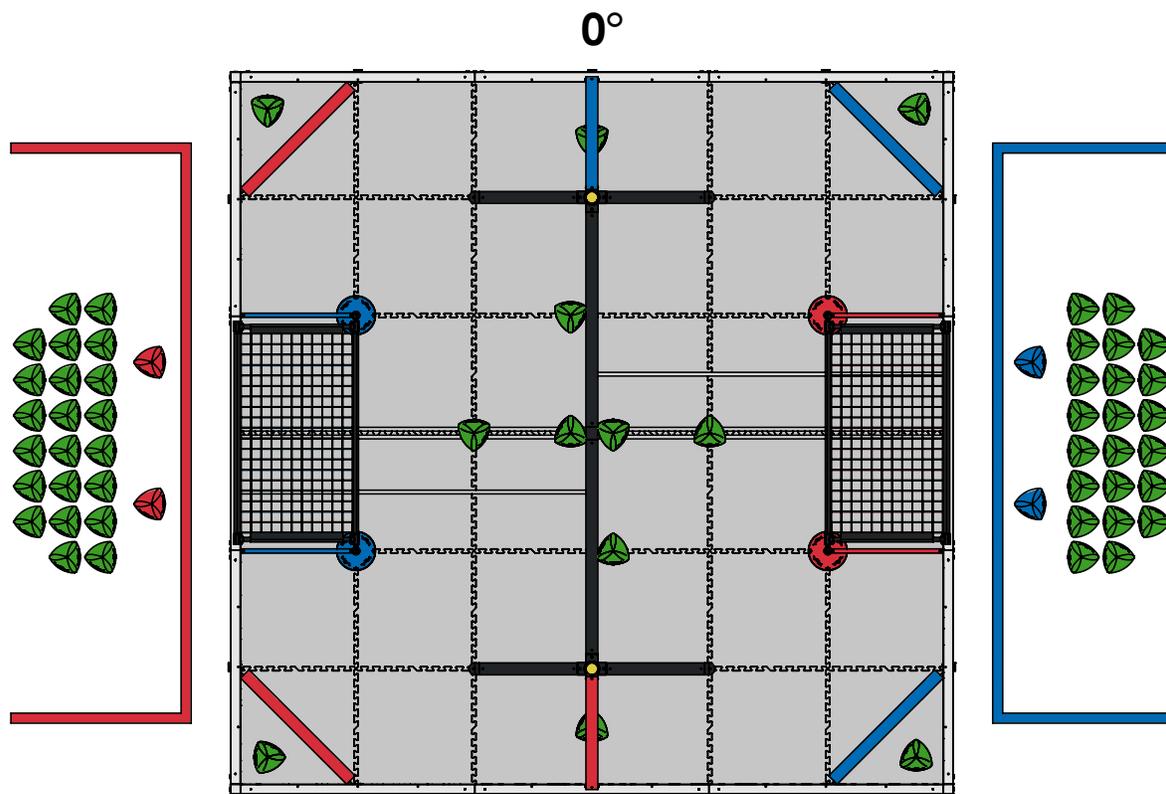
### Scoring Objects are placed as follows before the start of each Match

1. (2x) Alliance colored triballs for preload. One per team.
2. (22x) Triballs outside the field for Alliance match loads.
3. (1x) Tribball centered under the low elevation bar.
4. (1x) Tribball touching the Barrier half way between the Autonomous Line and the Elevation Bar on the side of the Autonomous Line without a neutral zone.
5. (1x) Tribball touching the Barrier and the Autonomous Line.
6. (1x) Tribball between the Goal and the Barrier on the Autonomous Line.
7. (1x) Tribball in each Match Load Zone.



Audience View

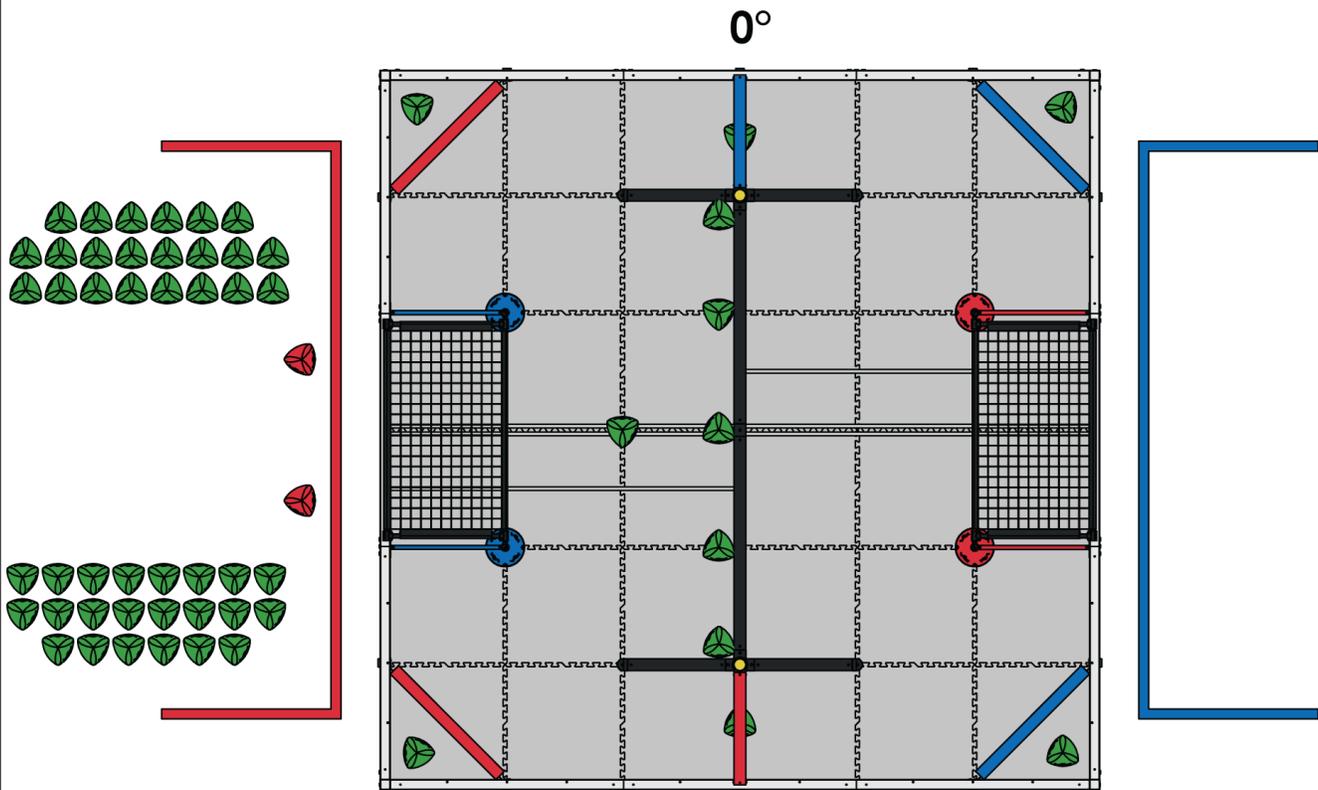
## Reference Object Placement Image:



**Audience View**

Description	2023-2024 Game Object Placement (2)	
Dwg No	276-8354-000 Field Specifications	
Competition	VRC 2023-2024	Sheet 2 of 15
Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

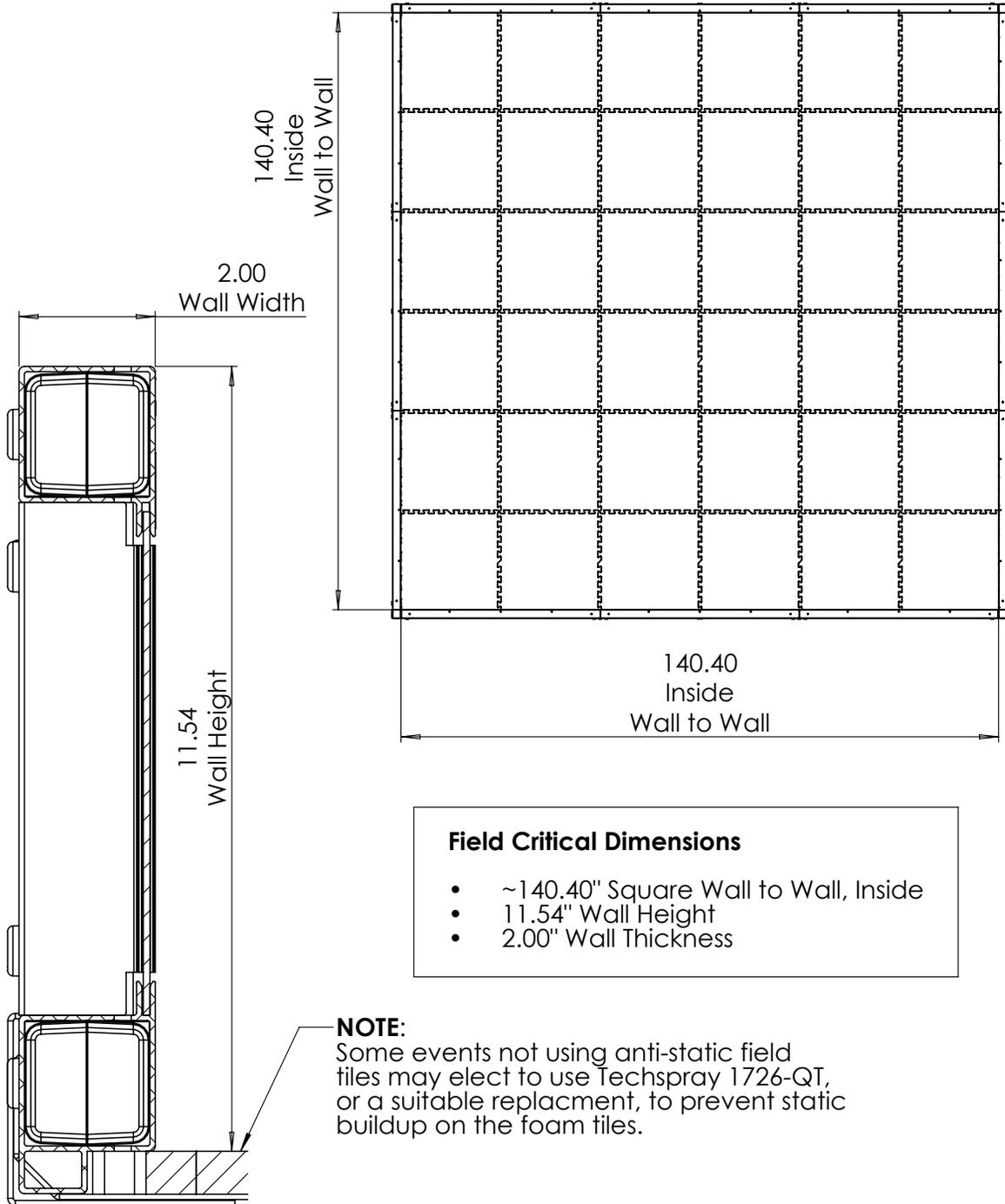
## Reference Object Placement Skills Layout Image:



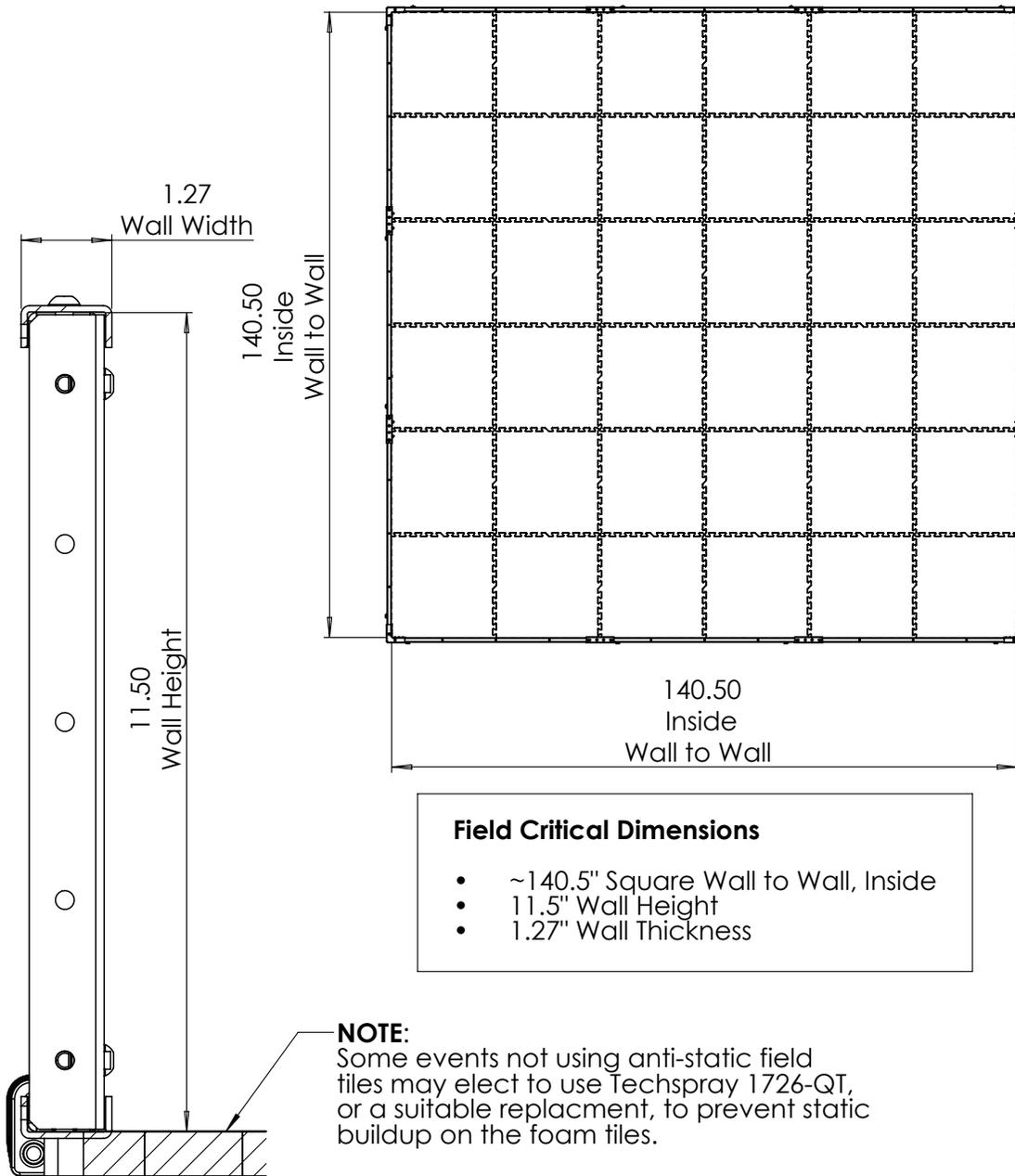
**Audience View**

	Description	2023-2024 Game Object Placement (3)	
	Dwg No	276-8354-000 Field Specifications	
	Competition	VRC 2023-2024	Sheet 3 of 15
	Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

Field Critical Specs (276- 8242):



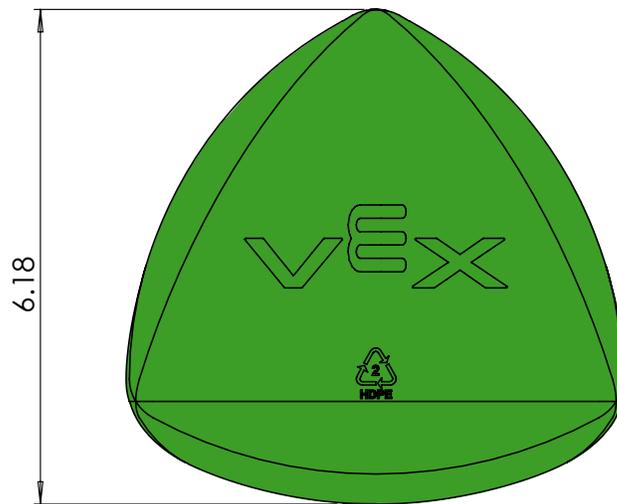
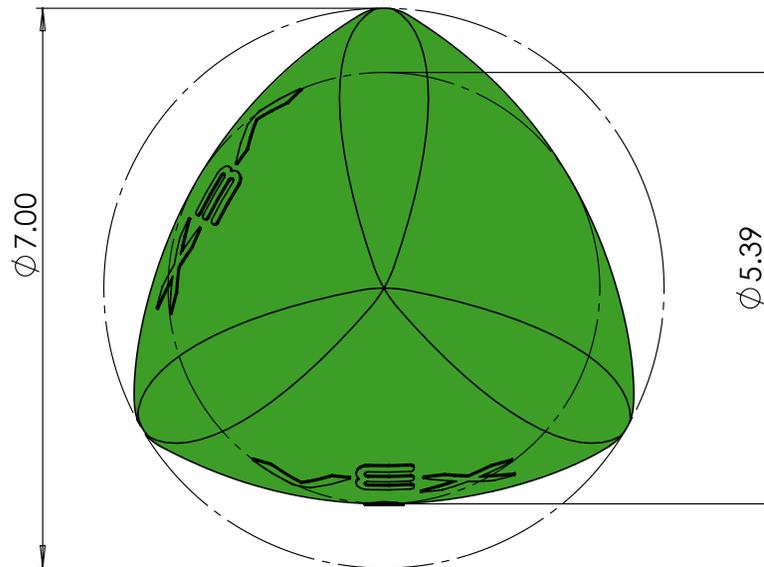
Field Critical Specs (278- 1501):



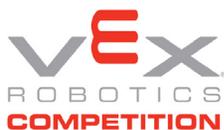
	Description		Field Perimeter Specifications (2)
	Dwg No		276-8354-000 Field Specifications
	Competition	VRC 2023-2024	Sheet 5 of 15
	Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

[www.VEXROBOTICS.COM](http://www.VEXROBOTICS.COM)

Triball Specs:



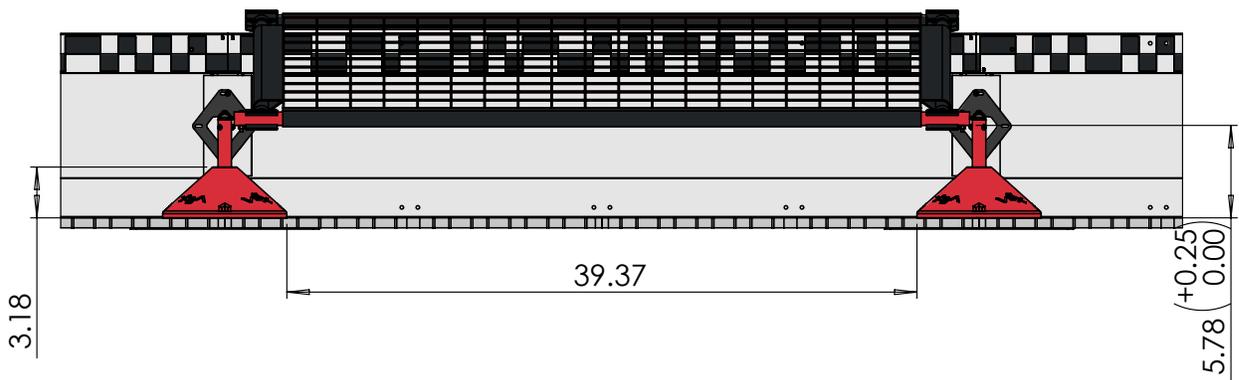
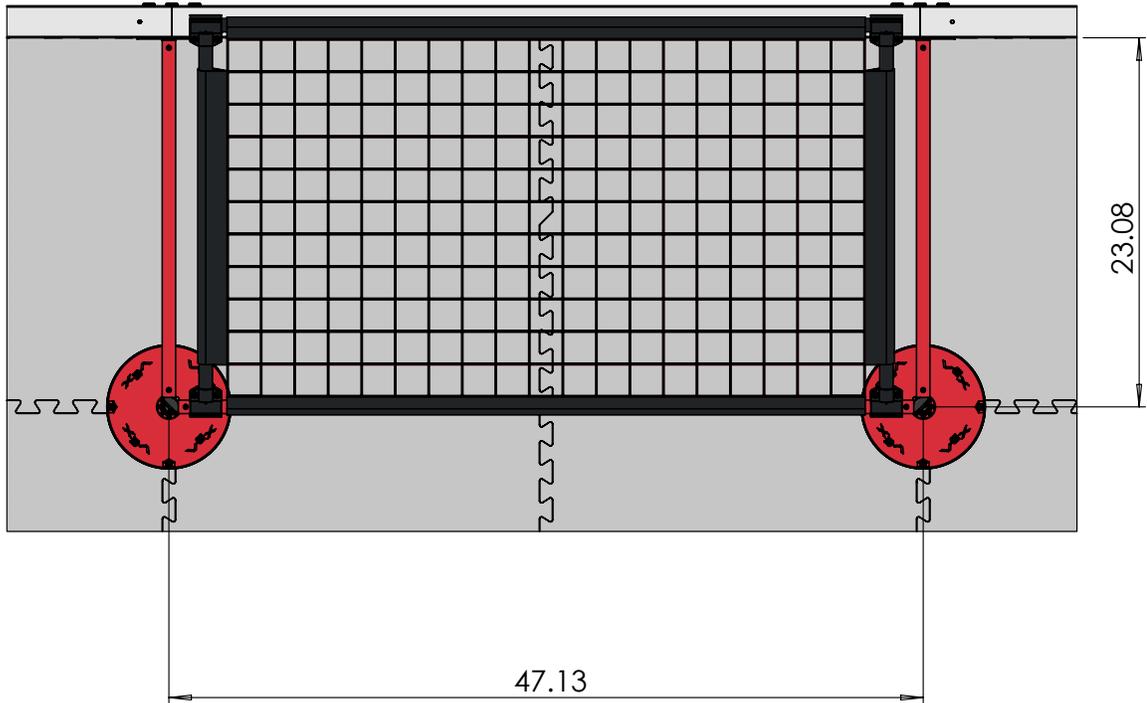
Mass: 110 ± 20 Grams



Description	2023-2024 Game Specifications	
Dwg No	276-8354-000 Field Specifications	
Competition	VRC 2023-2024	Sheet 6 of 15
Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

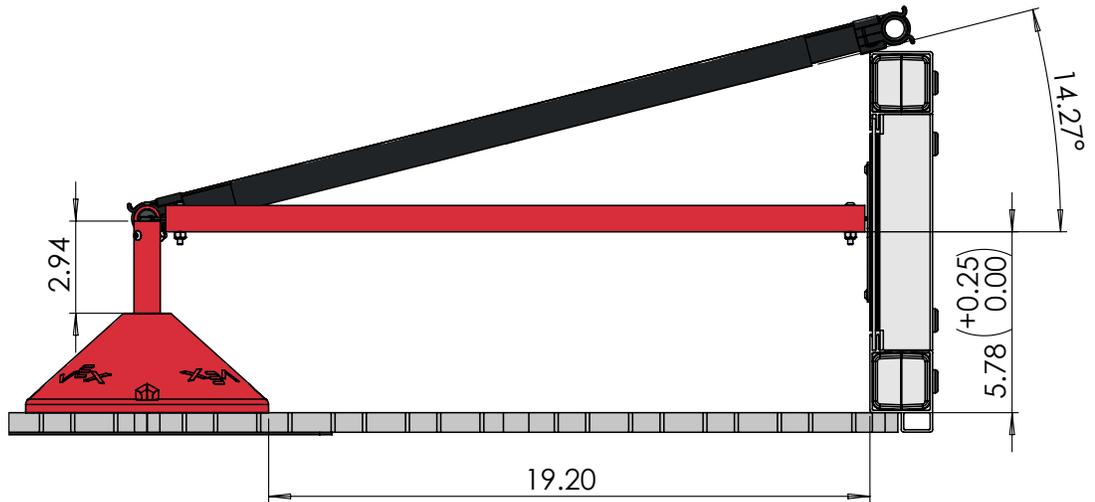
[www.VEXROBOTICS.COM](http://www.VEXROBOTICS.COM)

Goal Specs:



	Description 2023-2024 Game Specifications (2)	
	Dwg No 276-8354-000 Field Specifications	
	Competition VRC 2023-2024	Sheet 7 of 15
	Release 6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>
		<a href="http://www.VEXROBOTICS.COM">www.VEXROBOTICS.COM</a>

