

Team Update 06

General

VH-109 Radio Firmware Update

Vivid-Hosting has released a [critical firmware update](#) for the VH-109 radio and recommends that all teams update to version 1.2.8 as soon as possible.

This version further resolves a potential memory corruption issue which was initially mitigated by earlier firmware updates as mentioned in the [November radio firmware blog](#). At events, the radio kiosk will check for the latest firmware version and update the radio if necessary.

OpenMesh Team Radio Configuration Utility Update

A 2025 version of the [Team Radio Configuration Utility for OpenMesh](#) radios has been posted. This update allows for the configuration of team numbers > 9999 and allows the tool to utilize Java installations from 2025 WPILib.

Game Manual

8.4 BUMPER Rules

R404 ***BUMPERS must be soft.** Hard parts of BUMPERS must not extend more than 1 ¼ in. (~31 mm) from the ROBOT PERIMETER. Only padding (per R402-A), cover (per R402-C, including any coatings or markings), and soft fasteners used to secure padding or cover are permitted beyond this limit. Padding must extend at least 2 in. (~51 mm) beyond any hard parts of the BUMPER.

Team Update 05

General

N/A

Game Manual

7.4.2 SCORING ELEMENTS

G412 Only throw CORAL if in your REEF ZONE A ROBOT may not launch CORAL unless their BUMPERS are partially in their REEF ZONE.

Violation: MAJOR FOUL.

A CORAL is considered launched if it is shot into the air, kicked across the floor, or thrown in a forceful way.

This rule is not intended to penalize typical movement of CORAL outside an ALLIANCE'S REEF ZONE which come to rest a short distance (approximately 3 ft. (~92cm)) from the ROBOT.

Examples of such actions could be but are not limited to:

- A. Running an intake in reverse causing a CORAL to travel a short distance from the ROBOT
- B. A ROBOT pushing a CORAL a short distance away in the process of herding it across the FIELD

14.4 Load-In

E401 *Load in during Load-In. Teams may not bring the ROBOT or ROBOT elements into the event after the designated Load-In period. Exceptions are as follows:

- A. exceptions listed in [R302](#)[R304](#)

Team Update 04

General

ALGAE Update

As noted in [this blog](#) both the clamshell and crosshatch ALGAE are approved for use for the 2025 season.

While we are unable to test or predict the various ways teams may interact with the ALGAE, generally mechanisms which are very sensitive to the surface characteristics (such as a vacuum seal) or stiffness (such as pinching ALGAE tightly) of ALGAE may be more susceptible to variance between the two ALGAE types. All inflated game pieces, included those with the same surface texture, typically have some variance. We encourage teams to test their ALGAE on both ends of the diameter specification to ensure their mechanisms work as intended.

At official *FIRST* events, only the crosshatch ALGAE will be used due to the availability that *FIRST* has on hand, production lead times, and to ensure that all teams have a similar experience with the ALGAE used at events.

Additionally, one or more crosshatch ALGAE will be available for use on the practice areas at official events for teams to test with. This ALGAE must be kept at the practice area and shared amongst teams.

We profusely apologize for this error and know this is not ideal for anyone. We will take lessons learned from this season and work towards improving our game piece sourcing and quality control in the future.

Awards

The [Submitted Award webpage](#) was updated to add the character count for the optional executive summary question for the *FIRST* Impact Award.

Game Manual

14.5 Pits

A team pit is the designated space, usually 10 ft. by 10 ft. by 10 ft. (~3 m x 3 m x 3 m), where a team may work on their ROBOT. Each team is assigned a pit space marked with their team number. This helps team members, judges, and visitors find teams easily. Each team pit has a ~~table and~~ power outlet **and a table may be provided.**

Team Update 03

General

N/A

Game Manual

Section 5.6.1 DRIVER STATIONS

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. **Due to space constraints, the ramp is not allowed to be used in the PROCESSOR AREA.** 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](#).

