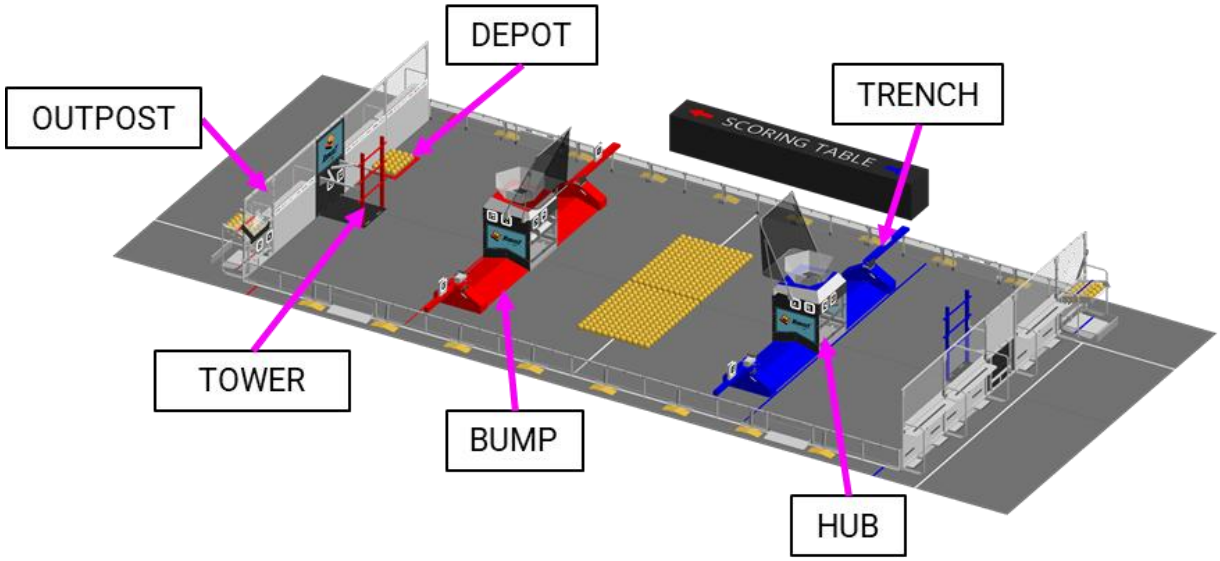
5 ARENA

The ARENA includes all elements of the game infrastructure that are required to play REBUILT™ presented by Haas: the FIELD, SCORING ELEMENTS, queue area, team media area (when available), designated TECHNICIAN area, and all equipment needed for FIELD control, ROBOT control, and scorekeeping.

Figure 5-1 REBUILT ARENA (queue area, TECHNICIAN area, and media area not pictured)



5.1 Dimensions and Accuracy

All official models for the REBUILT FIELD were created in Onshape.

The specification for the REBUILT FIELD can be retrieved from a few locations:

- The 3D CAD model is the official representation of the REBUILT FIELD and how it is constructed.
- Illustrations included in this section are for a general visual understanding of the REBUILT ARENA, and dimensions included in the manual are nominal and no tolerances are implied. Please refer to the official drawings for exact dimensions, tolerances, and construction details.
- The Field Dimension Drawings package has critical dimensions for each FIELD element.
- The FIELD Manual (coming soon) includes instructions on how to build the FIELD along with showing the ways construction type will influence the field tolerances. It also includes many of the key dimensions which are listed in the Official FIELD Drawings.
- The FIELD Acceptance Checklist (coming soon) includes the controlled dimensions (with relevant tolerances) which will be checked by event staff a few times throughout the event. The FIELD is expected to change during MATCH play. Teams can ask the FTA to re-check specific measurements if they believe something is out of spec prior to a MATCH beginning.

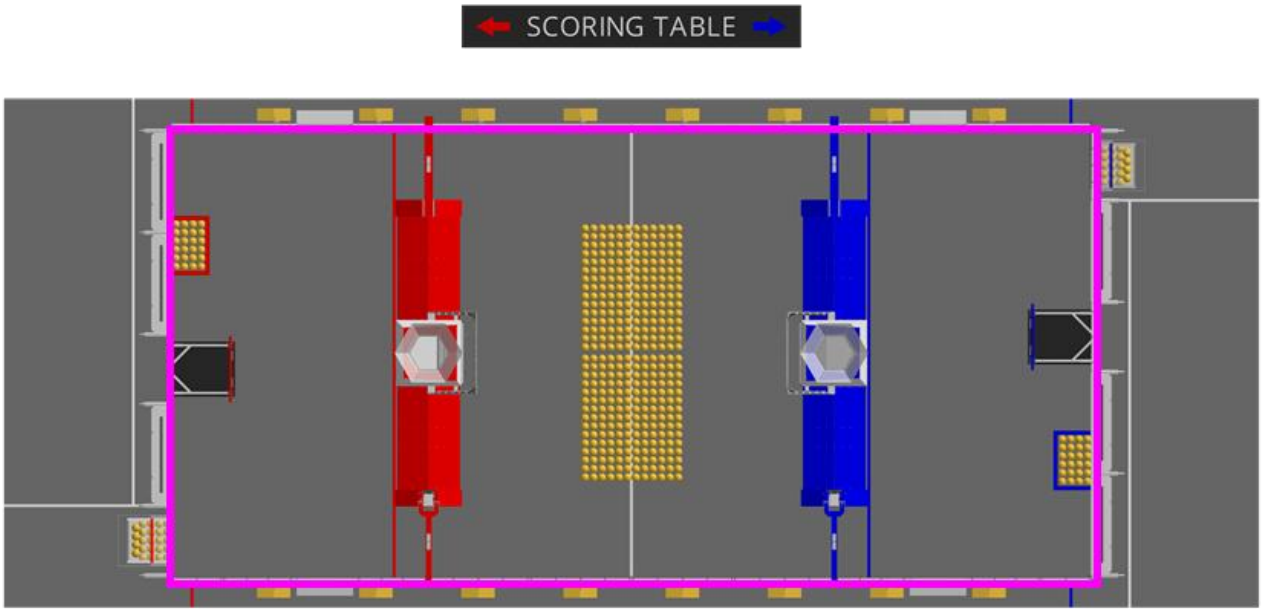
The official drawings, CAD models, and drawings for low-cost versions of important elements of the REBUILT FIELD are posted on the Playing FIELD webpage.

> The ARENA is modular and assembled, used, disassembled, and shipped many times during the competition season. It undergoes wear and tear. The ARENA is designed to withstand rigorous play and frequent shipping. Every effort is made to ensure that ARENAS are consistent from event to event.
>
> However, ARENAS are assembled in different venues by different event staff and some small variations occur. Successful teams will design ROBOTS that are insensitive to these variations.

5.2 FIELD

Each FIELD for REBUILT is an approximately 317.7in (~8.07m) by 651.2in (~16.54m) carpeted area bounded by inward facing surfaces of the ALLIANCE WALLS, OUTPOSTS, TOWER WALLS, and guardrails.