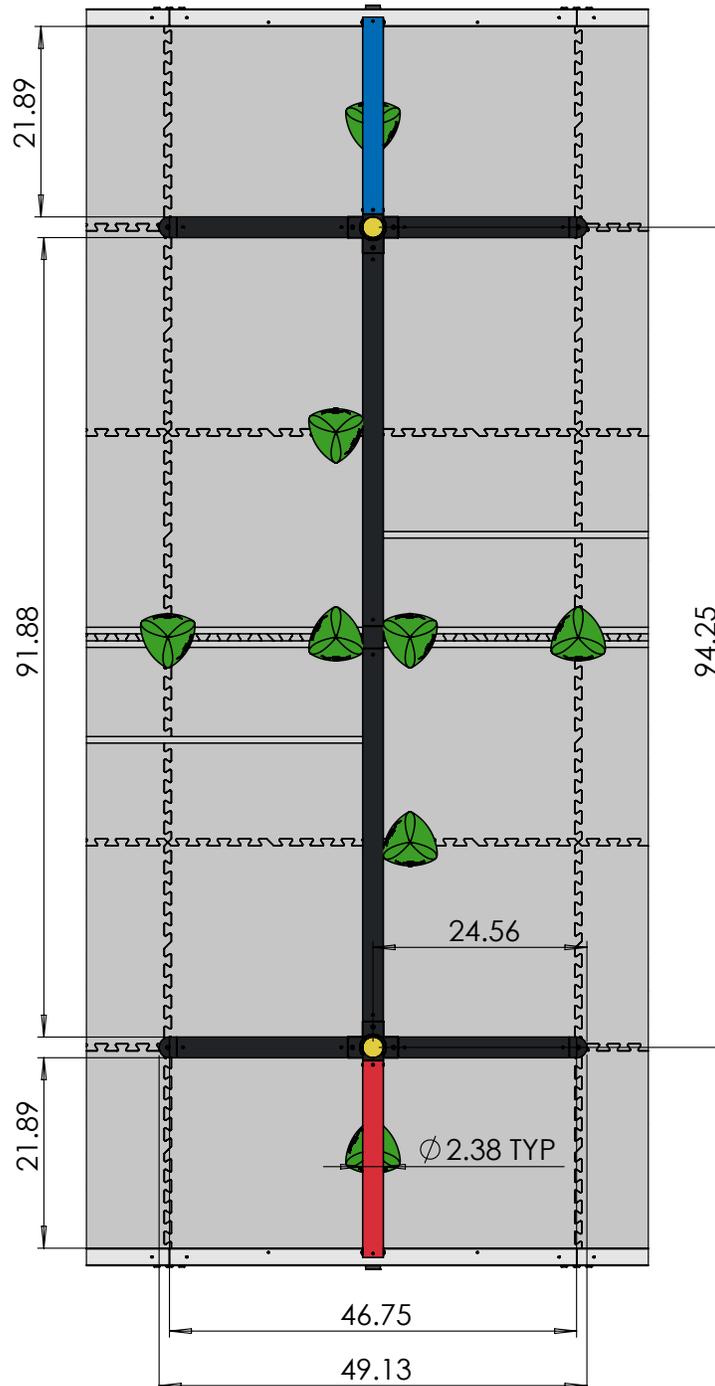
Goal Specs:



	Description 2023-2024 Game Specifications (3)	
	Dwg No 276-8354-000 Field Specifications	
	Competition VRC 2023-2024	Sheet 8 of 15
	Release 6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

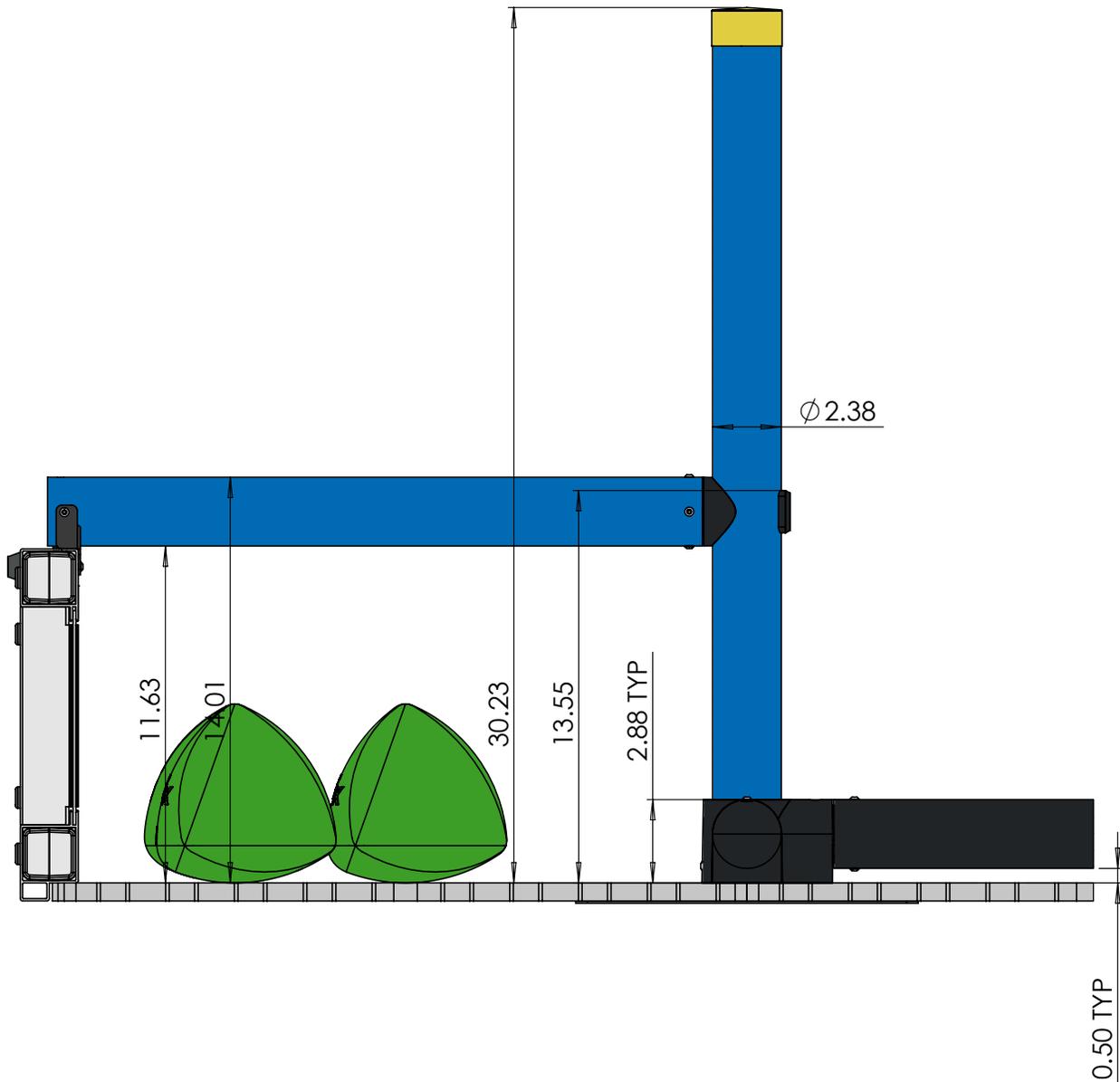
[www.VEXROBOTICS.COM](http://www.VEXROBOTICS.COM)

Barrier Specs:



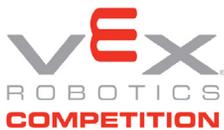
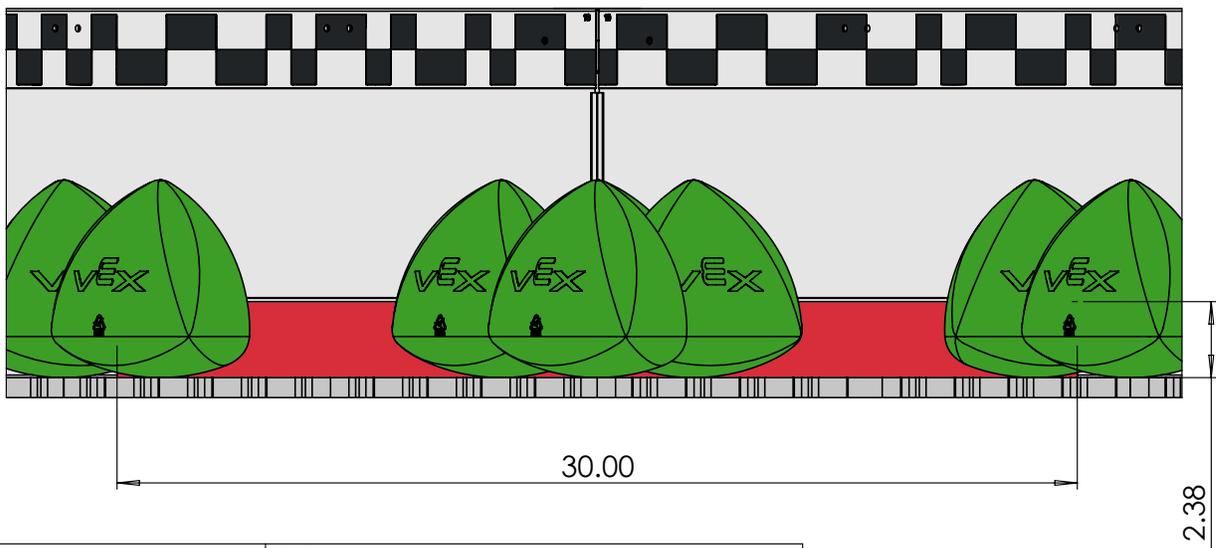
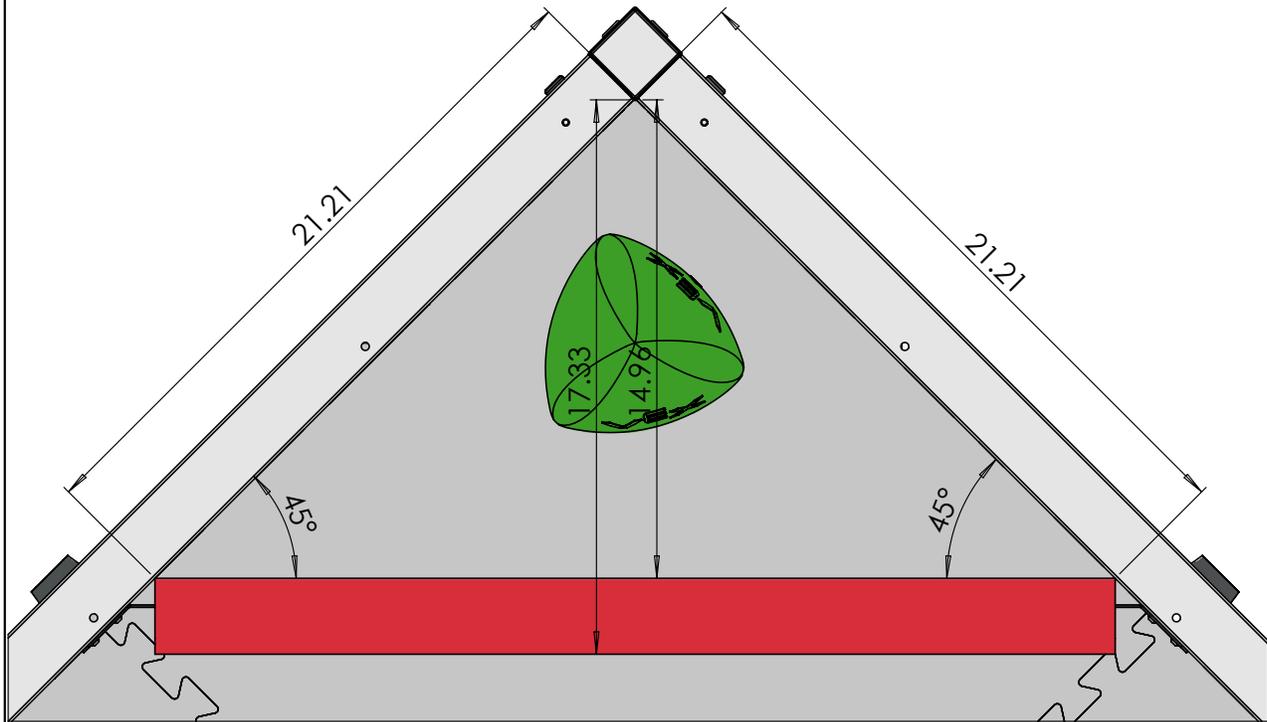
	Description 2023-2024 Game Specifications (4)	
	Dwg No 276-8354-000 Field Specifications	
	Competition VRC 2023-2024	Sheet 9 of 15
	Release 6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b> <a href="http://www.VEXROBOTICS.com">www.VEXROBOTICS.com</a>

Barrier Specs:



	Description 2023-2024 Game Specifications (5)	
	Dwg No 276-8354-000 Field Specifications	
	Competition VRC 2023-2024	Sheet 10 of 15
	Release 6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>
		<a href="http://www.VEXROBOTICS.COM">www.VEXROBOTICS.COM</a>

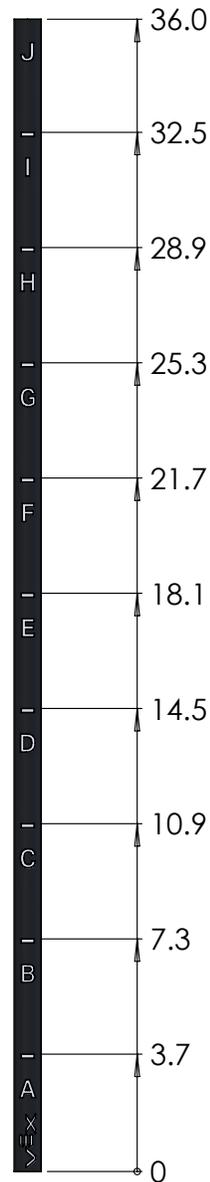
Load Zone Specs:



Description	2023-2024 Game Specifications (6)	
Dwg No	276-8354-000 Field Specifications	
Competition	VRC 2023-2024	Sheet 11 of 15
Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