Section 5.6.2 CORAL STATION

There are 2 stools available at events for DRIVE TEAMS to use. Each stool is 1 ft. 11 in. (~58 cm) wide by 1 ft. 1½ in. (~34 cm) deep, 6¼ in. (~16 cm) tall, and rated for 300 lbs. (~136 kg).

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. **Due to space constraints, stools are not allowed to be used in the PROCESSOR AREA.**

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](#).

Section 6.3.4.2 ALGAE

18 ALGAE are staged for each MATCH as follows (reference [Figure 6-2](#)):

- A. 6 ALGAE are staged on pairs of BRANCHES as shown in [Figure 6-3](#) (12 total) **such that they are placed lightly onto the REEF**, and
- B. 1 ALGAE is placed on top of each CORAL staged on a CORAL MARK (6 total).

Staged ALGAE will not contact CORAL placed on L4.

Section 6.5.1 SCORING ELEMENT Scoring Criteria

A CORAL is scored on L2-L4 BRANCH if the BRANCH is inside the volume of the CORAL and the CORAL is not in contact with a ROBOT **on that ALLIANCE** or an ALGAE. Only 1 CORAL can be scored per BRANCH.

An ALGAE is scored in a PROCESSOR once it has passed through the opening of the PROCESSOR and by the sensor array. An ALGAE is scored in a NET if it is above the NET, **contacting the NET or ALGAE contacting the NET, and not in contact with a ROBOT on that ALLIANCE** and ~~within the perimeter of the NET.~~

Section 6.5.2 ROBOT Scoring Criteria

To qualify for CAGE points, a ROBOT must be contacting a **one and only one** CAGE (~~with the exception of the ANCHOR~~ **and not touching any ANCHOR**), not contacting the carpet, and may additionally contact only the following elements:

- A. SCORING ELEMENTS,
- B. another ROBOT qualified for CAGE points,
- C. a partner ROBOT contacted by an opponent in violation of G428, and
- D. an opponent ROBOT.

Section 6.5.4 Point Values

	Ranking Points
*CORAL RP - If at least 5 CORAL scored on each level. If Coopertition achieved, at least 5 CORAL must be scored on each of at least 3 levels	1

Section 6.6 Violations

Penalty	Description
ALLIANCE is ineligible for RP	An ALLIANCE is ineligible for the specified RP for that MATCH. This overrides any RP awarded through normal MATCH play or other rule violations.

Section 7.4.2 SCORING ELEMENTS

G409 1 of each at a time.

Excessive violations of CONTROL limits include, but are not limited to, simultaneous CONTROL of 3 or more SCORING ELEMENTS **CORAL** or frequent, greater than-MOMENTARY CONTROL (i.e. more than twice in a MATCH) ~~of 4 of 2~~ or more SCORING ELEMENTS **CORAL**.

G421 1 defender at a time. A **No more than 1** ROBOT may **be** not cross from its side of the FIELD (i.e. containing its REEF) and end on the opponent's side of the FIELD (i.e. containing the opponent REEF) **with its BUMPERS fully** outside and beyond the BARGE ZONES ~~if an ALLIANCE partner ROBOT'S BUMPERS are completely across the BARGE ZONES and on the opponent's side of the FIELD.~~

Violation: MINOR FOUL, and for every 3 seconds in which the situation is not corrected, a MAJOR FOUL is assessed.

Section 8.4 BUMPER Rules

R402 *BUMPER construction.

- C. Cover – Fabric **Cloth** (as noted in [R411](#)) which covers all outward, upward and downward facing surfaces of padding such that no padding is exposed to interaction with the FIELD or other ROBOTS.

All additional references to “fabric” have been changed to “cloth” in Section 8.4

R407 *BUMPERS shouldn't be wedges. BUMPERS must not act as wedges when interacting with other BUMPERS.