Figure 5-2 FIELD boundary in pink



The FIELD is populated with and surrounded by the following elements:

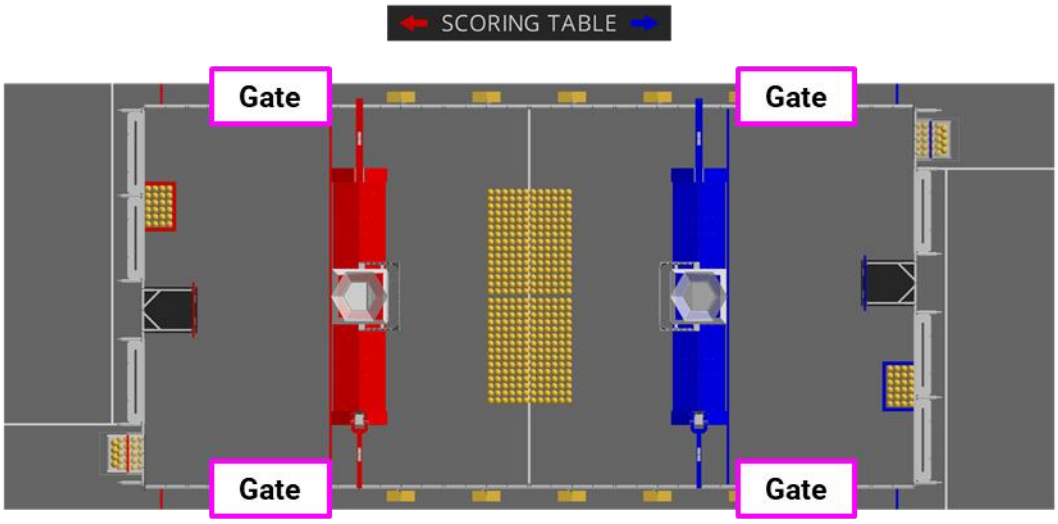
- 1 OUTPOST per ALLIANCE,
- 1 HUB per ALLIANCE,
- 1 TOWER per ALLIANCE,
- 2 DEPOTS,
- 4 BUMPS, and
- 4 TRENCHES.

The surface of the FIELD is low pile carpet, Shaw Floors, Philadelphia Commercial, Neyland II 20, "66561 Medallion." Neyland II carpet is not available for purchase at this time, and the closest equivalent is Shaw, Philadelphia Brand, Profusion 20, Style 54933; see results from evaluation in this blog post.

Carpet edges and seams are secured with 3M™ Premium Matte Cloth (Gaffers) Tape GT2, GT3 or comparable Gaffer's Tape. Tears, rips, and damage to the carpet may be repaired with the same styles of tape and ROBOTS must be prepared to operate on surfaces made of carpet, tape, or combinations of both materials as repairs are made through the course of competition.

Guardrails form the long edges of the FIELD. Guardrails are a 20.0in (50.8cm) tall system of transparent polycarbonate supported on the top and bottom by aluminum extrusion. There are 4 gates in the guardrail that allow access to the FIELD for placement and removal of ROBOTS. The gate passthrough, when open, is 38.0in (96.5cm) wide. Gates are closed and shielded during the MATCH.

Figure 5-3 Gate locations



There are 2 versions of guardrails and DRIVER STATIONS used for competitions. 1 design is the Welded FIELD which is reflected in the 2026 Official *FIRST* FIELD Drawings & Models. The other is designed and sold by AndyMark. Table 5-1 and

Table 5-2 illustrate which areas have each kind of FIELD. While the designs are slightly different, the critical dimensions, performance, and expected user experience between them are the same unless otherwise noted. Detailed drawings for the AndyMark design are posted on the AndyMark website. All illustrations in this manual show the traditional Welded FIELD design.

Table 5-1: District Field Types

District	Field Type
***FIRST* Chesapeake**	AndyMark
***FIRST* California**	Welded
***FIRST* in Michigan**	Welded

***FIRST* in Texas**	AndyMark
***FIRST* Indiana Robotics**	AndyMark
***FIRST* Israel**	Welded
***FIRST* Mid-Atlantic**	Welded
***FIRST* North Carolina**	AndyMark
***FIRST* South Carolina**	Welded
***FIRST* Wisconsin**	AndyMark
NE *FIRST*	AndyMark
Ontario	Welded
Pacific Northwest	Welded
Peachtree	Welded

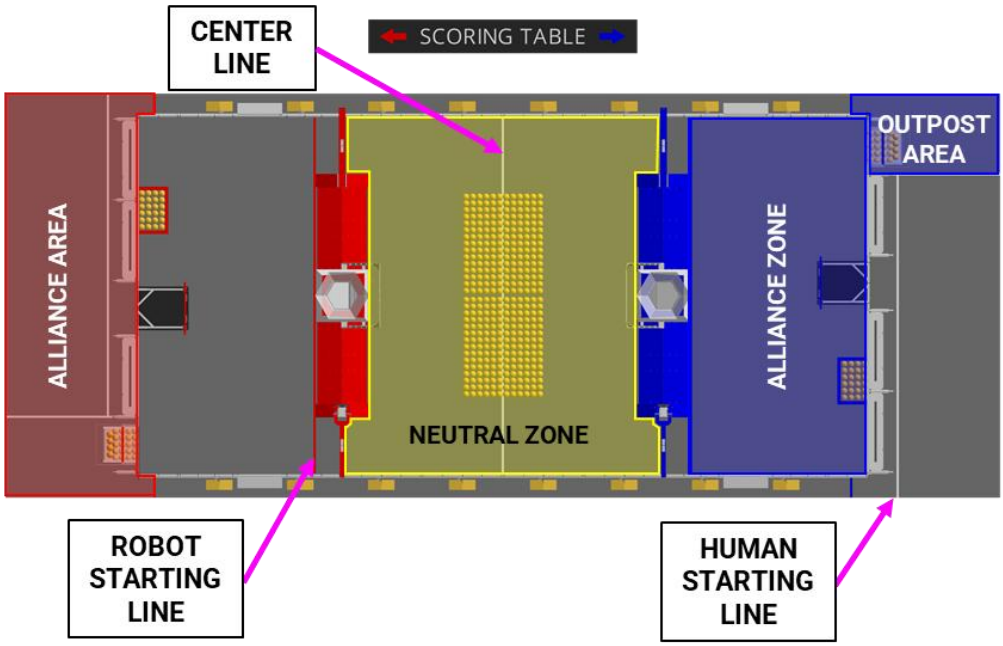
Table 5-2 Regional Field Types

Regional Location	Field Type
Australia	Welded
Brazil	AndyMark
Canada	Welded
China	AndyMark
Mexico	AndyMark
Türkiye	AndyMark
United States	Welded

5.3 Areas, Zones, & Markings

FIELD areas, zones, and markings of consequence are described below. Unless otherwise specified, the tape used to mark lines and zones throughout the FIELD is 2.0in (5.1cm) 3M™ Premium Matte Cloth (Gaffers) Tape (GT2), ProGaff® Premium Professional Grade Gaffer Tape, or comparable gaffers tape.

Figure 5-4 Areas, markings, and zones



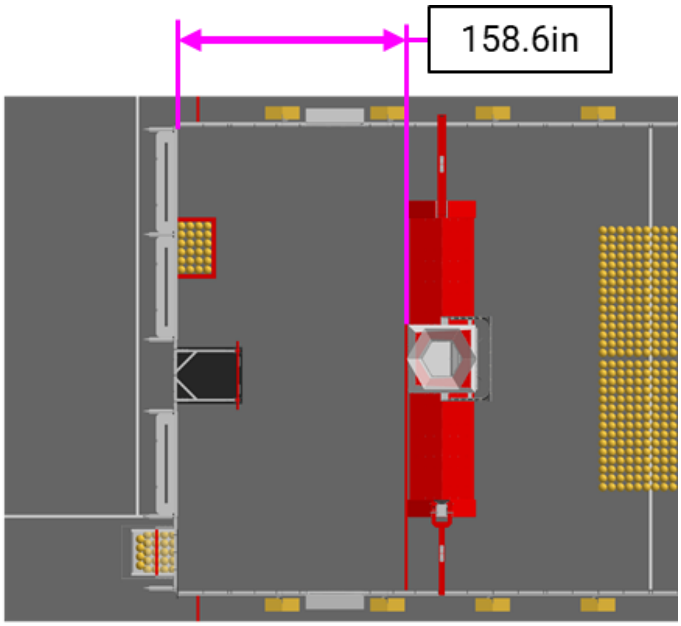
- **ALLIANCE AREA**: an approximately 360in wide by 134in deep (~9.14m by 3.4m) infinitely tall volume formed by, and including the ALLIANCE WALL, OUTPOST, TOWER WALL, the edge of the carpet, and ALLIANCE colored tape perpendicular to the DRIVER STATIONS.
- **ALLIANCE ZONE**: A 158.6in deep by 317.7in long (~4.03m by 8.07m), infinitely tall volume formed by an ALLIANCE WALL, TOWER WALL, and guardrails. It surrounds an ALLIANCE TOWER and a DEPOT. It is bounded by and includes the ROBOT STARTING LINE.
- **CENTER LINE**: a white line that spans the width of the FIELD that bisects the NEUTRAL ZONE in half.
- **NEUTRAL ZONE**: A 283in deep by 317.7in long (7.19m by 8.07m), infinitely tall volume formed by the BUMPS, TRENCHES, HUBS, and guardrails. It surrounds and includes the CENTER LINE.
- **HUMAN STARTING LINE**: a white line spanning the ALLIANCE AREA up to the OUTPOST AREA that is parallel to and located 24.0in (61.0cm) from the bottom square tube of the ALLIANCE WALL to the near edge of the tape.
- **OUTPOST AREA**: a 71.0in wide by 134in deep (1.8m by 3.4m) infinitely tall volume bounded by the OUTPOST, edge of carpet, and ALLIANCE and white colored tape.
- **ROBOT STARTING LINE**: an ALLIANCE colored line that spans the width of the FIELD at the edge of an ALLIANCE'S BASE in front of two BARRIERS and an ALLIANCE HUB.