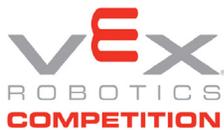
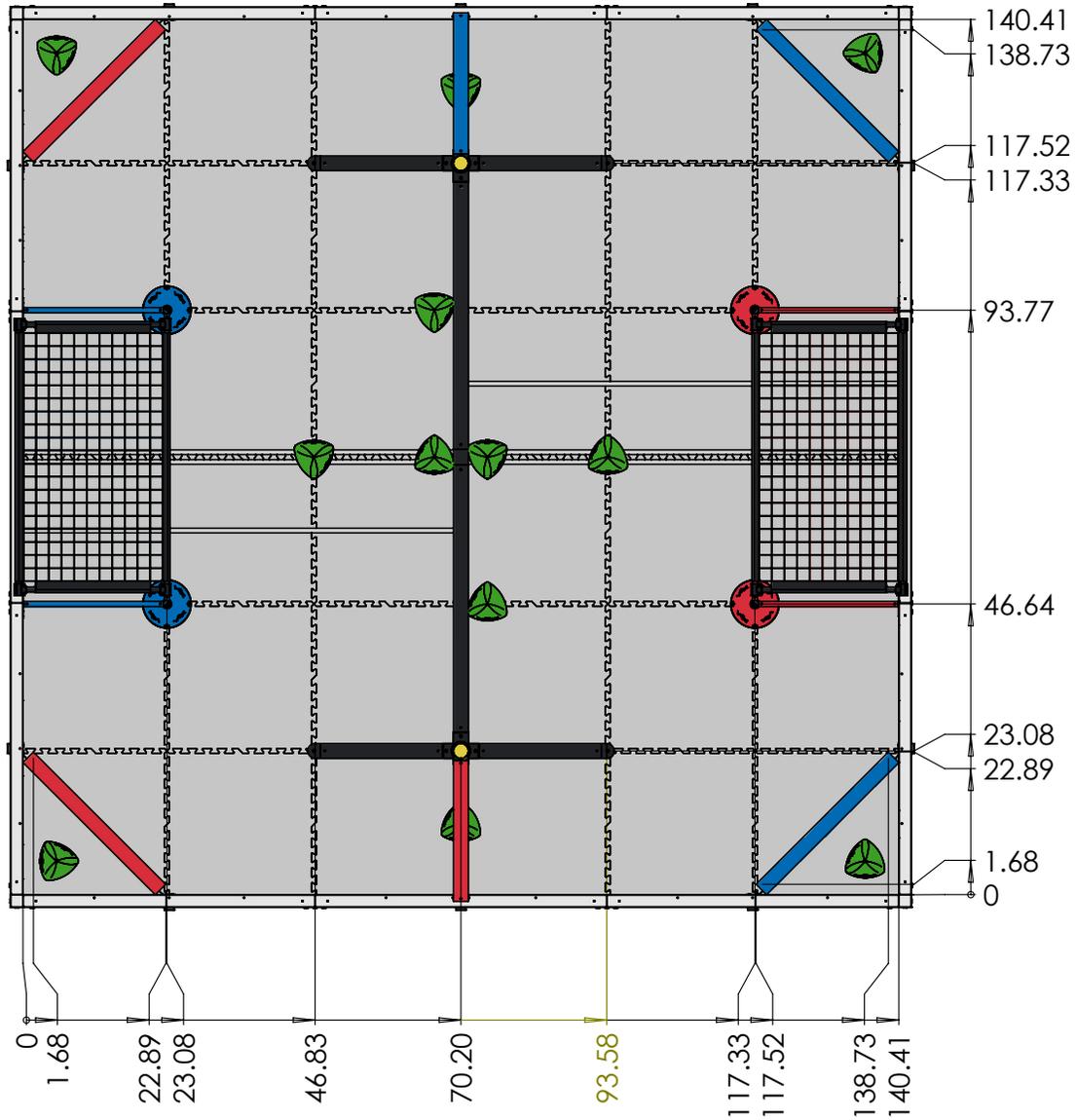
[www.VEXROBOTICS.COM](http://www.VEXROBOTICS.COM)

Measurement Stick Specs:



	Description 2023-2024 Game Specifications (7)	
	Dwg No 276-8354-000 Field Specifications	
	Competition VRC 2023-2024	Sheet 12 of 15
	Release 6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>
		<a href="http://www.VEXROBOTICS.COM">www.VEXROBOTICS.COM</a>

Field Reference Specs:

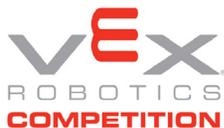
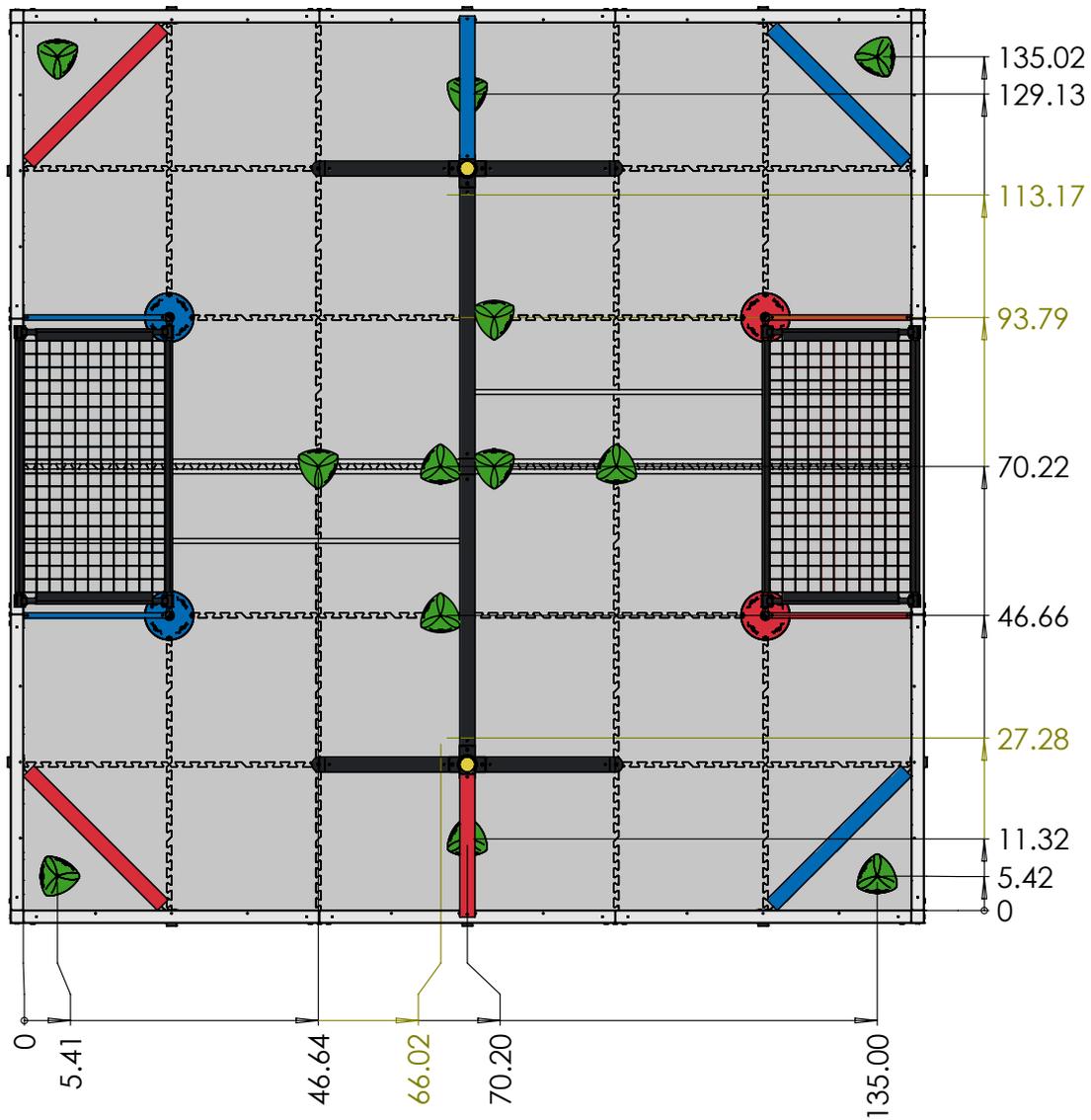