Examples of BUMPERS which act as a wedge include:

- A. BUMPERS utilizing softer foam towards the top of a BUMPER profile
- B. BUMPERS utilizing excessively rounded profiles such as a single semi-circle
- C. ~~BUMPERS with significantly rounded profiles near the top of the BUMPER ZONE (e.g. placing the top of a foam cylinder such that it ends right at or just above the BUMPER ZONE)~~
- D. BUMPERS with tapered or stepped padding such that the padding is thinner or thicker towards the top or bottom

Team Update 02

General

ALGAE Update

The ALGAE inflation spec has been updated. The SCORING ELEMENTS ([Drawings, CAD](#)) and ALGAE Inflation Jig ([Drawings, CAD](#)) have all been updated to reflect this change. Please see [this blog](#) with more details about the need for this change.

FIELD Drawings

The [Full drawing package](#) and [REEFSCAPE specific drawings](#) files have been updated to adjust ALGAE sizing.

CAD Models

The [SOLIDWORKS](#) and [STEP](#) files have been updated to reflect the change in ALGAE size and to add the CORAL holders.

Game Manual

Section 5.2 Areas, Zones, & Markings

ALLIANCE AREA: a 18 ft. 1¼ in. 30ft. wide by 13 ft. 10¾ in. 13 ft. 8¾ in. deep (~552 cm ~914 cm by 423 cm) infinitely tall volume formed by, and including the ALLIANCE WALL, CORAL STATION AREAs, the edge of the carpet, and white colored tape perpendicular to the DRIVER STATIONS Driver Stations.

CORAL STATION AREA: a 5 ft. 10⅞ in. wide by 13 ft. 10¾ in. ft 13 ft. 8¾ in. deep (~180 cm by 423 cm) infinitely tall volume bounded by the CORAL STATION, edge of carpet, and ALLIANCE AREA and white colored tape.

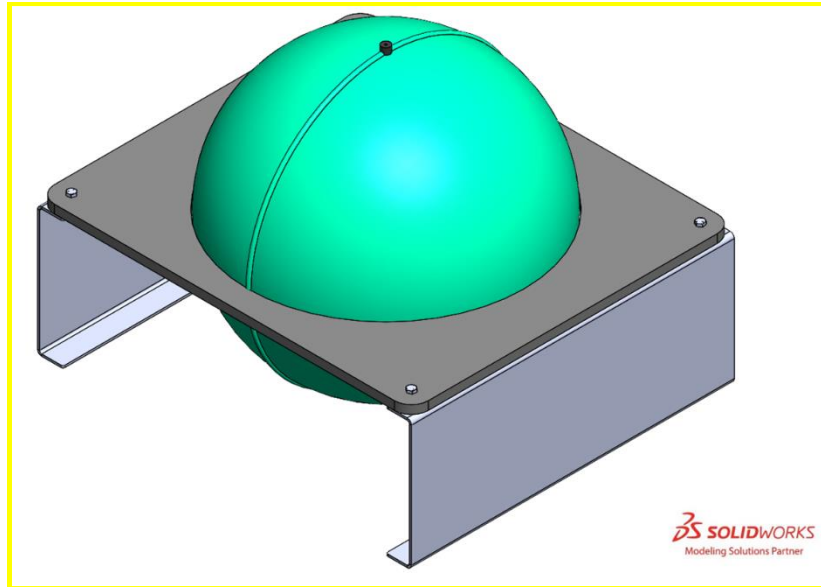
Section 5.7.2 ALGAE

Each ALGAE is a 16.25 in. (~413 mm) ± ¼ in. (~6 mm) 16 in. (41 cm) ± ½ in. (~12 mm) diameter rubber playground ball. The ball is custom made for FIRST by Baden Sports and sold by AndyMark [am-5602](#).