5.4 HUB

Figure 5-5 HUB

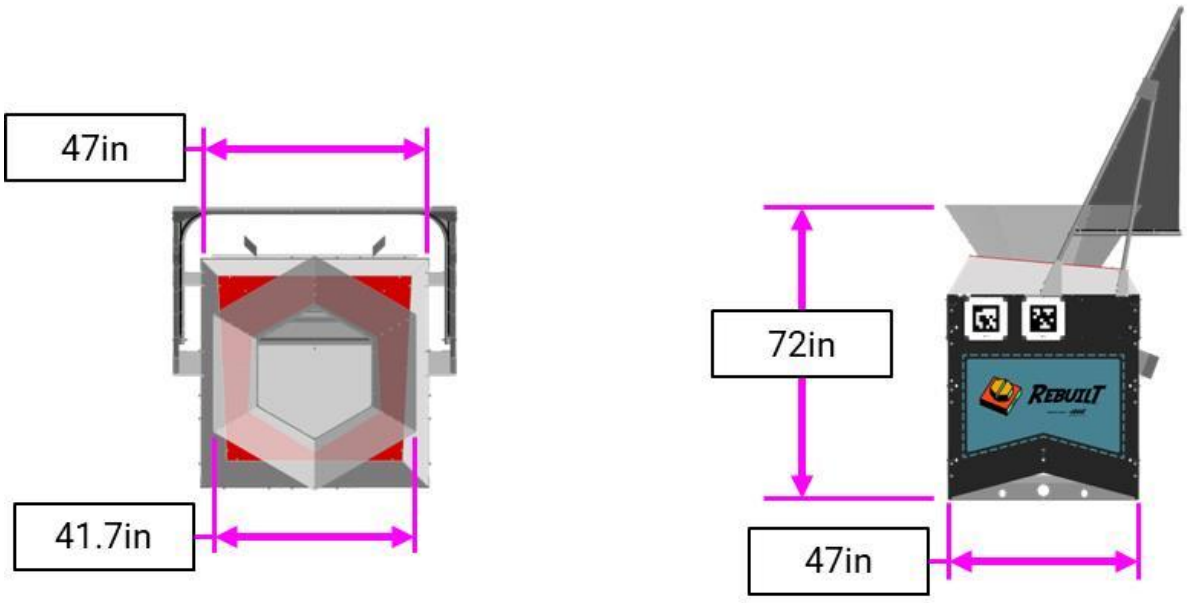
A HUB is one of two 47in by 47in (~1.19m by 1.19m) rectangular prism structures with an extended opening at the top surface. Each ALLIANCE has a dedicated HUB centered between two BUMPS located 158.6in (~4.03m) away from their ALLIANCE WALL. Each HUB has a set of exits that randomly distributes FUEL into the NEUTRAL ZONE. A net structure located in the back of the HUB prevents FUEL launched from most prohibited areas from entering the opening.

Figure 5-6: HUB distance to the ALLIANCE WALL



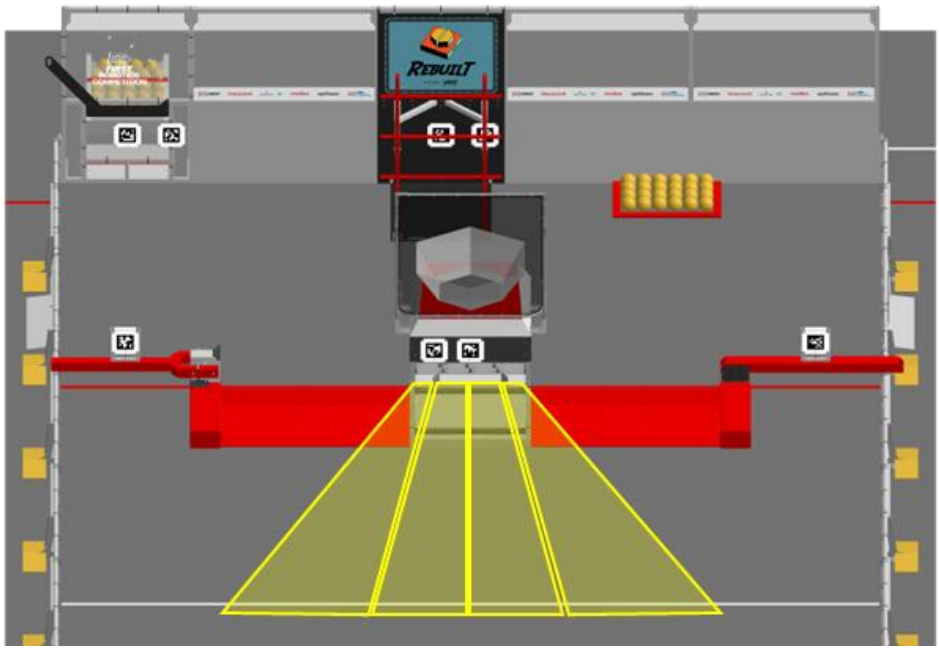
The top of each HUB has a 41.7in (~1.06m) hexagonal opening into which ROBOTS can deliver FUEL. The front edge of the opening is 72in (~1.83m) off the carpet.

Figure 5-7: HUB Dimensions



HUBS have a series of exits at the base of the HUB facing towards the NEUTRAL ZONE. FUEL processed through the HUB are distributed into the NEUTRAL ZONE via one of four exits as shown in Figure 5-8. Examples of FUEL distribution from the HUB can be found on the Playing FIELD webpage.

Figure 5-8: HUB exits (approximation)



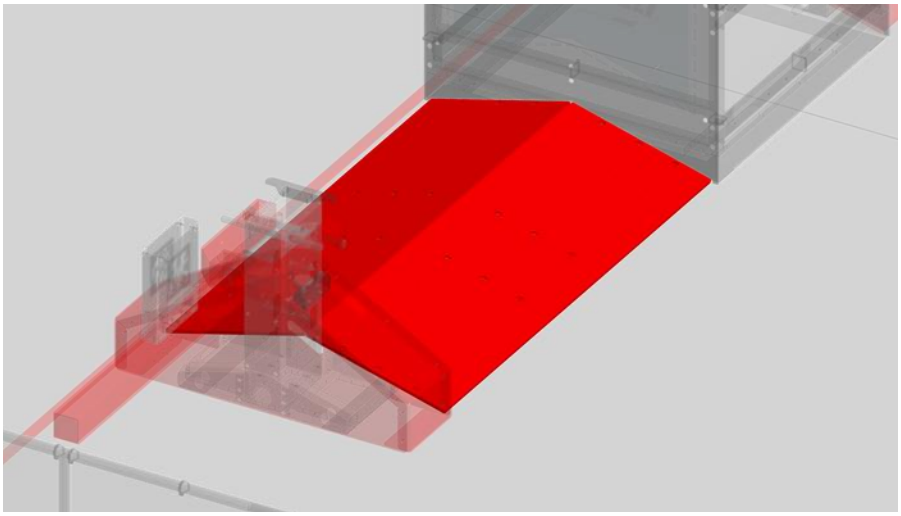
The top angles of the HUB are lit by DMX light bars that indicate if the HUB is active. See Table 5-3 for more details about the various light states in the HUB.