Description	2023-2024 Game Specifications (8)	
Dwg No	276-8354-000 Field Specifications	
Competition	VRC 2023-2024	Sheet 13 of 15
Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

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Field Reference Specs Skills Layout:



Description	2023-2024 Game Specifications (10)	
Dwg No	276-8354-000 Field Specifications	
Competition	VRC 2023-2024	Sheet 15 of 15
Release	6/23/2023	<b>ALL DIMENSIONS ARE IN INCHES.</b>

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## 许可的场地更新

**问题：**安装板在场地下方光滑地板上滑动。

**解决方案：**允许在金属板和地板直接放置一层防滑胶带或Gaffer胶带（或类似材料）以固定金属板的位置。



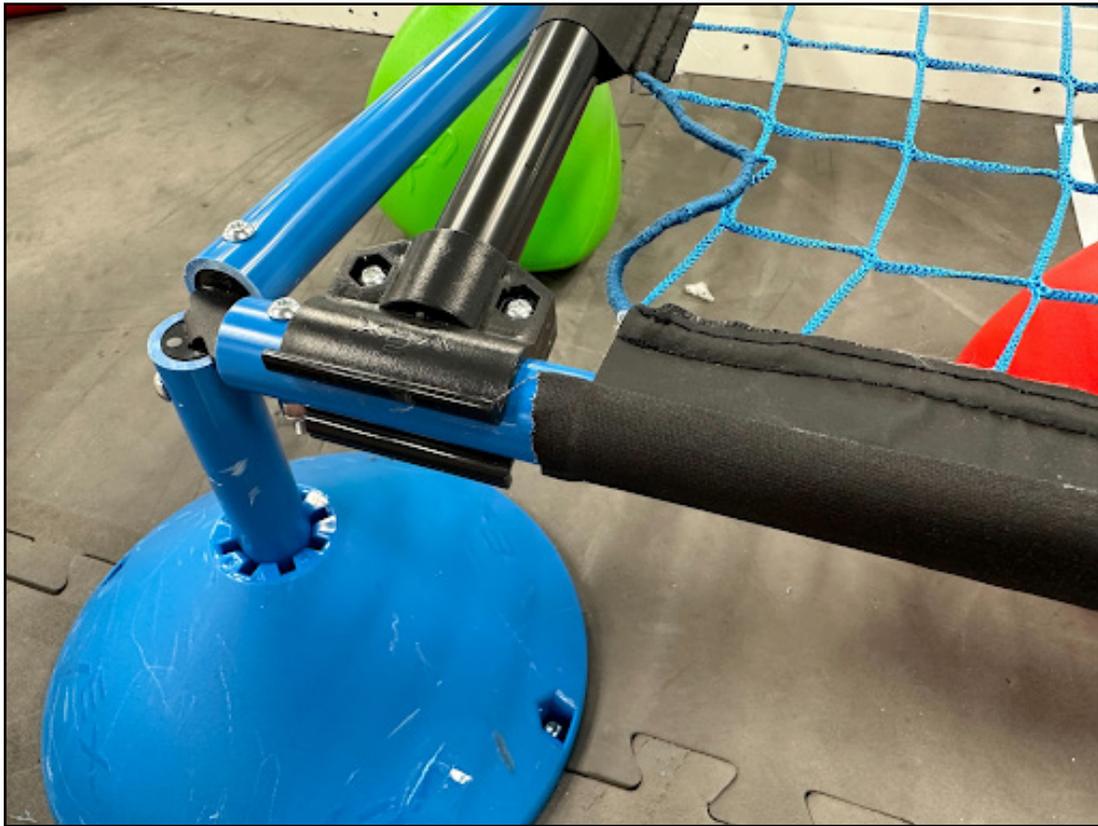
**问题：**即使拧紧，但套在PVC管上的网的塑料卡子仍可能会变松。

**解决方案：**在塑料连接件内添加一到两块小的胶带，用以辅助紧固住PVC管。



**问题：**经过大量赛事后，球门前PVC管上的网套可能会撕裂。

**解决方案：**使用Gaffer胶带修复网套织物上的撕裂或磨损。请务必的修复之后测量球门，并对球门高度进行适当调整，以确保胶带和泡沫垫之间的距离在公差范围内。如可能，使用黑色胶带。



**问题：**在激烈、长期的比赛中，场地要素可能会移动或开始撕裂泡沫垫。

**解决方案：**可在泡沫垫下方金属板上增加额外的撑柱。这些撑柱可以辅助固定场地要素，并减轻场地泡沫垫撕裂的情况。如进行了类似修改，请确保撑柱不固定在泡沫垫上。