At events, ALGAE will be inflated using a sizing gauge so that the diameter measures between 15.5 in. (~39 cm) 16 in. (~406 mm) and 16.5 in. (~419 mm ~42 cm). The ALGAE and the jig will both be placed on a flat surface, and the ALGAE will be inflated with the valve sticking up vertically so that the seam is perpendicular to the large hole in the jig. It will be inflated until the two opposite points along the seam are contacting the top edge of the hole in the jig, which is 16.25 in. (~413 mm) diameter.

The tolerances to which ALGAE are manufactured allow for variances in diameter, wall thickness, weight distribution and overall weight. They may not always be uniformly spherical, roll straight, or bounce as expected.

Figure 5-21: ALGAE Inflation Jig



All subsequent figures numbers in Section 5 have been updated to reflect numbering change.

Section 6.2 DRIVE TEAM

If an ALLIANCE does not have at least 2 HUMAN PLAYERS, 1 of the ALLIANCE'S teams must substitute a STUDENT TECHNICIAN as a HUMAN PLAYER to be compliant with [Section 6.3.1](#) for that MATCH only. In this case,

- the Head REFEREE must be notified,
- all HUMAN PLAYER rules now apply to this DRIVE TEAM member, and
- this DRIVE TEAM member is no longer considered a TECHNICIAN for that MATCH.

Section 6.5.3 Coopertition Bonus

In Qualification MATCHES, if both ALLIANCES score at least 2 ALGAE in their PROCESSOR, if at least 2 ALGAE are scored in each ALLIANCE'S PROCESSOR, all teams earn 1 Coopertition Point, and the threshold for the CORAL RP decreases as described in [Table 6-2](#).

Section 6.5.4 Point Values

	Ranking Points	
AUTO RP - all enabled non-BYPASSED ROBOTS LEAVE and at least 1 CORAL scored in AUTO	1	

Section 6.8 Other Logistics

SCORING ELEMENTS that leave the FIELD, other than ALGAE via the PROCESSOR, are placed back into the FIELD approximately at the point of exit by FIELD STAFF (REFEREES, FTAs, or other staff working around the FIELD) at the earliest safe opportunity.

Section 7.4.1 AUTO

G402 *Let the ROBOT do its thing. In AUTO, a DRIVE TEAM member may not directly or indirectly interact with a ROBOT or an OPERATOR CONSOLE unless for personal safety, OPERATOR CONSOLE safety, or pressing an E-Stop or A-Stop. A HUMAN PLAYER feeding CORAL to a their ROBOT is an exception to this rule

G403 Limited AUTO opponent interaction. In AUTO, a ROBOT whose BUMPERS are completely across the BARGE ZONE (i.e. to the opposite side of the BARGE ZONE from its ROBOT STARTING ZONE LINE) may not contact an opponent ROBOT (either directly or transitively through a SCORING ELEMENT CONTROLLED by either ROBOT and regardless of who initiates contact).

Section 7.4.2 SCORING ELEMENTS

G409 1 of each at a time. A ROBOT may not simultaneously CONTROL more than 1 CORAL and 1 ALGAE either directly or transitively through other objects. A ROBOT is in CONTROL of a SCORING ELEMENT if:

- A. the SCORING ELEMENT is fully supported by or stuck in, on, or under the ROBOT or
- B. the ROBOT intentionally pushes a SCORING ELEMENT to a desired location or in a preferred direction (i.e. herding).

A ROBOT pushing scored CORAL on level 1 while attempting to score other CORAL is an exception to this rule.

Section 7.4.5 Human

G435 The PROCESSOR AREA has a storage limit. HUMAN PLAYERS may not store more than 4 ALGAE in the PROCESSOR AREA (up to 3 in the holders on top of the PROCESSOR and no more than 1 at the end of the PROCESSOR exit ramp). HUMAN PLAYERS making a good-faith effort to immediately enter additional ALGAE is an exception to this rule.

Violation: MAJOR FOUL per additional ALGAE.