Table 5-3: HUB Lighting

Color	Pre-MATCH	MATCH	Post-Match
ALLIANCE color at 100% brightness	N/A	HUB active	N/A
ALLIANCE color pulsing		HUB deactivation warning. Starts 3 seconds before and continues until deactivation.	
Purple		N/A	FIELD is safe for FIELD STAFF.
Green			FIELD is safe for all.
Off	MATCH ready to start.	HUB is not active.	N/A

5.5 BUMP

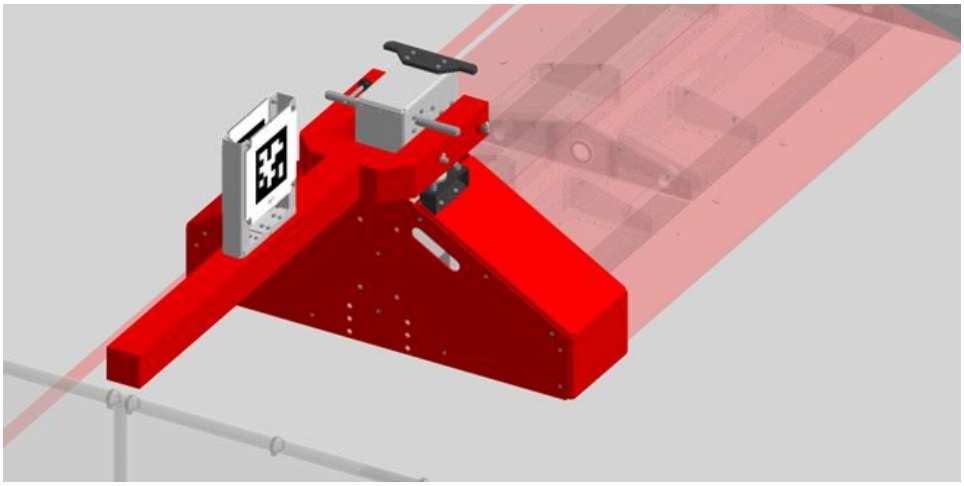
Figure 5-9 BUMP



BUMPS are 73.0in (1.854m) wide, 44.4in (1.128m) deep, and 6.513in (16.54cm) tall structures on either side of the HUB that ROBOTS drive over. The top surface of each BUMP is made up of 0.5in (1.27cm) thick, ALLIANCE colored, Orange Peel textured, HDPE ramps at a 15-degree angle with one ramp sloping down towards the NEUTRAL ZONE and the other ramp sloping down towards the ALLIANCE ZONE.

5.6 TRENCH

Figure 5-10: TRENCH

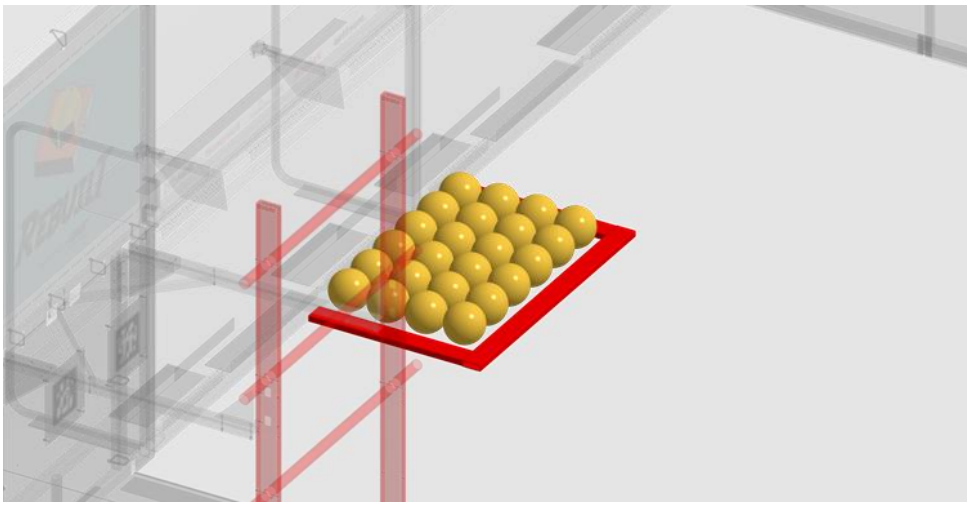


TRENCHES are a 65.65in (1.668m) wide, 47.0in (1.194m) deep, and 40.25in (1.022m) tall structure that ROBOTS drive underneath. The TRENCH extends from the guardrail to the BUMP on both sides of the FIELD. The space underneath each TRENCH arm is 50.34in (1.279m) wide, 22.25in (56.52cm) tall.

TRENCHES along the guardrail closest to the scoring table contain additional electronics to reach the HUB. The TRENCHES along the guardrail furthest from the scoring table have a pivot arm that allows the horizontal portion of the TRENCH to rotate into a vertical position for post-MATCH ROBOT retrieval and to let FIELD staff reset the field between matches. The pivot arm will be locked in the horizontal position during the MATCH.

5.7 DEPOT

Figure 5-11: DEPOT



A DEPOT is a 42.0in (1.07m) wide, 27.0in (68.6cm) deep structure located along the ALLIANCE WALL. There is 1 DEPOT per ALLIANCE. DEPOTS are made up of 3.0in (7.62cm) wide, 1.0in (2.54) tall steel barriers. The DEPOT is secured to the carpet using hook fastener which increases the height to approximately 1.125in (2.86cm).

5.8 TOWER

Figure 5-12: TOWER

A TOWER is a 49.25in (1.251m) wide, 45.0in (1.143m) deep, and 78.25in (1.988m) tall structure made up of the TOWER WALL, TOWER BASE, UPRIGHTS, RUNGS and supporting structures. There is 1 TOWER per ALLIANCE. A TOWER is integrated into each ALLIANCE WALL between DRIVER STATION 2 and DRIVER STATION 3.

The TOWER BASE is a 39.0in (99.06cm) wide by 45.18in (1.148m) deep plate that sits on the floor and extends from the TOWER WALL. The TOWER BASE is powder-coated steel with hook fastener underneath. The edges of the TOWER BASE are approximately 0.2in (0.5cm) to 0.3in (0.8cm) tall.

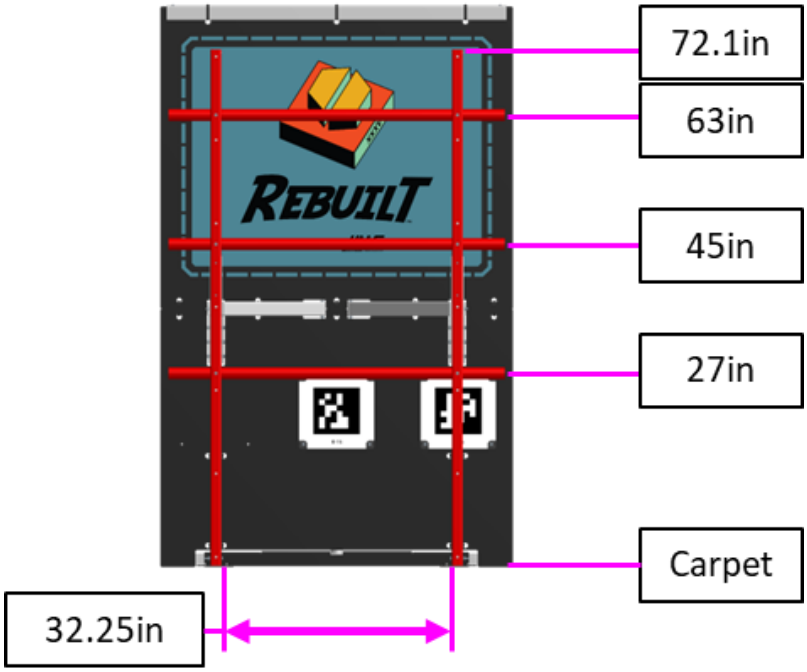
The UPRIGHTS are two 72.1in (1.831m) tall, 1.5in (3.81cm) thick, 3.5in (8.89cm) deep sheet metal box frames that extend vertically up from the TOWER BASE. The distance between each UPRIGHT is 32.25in (81.92cm).

The UPRIGHTS hold three horizontal RUNGS made up of 1-1/4in Sch 40 (1.66in (4.216cm) OD) pipe. Each RUNG is centered between the UPRIGHT and extend 5.875in (14.92cm) from the outer face of the UPRIGHT on either side. The center of the LOW RUNG is located 27.0in (68.58cm) from the floor. The center of the MID RUNG is located 45.0in (114.3cm) from the floor. The center of the HIGH RUNG is 63.0in (1.6m) from the floor. The RUNGS are 18.0in (45.72cm) apart center to center.

The UPRIGHTS and RUNGS are powder-coated red or blue.

Each TOWER has additional supporting structures extending from the UPRIGHT to the TOWER WALL between approximately 28.40in (72.14cm) and 43.38in (1.102m) off the floor.

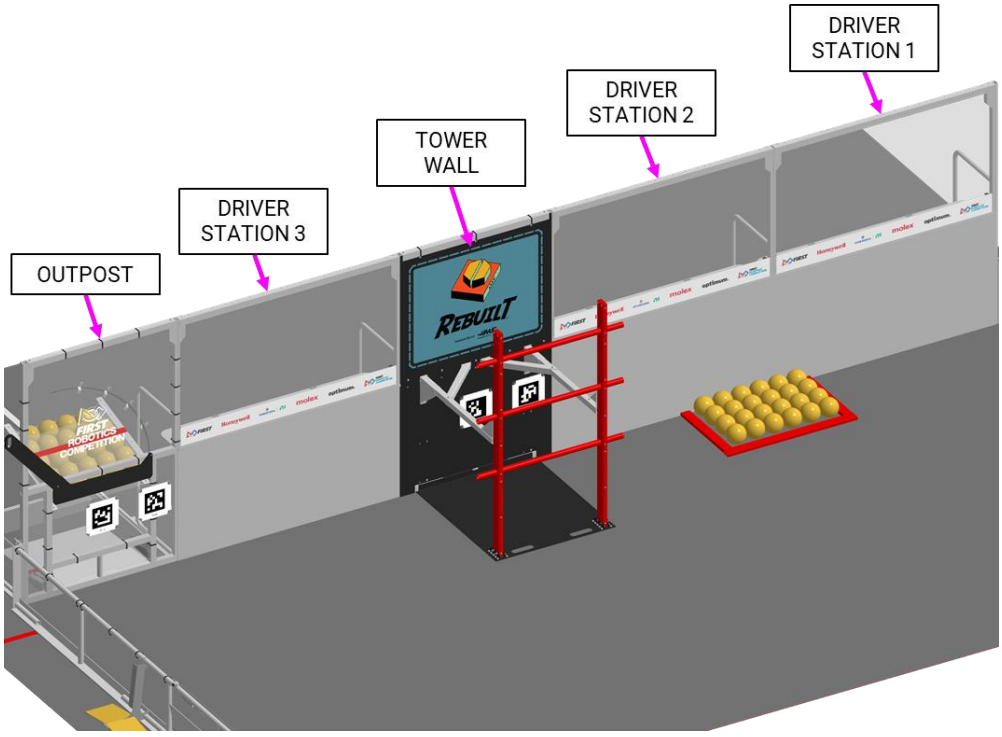
Figure 5-13: TOWER Dimensions



5.9 ALLIANCE WALL

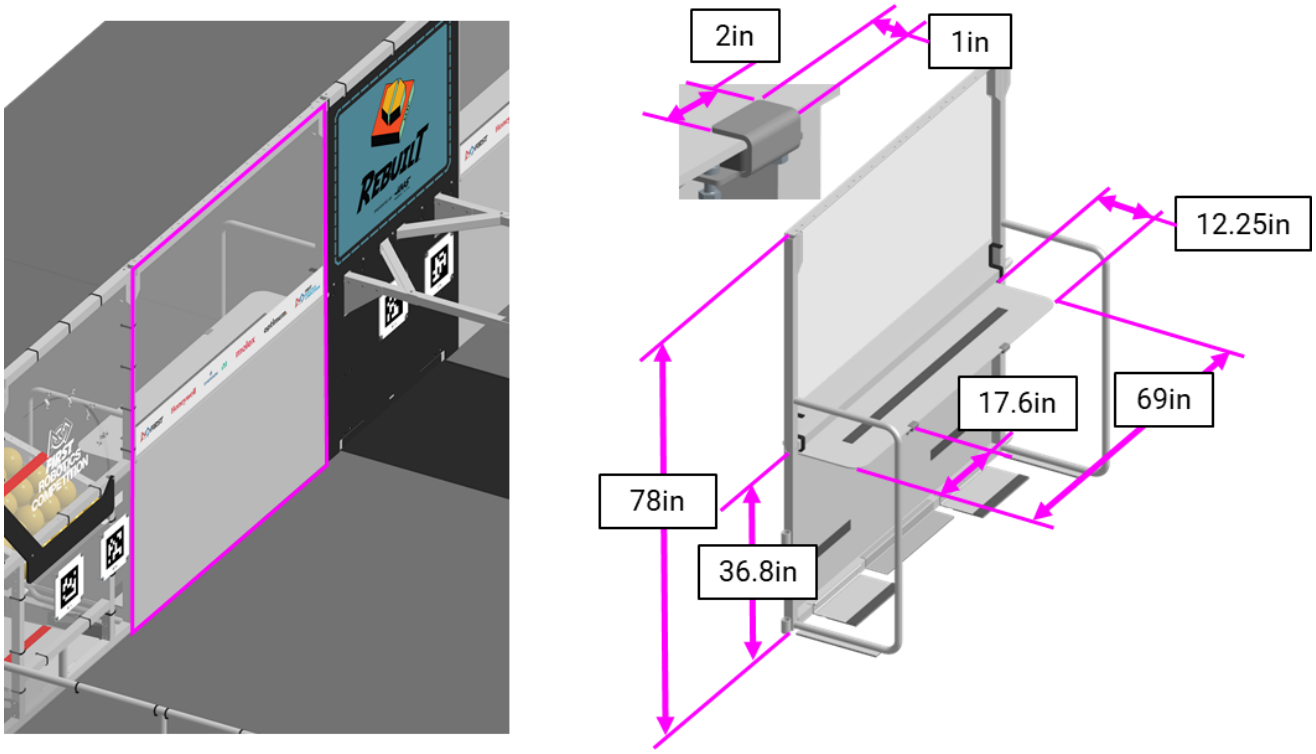
The ALLIANCE WALL separates ROBOTS from DRIVE TEAM members in the ALLIANCE AREA. It consists of 3 DRIVER STATIONS, an OUTPOST, and a TOWER WALL.

Figure 5-14: ALLIANCE WALL



5.9.1 DRIVER STATIONS

Figure 5-15: DRIVER STATION (ALLIANCE AREA perspective and FIELD perspective)



A DRIVER STATION is 1 of 3 assemblies within an ALLIANCE WALL behind which a DRIVE TEAM operates their ROBOT. Each DRIVER STATION is made from a 36.8in (93.5cm) tall diamond plate base topped with a 42in (1.07m) tall transparent plastic sheet and a top rail.

An aluminum shelf is attached to each DRIVER STATION to support an OPERATOR CONSOLE. The shelf is 69in (1.75m) wide and 12.25in (31.1cm) deep. There is a 54.0in (1.372m) long by 2.0in (nominal) wide strip of hook-and-loop tape (“loop” side) along the center of the support shelf that may be used to secure the OPERATOR CONSOLE to the shelf. The shelf also includes two clips to hold the shelf in place with a 1.0in (2.5cm) wide by 2.0in (5.1cm) deep tab that sits on the top surface of the shelf.