10.6.1 ALLIANCE Selection Process

If there are multiple ALLIANCE CAPTAINS that have received pick-clock T605 violations, they are revisited in the same order in which they received their violations.

The ALLIANCE CAPTAIN with the last selection of a given round may not be the ALLIANCE CAPTAIN scheduled to have the final pick. For example, imagine in round 1 that ALLIANCES 1-6 have all made valid selections and ALLIANCE Lead 7 receives a pick-clock T605 violation. If ALLIANCE Lead 8 makes a valid selection, then ALLIANCE Lead 7 now has the final selection of round 1.

Section 14.6 Practice Areas

Teams are also expected to provide and place their own AprilTags if they would like to use them. FIRST is providing a small set of production run AprilTags for the Practice Field. The tags provided for the 2025

Practice Field will include tags 1, 3, 5, and 6. Teams that wish to use other AprilTag IDs for the Practice Fields may print copies of other tags to bring with them to events. Printable copies of the field AprilTags can be found on the [2025 Playing FIELD webpage](#).

Team Update 01

General

ALGAE variances

FIRST has received reports of different styles of ALGAE that may vary in texture, weight, and/or size. We are aware of this discrepancy and are investigating this further.

Team Field Versions

The ReadMe files for the BARGE and Pipe Base have been updated to include additional links to vendor parts.

Field Drawings

The [Field Layout and Markings Diagram](#) and the [Field Drawings](#) have been updated to clarify that the BARGE AprilTags are rotated in the Y-direction.

Kit of Parts

- The “Season Specific” box checklist has been updated with minor text edits.
- The “Gray Tote” checklist has been updated to remove duplicate item.

Replacements Parts System

There was an issue with the replacement parts system causing some Veteran teams to not see any items in the “Season Specific” box. If you ran into an issue with accessing this while requesting replacement parts, please try again. If you have already reached out to, FRCParts@firstinspires.org your request is in the queue and being processed.

Game Manual

Section 1.8 Translations & Other Versions

The REEFSCAPE manual is originally and officially written in English and is occasionally translated into other languages for the benefit of FIRST Robotics Competition teams whose native language may not be English. These assets are posted on the [Translated Manuals page](#).

Section 1.9 Team Updates

Team Update posts are scheduled as follows:

- each Tuesday and Friday, starting on the first Tuesday after Kickoff and ending on the Tuesday prior to Week 1 events
- each Tuesday, starting Week 1 and ending the week of **after** the final District Championship events.

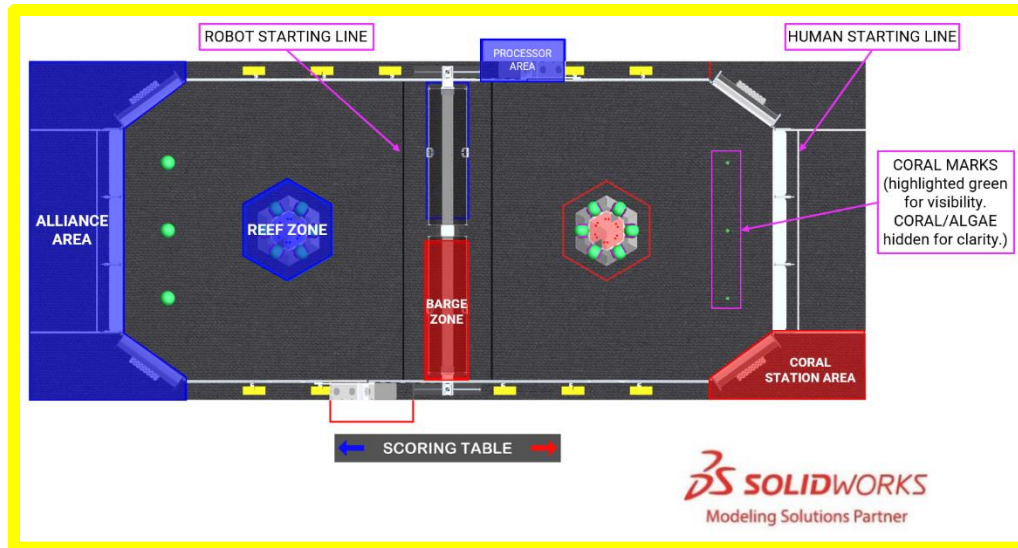
Section 5 ARENA

Link to [2025 ARENA Layout and Markings Diagram](#) has been updated.

Section 5.2 Areas, Zones, & Markings

Figure 5-4 adjusted to include CORAL STATION AREA within the ALLIANCE AREA.

Figure 5-4 Areas, markings, and zones



Section 5.3 REEF

Each REEF has 4 levels to score on: Level 1 (L1), Level 2 (L2), Level 3 (L3), and Level 4 (L4).

Section 5.4.1 CAGE

CAGES are 2 ft. tall and 7³/₈ in. wide (outside dimension) (~61 cm tall and ~19 cm wide) rectangular structures. Each CAGE is a welded structure made of 4 steel 1³/₈ in. 1 in. Schedule 40 pipes, a bottom plate, a top plate, and an eyebolt with fastening hardware. CAGES are suspended from the truss structure in specific locations as shown in Figure 5-9 and hang at shallow or deep positions according to the corresponding team's selection (see section 6.3.5 CAGES for details) such that the bottom of the cage is 3¹/₂ in. (~89 mm) and 2 ft. 5³/₈ in. (~75 cm) 2 ft. 6-1/8 in. (~77 cm) and 3-1/8 in. (~79 mm) from the carpet respectively. Deep CAGES are suspended using chain that is 19 links of 1/4-in. Grade 43 zinc plated chain.

Section 5.5 PROCESSOR

Once an ALGAE passes through the PROCESSOR, it rolls past a scoring sensor array and into the opponent's PROCESSOR AREA. The HUMAN PLAYER must To keep the PROCESSOR clear for scoring, the HUMAN PLAYER and can shift scored ALGAE on top of the PROCESSOR where there are designated ALGAE holders.

Section 6.3.1 DRIVE TEAMS

- B. For QUALIFICATION and PLAYOFF MATCHES only DRIVE TEAM members whose ROBOTS have passed initial, complete Inspection are present,

Section 6.5.1 SCORING ELEMENT Scoring Criteria

A CORAL is scored on L2-L4 BRANCH if the end of the BRANCH is inside the volume of the CORAL and the CORAL is not in contact with a ROBOT or an ALGAE. Only 1 CORAL can be scored per BRANCH.

Section 6.7.1 Question Box (Q)

While FMS tracks quantities of **MINOR and MAJOR FOULS**, FIRST instructs REFEREES to not self-track details about MINOR FOULS and MAJOR FOULS; as a result, REFEREES are not expected to recall details about what MINOR FOULS and MAJOR FOULS were made, when they occurred, and against whom.

Section 7.2 Conduct

G206 ***Don't violate rules for RPs.**

For example, if Team A on the blue ALLIANCE agrees with Team F on the red ALLIANCE to enter the blue BARGE ZONE during the last 20 seconds of a Qualification MATCH and wait to be contacted by Team F, and then both ROBOTS drive to the red BARGE ZONE so that Team A can contact Team F in their BARGE ZONE leading in both ALLIANCES being awarded the BARGE RP.

For example, if Team A on the blue ALLIANCE agrees with Team F on the red ALLIANCE to contact each other's CAGES in TELEOP resulting in both ALLIANCES being awarded the BARGE RP.