There is a 6.0in (15.2cm) tall sponsor panel in each DRIVER STATION. The top of this panel is 42.9in (1.09m) from the carpet.

> There may be a ramp available at events for DRIVE TEAMS with limited mobility. It is designed to allow an individual using a wheelchair to access the DRIVER STATION shelf and/or see onto the FIELD; however, this accommodation is available to anyone who has a wheelchair or other physical disability that obstructs their view of the FIELD. Teams should speak to the FTA before MATCHES begin to ensure that it is available for each of the team’s MATCHES.
>
> This ramp is available at many Regional and District events. For questions, please connect with the local Program Delivery Partner.
>
> Teams should also speak to the FTA for any other FIELD side accommodations needed.

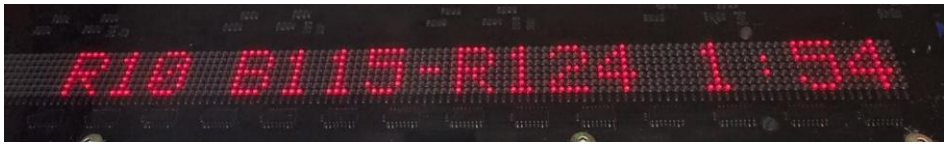
Each DRIVER STATION contains the following elements for DRIVE TEAMS:

- 1 Ethernet cable: attaches to the Ethernet port of the OPERATOR CONSOLE and provides connectivity to the FIELD Management System (FMS).
- 1 120VAC NEMA 5-15R power outlet (i.e. standard US outlet): located on each DRIVER STATION shelf and protected by its own 2-Amp circuit breaker. It can be used to power the OPERATOR CONSOLE. DRIVE TEAMS are responsible for monitoring their power consumption as a tripped breaker in the outlet does not constitute an ARENA FAULT. For some events in regions that don't use NEMA 5-15 shaped outlets, event organizers may install appropriate plug adapters to be used throughout the event.
- 1 Emergency Stop (E-Stop) button: located on the left side of the DRIVER STATION shelf and is used to deactivate a ROBOT in an emergency.
- 1 Autonomous Stop (A-Stop) button: located on the right side of the DRIVER STATION shelf and is used to DISABLE a ROBOT during AUTO.
- 1 team sign: located at the top of each DRIVER STATION. The FIELD facing side of the sign displays the team number in the ALLIANCE color. The ALLIANCE AREA side of the sign displays the following information in red:
    - Pre-MATCH: team number and ROBOT connection state
    - During Qualification MATCHES:
        - Current SHIFT and time remaining in that period,
            - A shows for AUTO when both ALLIANCE's HUBS are active
            - T shows for the TRANSITION SHIFT when both ALLIANCE's HUBS are active
            - R shows when the Red ALLIANCE'S HUB is active
            - B shows when the Blue ALLIANCE'S HUB is active
            - E shows for END GAME when both ALLIANCE's HUBS are active
        - Progress towards the FUEL Ranking Points. This shows total scored out of the ENERGIZED RP and once that threshold passes it shows out of the SUPERCHARGED RP
        - AUTO TOWER points, and
        - remaining MATCH period time.

Figure 5-16 Back of team sign (during Qualification MATCH)

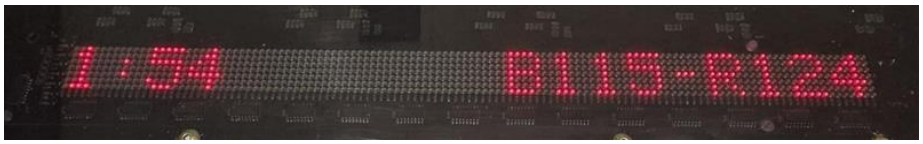
    - During the MATCH during Playoff MATCHES:
        - Which MATCH period is active and time remaining in that period,
        - MATCH scores, and
        - remaining MATCH period time.

Figure 5-17 Back of team sign (during Playoff MATCH)



- 1 timer (in DRIVER STATION 2 only): displays the official time remaining in the MATCH period on the FIELD-facing side (in white) and on the team facing side the following information in red:
  - remaining MATCH period time, and
  - MATCH scores.

Figure 5-18 Back of timer



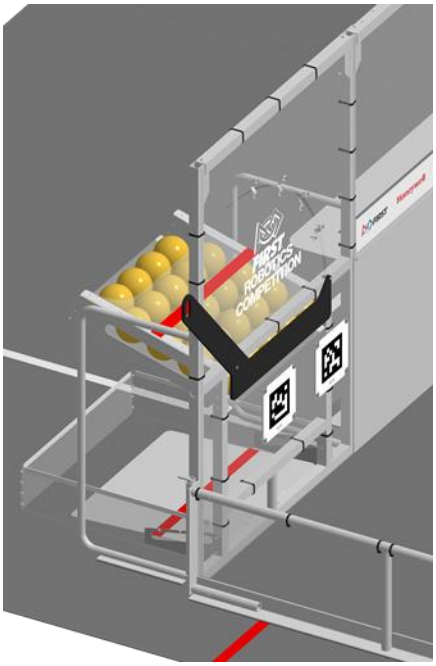
- 1 team LED stack: indicates ALLIANCE color, ROBOT status, E-Stop and A-Stop status, and is centered at the top of each DRIVER STATION.

  The stack includes 2 identical ALLIANCE-colored ROBOT status LEDs above a third amber A-stop/E-stop LED. LED states are as follows:

  - ROBOT status LEDs
    - Solid: indicates that the ROBOT is connected and enabled. This only happens during a MATCH.
    - Blinking: indicates that either the FMS is preset for the MATCH and the ROBOT is not connected yet, or it's during a MATCH and the corresponding ROBOT has lost connectivity, or the E-stop was pressed.
    - Off: indicates that the ROBOT is linked and DISABLED prior to the start of the MATCH, or the ROBOT is BYPASSED. This light is also off, regardless of ROBOT connection status, after the MATCH has concluded.
  - A-Stop/E-stop LED
    - Solid: the ROBOT is DISABLED due to a press of the team E-stop button, the FIELD E-stop button, or by the scorekeeper via the FMS.
    - Blinking: the ROBOT is DISABLED for the remainder of AUTO due to a press of the team A-Stop button.
    - Off: the ROBOT is not DISABLED by the FIELD.
- FMS hardware and wiring: mostly located below shelves in the 2 DRIVER STATIONS closer to the scoring table.

5.9.2 OUTPOST

Figure 5-19 OUTPOST



An OUTPOST is an assembly through which HUMAN PLAYERS feed FUEL into the FIELD and ROBOTS can deliver FUEL to their HUMAN PLAYERS. There are 2 OUTPOSTS, 1 on either end of the FIELD connecting the guardrail to the ALLIANCE WALL. Each OUTPOST has a 31.8in (80.8cm) wide by 7.0in (17.8cm) tall opening through which FUEL passes to the FIELD. The bottom of the opening is 28.1in (71.4cm) off the floor.

A 15.0° sloped tunnel, called the CHUTE, leads to the upper opening in the OUTPOST. The CHUTE can hold approximately 25 FUEL at a time retained by the CHUTE DOOR. The CHUTE DOOR is an HDPE arm on a pivot that can be rotated approximately 90 degrees by the HUMAN PLAYER to open or close the CHUTE.

At the base of the OUTPOST is an opening 32.0in (81.3cm) wide by 7.0in (17.8cm) tall where ROBOTS can push FUEL into the CORRAL. The bottom of the opening is 1.88in (4.77cm) off the ground. The opening is divided in the center by a vertical 1-1/4in Sch 40 (1.66in (4.216cm) OD) pipe. The CORRAL is made up of 8.13in (20.6cm) tall polycarbonate panels that create a 35.8in (90.8cm) wide, 37.6in (95.5cm) deep area on the floor in which FUEL can be stored.

The CHUTE and CORRAL each feature an ALLIANCE-colored tape line that indicates where DRIVE TEAMS may be restricted from reaching. The near edge of the CORRAL tape is 12.7in (32.3cm) from the FIELD-facing wall of the OUTPOST. The near edge of the CHUTE tape line is 12.9in (32.8cm) from the FIELD-facing wall of the OUTPOST.