Section 7.3 Pre-MATCH

G303 ***Start your ROBOTS**

- C. has passed initial, complete inspection, i.e. it's compliant with all ROBOT rules (for exceptions regarding Practice MATCHES, see section [10.4 Practice MATCHES 9 Inspection & Eligibility](#)),

Section 7.4.3 ROBOT

G415 **Expansion limits.**

The intent of this rule is to prevent piling on a punitive response to a ROBOT that's already experienced hardship and not leveraging that hardship for gain. Examples for this rule include the following:

- A. a physical device on a team's ROBOT, whose purpose is to restrain their CORAL scoring arm from extending beyond the limit defined in B, breaks after a collision with another ROBOT. Provided the ROBOT does not use the now-too-long extension to score SCORING ELEMENTS, no violation is assigned.
- B. a vertical structural member of a ROBOT breaks at the bottom and rotates out such that it breaches the limit imposed in part B. The ROBOT then parks such that its extension blocks opponent ROBOTS from reaching their PROCESSOR. A MAJOR FOUL is issued.
- C. a latch restraining a launcher MECHANISM from extending above the limit defined in A breaks, allowing the MECHANISM to shift such that it's above the plane of other ROBOTS. The ROBOT uses this new height to get above a defender and score ALGAE in the BARGE. A MAJOR FOUL is issued.

G417 Watch your FIELD interaction. A ROBOT is prohibited from the following interactions with FIELD elements with the exception of CAGES (see section [7.4.2 SCORING ELEMENTS](#)).

Section 7.4.5 Human

G429 *No wandering.

C. a HUMAN PLAYER may not contact anything outside the area **ALLIANCE AREA or PROCESSOR AREA** in which they started the MATCH (i.e. the ALLIANCE AREA or PROCESSOR AREA), and

G432 *Humans: use SCORING ELEMENTS as directed

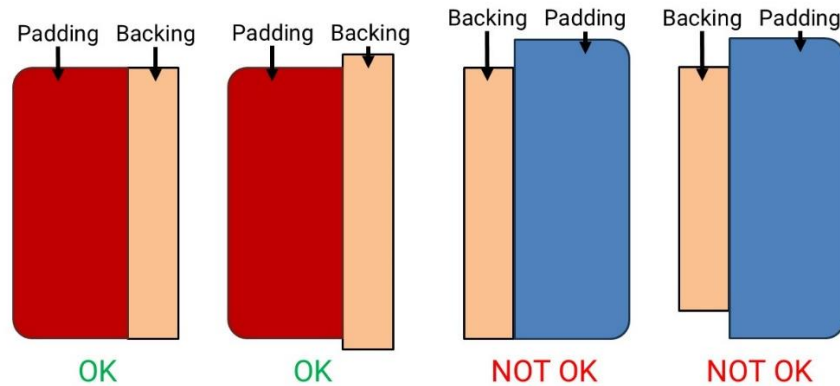
Examples include, but are not limited to:

- a HUMAN PLAYER uses an ALGAE to disrupt an opponent ROBOT
- leaving ALGAE in the PROCESSOR such that multiple stack up in the PROCESSOR exit

Section 8.4 BUMPER Rules

R402 *BUMPER construction.

Figure 8-4 BUMPER backing supporting padding (cross section)