> There are 2 stools available at events for DRIVE TEAMS to use. Each stool is 23.0in (58.42cm) wide by 13.5in (34.29cm) deep, 6.25in (15.88cm) tall, and rated for 300lb (136.0kg).
>
> It is specially intended to allow individuals who are shorter, better sightlines onto the FIELD; however, this accommodation is available to anyone who has another physical disability that obstructs their view of the FIELD.

Only 2 stools are available, and priority will be given to those with the biggest need. Teams should speak to the FTA before MATCHES begin to request that it is available for each of the team's MATCHES. Teams may also purchase their own (Item Number: 779ac01stpm) or bring an equivalent (e.g. not foldable and similar dimensions) version to the event to guarantee use for every match.

This stool is available at all events within the US & Canada and equivalents are available at international events. For questions, please connect with the local Program Delivery Partner.

5.10 SCORING ELEMENTS

SCORING ELEMENTS are items that teams use to score points. There is one type of SCORING ELEMENT used in REBUILT: FUEL.

In REBUILT, a ROBOT may CONTROL any number of SCORING ELEMENTS after the start of the MATCH.

5.10.1 FUEL

Figure 5-20 FUEL

A FUEL is a 5.91in (15.0cm) diameter, high density foam ball. FUEL is a custom made SCORING ELEMENT available for purchase on the AndyMark website, am-5801.

FUEL has a weight of between 0.448-0.500lb (~0.203-0.227kg).

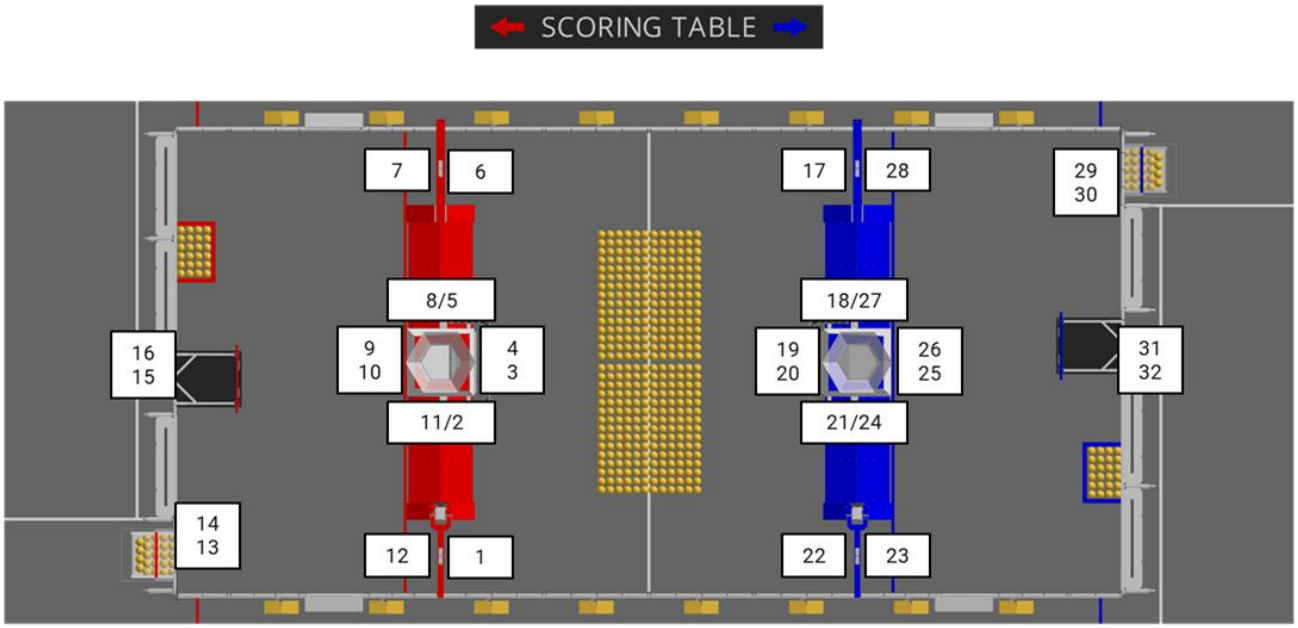
FUEL undergoes wear and tear during a competition. Generally, a FUEL that still appears to look approximately like a FUEL is considered a FUEL for the purposes of rule evaluation and scoring, whether damaged or not. Small chunks of a FUEL are not considered a FUEL.

Most new FUEL will have small impressions due to being pressed against other FUEL or the sides of the packaging during shipping. These impressions are purely cosmetic and do not affect the function of the FUEL. Most impressions will gradually disappear as the FUEL is used.

5.11 AprilTags

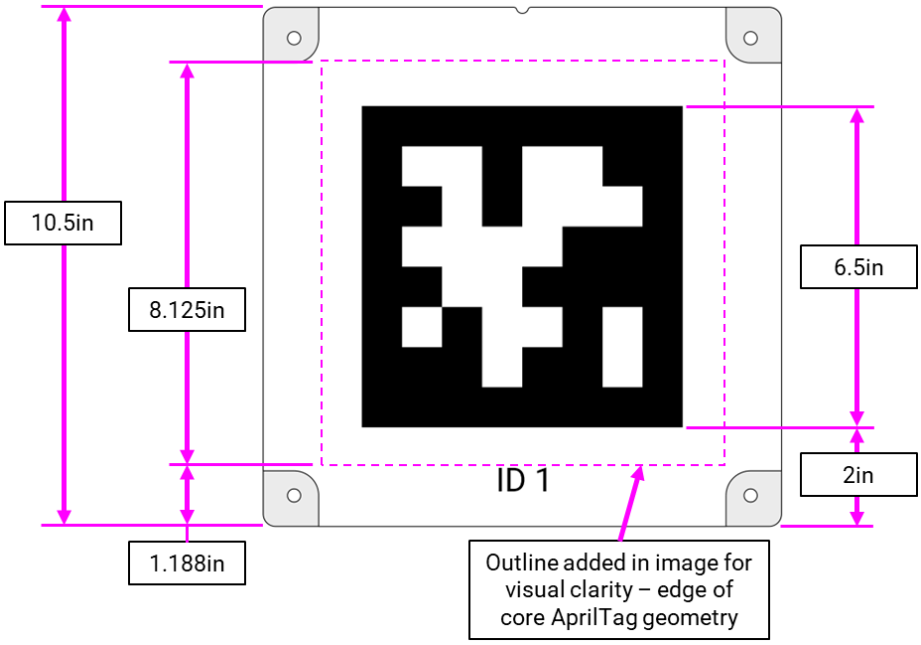
AprilTags are 8.125in (20.64cm) square targets located on the HUB, TOWER WALL, OUTPOST, and TRENCHES. There are 32 unique markers on the FIELD positioned as shown in Figure 5-21.

Figure 5-21 AprilTag Locations



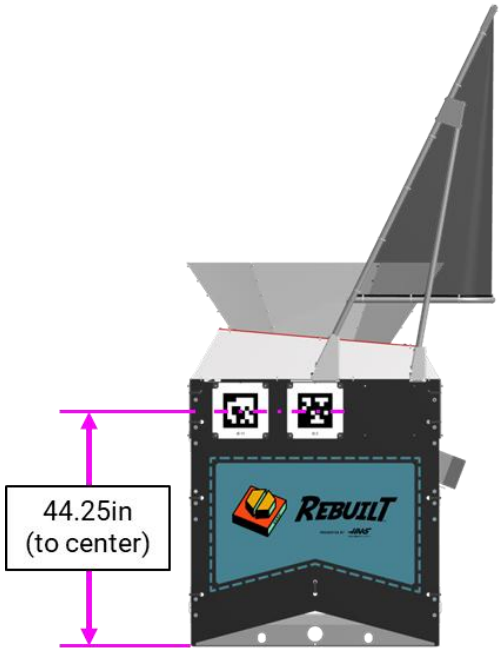
All markers are from the 36h11 tag family, IDs 1-32. All AprilTags are mounted to and centered on a 10.5in (26.67cm) square polycarbonate panel. Each marker has an identifying text label. If AprilTags experience wear and marking during MATCHES they are repaired with gaffers tape.

Figure 5-22 AprilTag sizing



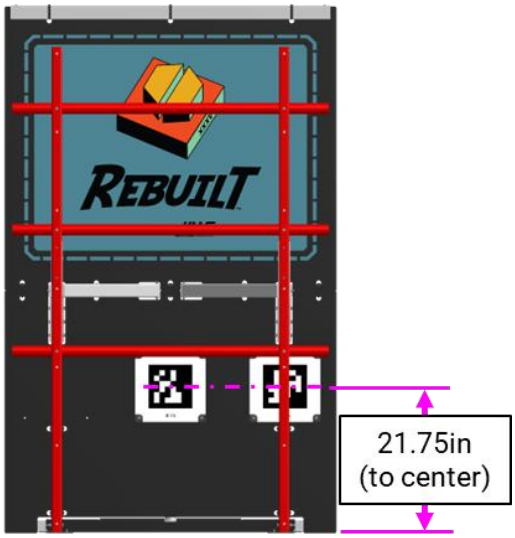
HUB AprilTags (IDs 2, 3, 4, 5, 8, 9, 10, 11, 18, 19, 20, 21, 24, 25, 26, 27) are located on all four faces of the HUB. Each face has two AprilTags with centers located 44.25in (1.124m) off the floor as shown in Figure 5-23. One AprilTag per face is centered and the other AprilTag is horizontally offset.

Figure 5-23 HUB AprilTags



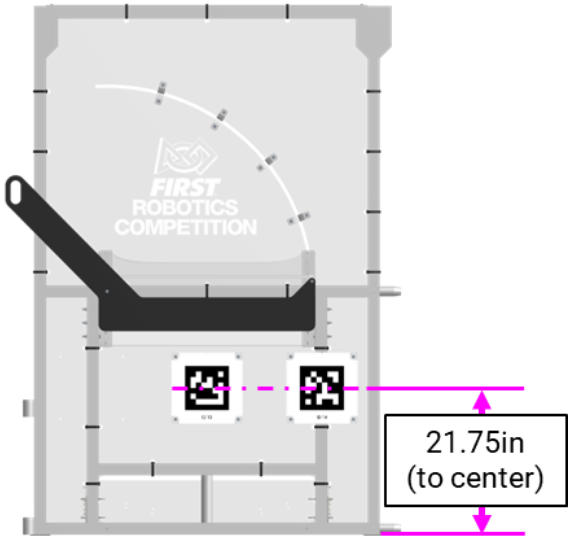
Two AprilTags (IDs 15, 16, 31, 32) are located on each TOWER WALL with centers 21.75in (55.25cm) off the floor as shown in Figure 5-24. One AprilTag per TOWER is centered and the other AprilTag is horizontally offset.

Figure 5-24 TOWER WALL AprilTags



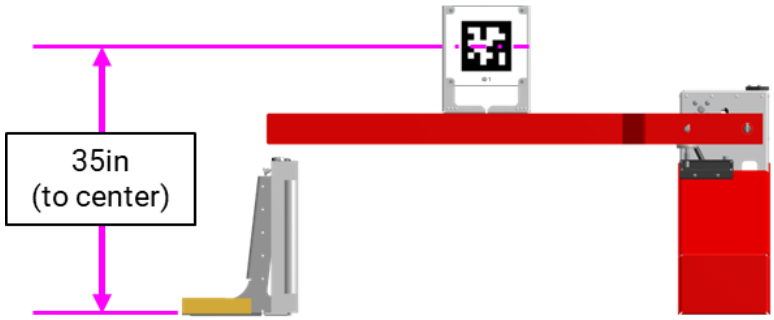
Two AprilTags (IDs 13, 14, 29, 30) are located on each OUTPOST with centers 21.75in (55.25cm) off the floor as shown in Figure 5-25. One AprilTag per OUTPOST is centered with the CHUTE and CORRAL openings and the other AprilTag is horizontally offset.

Figure 5-25 OUTPOST AprilTags



TRENCH AprilTags (IDs 1, 6, 7, 12, 17, 22, 23, 28) are attached to mounting brackets located on the top surface of the horizontal arm of the TRENCH. Each TRENCH has two AprilTags, one facing the ALLIANCE ZONE and one facing the NEUTRAL ZONE. TRENCH AprilTags are approximately centered on the opening under the TRENCH arm and their centers are located 35in (88.9cm) off the floor as shown in Figure 5-26.

Figure 5-26 TRENCH AprilTags



For further marker locating information please refer to the 2026 Field Dimension Drawings. Printable copies of the field AprilTags can be found on the Playing FIELD webpage.

5.12 The FIELD Management System

The FIELD Management System (FMS) is all the electronics responsible for sensing and controlling the *FIRST* Robotics Competition FIELD. The FMS encompasses all FIELD electronics, including computers, REFEREE touchscreens, the wireless access point, sensors, stack lights, A-Stops and E-Stops, etc.

When a DRIVE TEAM connects the Ethernet cable from their assigned DRIVER STATION to their OPERATOR CONSOLE, the Driver Station Software on the OPERATOR CONSOLE computer communicates with FMS. Once connected, the open ports available are described in Table 8-5.

Note that ROBOT code cannot be deployed while connected to the FMS. Additional information about the FMS may be found in the FMS Whitepaper.

The FMS alerts participants to milestones in the MATCH using audio cues detailed in Table 5-4. Please note that audio cues are intended as a courtesy to participants and not intended as official MATCH markers. If there is a discrepancy between an audio cue and the FIELD timers, the FIELD timers are the authority.

Table 5-4: Audio Cues

Event	Timer Value(s)	Audio Cue
MATCH start	0:20 (for AUTO)	“Cavalry Charge”
AUTO ends	0:00 (for AUTO)	“Buzzer”
TELEOP & TRANSITION begins	2:20	“3 Bells”
ALLIANCE SHIFT starts	2:10 1:45 1:20 0:55	None
END GAME begins	0:30	“TBD”
MATCH end	0:00	“Buzzer”
MATCH stopped	n/a	“Foghorn”

5.13 FIELD STAFF

FIELD STAFF are responsible for making sure the MATCHES are cycled through efficiently, fairly, safely, and with a spirit of cooperation, *Gracious Professionalism*, and generosity of spirit. FIELD STAFF roles are filled by volunteers from the community who prepare for the event with thorough training and certification. There are 3 FIELD-side key volunteer roles with whom teams should be familiar and are encouraged to use as resources to make their event experience valuable (in whatever way the team defines "valuable").

- **Head REFEREE** – trains, directs, and supervises REFEREES. They oversee all scoring processes and procedures in collaboration with the *FIRST* Technical Advisor (FTA). They interact with STUDENTS, volunteers, and contracted/*FIRST* staff. The Head REFEREE is positioned between the FIELD and the scoring table and wears a yellow shirt. The Head REFEREE has final authority for decisions regarding MATCH scores, penalties, and YELLOW and RED CARD assignments. For additional details, please refer to the Head REFEREE role description.
- ***FIRST* Technical Advisor (FTA)** - ensures events run smoothly, safely, and in accordance with *FIRST* requirements. The FTA collaborates with *FIRST* staff, event staff, and other event volunteers in many different areas at events. The FTA is the liaison between *FIRST* HQ and the event for all things related to the FIELD, ROBOTS, and game, acts as a team advocate for all teams competing at the event and is a major point of escalation and conflict resolution for the event. For additional details, please refer to the FTA role description.
- **FIELD Supervisor** - directs activity on the FIELD to ensure efficient execution of the MATCHES, pacing of the event, and smooth flow of MATCH play. FIELD Supervisors are responsible for ensuring the FIELD is intact and lead FIELD Reset teams, who are responsible for resetting the FIELD after each MATCH in preparation for the subsequent MATCH. For additional details, please refer to the FIELD Supervisor role description.