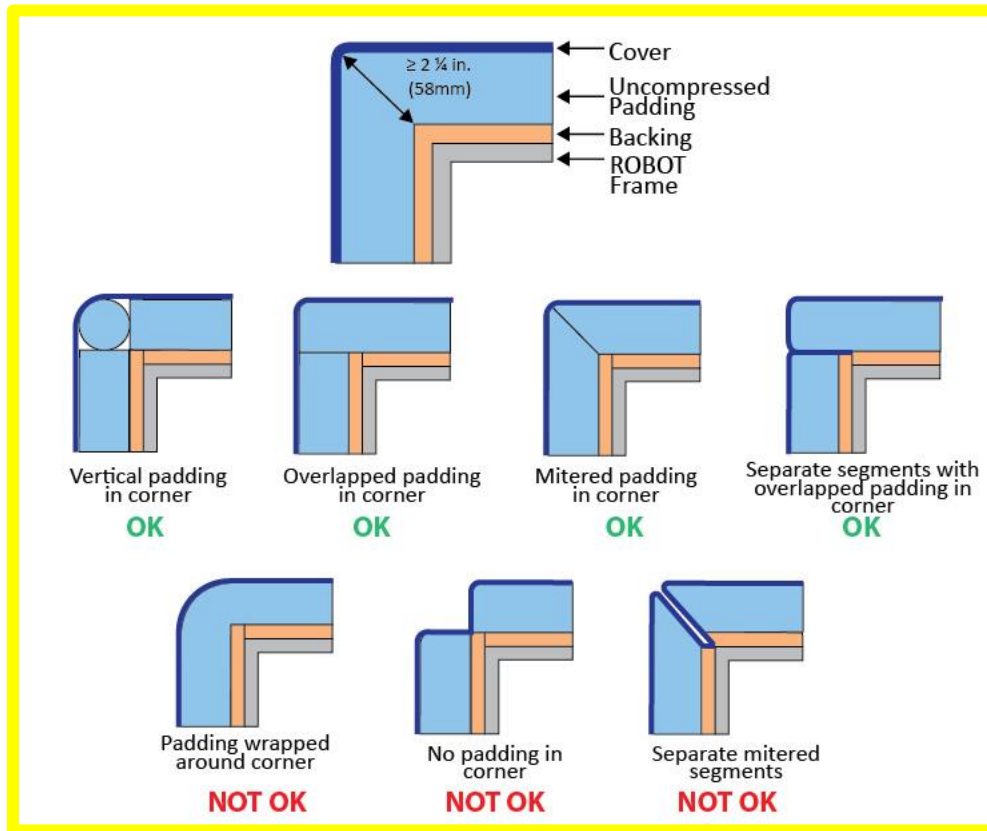


C. Cover – Fabric (as noted in [G411R411](#)) which covers all outward, upward and downward facing surfaces **of padding** such that no padding is exposed to interaction with the FIELD or other ROBOTS.

R406 *Fill BUMPER corners

Additional example added to figure 8-7

Figure 8-7 Uncompressed corner padding



Section 10.6.1 ALLIANCE Selection Process

T605 * Picks are time limited.

The time remaining on the pick timer is displayed on the FIELD timers. Please note that audio cues are intended as a courtesy to participants and not intended as official markers.

A valid team selection includes any team who has not yet accepted or declined an invitation to join another ALLIANCE and is not an ALLIANCE Lead that has had a pick timer violation. If an ALLIANCE CAPTAIN attempts to select a team that is not valid, the pick timer continues to run until it either expires, or a different (valid) team is invited to join the ALLIANCE.

Examples of good faith efforts to state a valid team selection include but are not limited to:

- A. Walking safely towards the Emcee when the clock hits zero
- B. Starting to state a team as the clock hits zero

Examples that are not considered good faith efforts to quickly become MATCH ready state a valid team selection include but are not limited to:

- C. Continuing to talk with your ALLIANCE partners without moving towards the Emcee
- D. Talking into the microphone for more than approximately 30 seconds without clearly stating a team number to invite

After each accepted ALLIANCE invitation or pick-clock **T605** violation, the emcee invites any ALLIANCE CAPTAINS that received a pick-clock **T605** violation in that round to make their selections. Each ALLIANCE CAPTAIN may either indicate that they are ready to make their selection (and immediately do so **as determined by the FTA or their designee**) or indicate that they are not yet ready, and they will be revisited after the next accepted invitation or pick clock violation. If there are multiple ALLIANCE CAPTAINS that have received pick clock **T605** violations, they are revisited in the same order in which they received their violations.

A break of 2 minutes (2:00) occurs between each round of selections. At the conclusion of the break, the ALLIANCE scheduled to make the next selection goes “on the clock” and their timer begins per **T603T605**.

Section 10.6.3.2 BACKUP POOL

After the top ranked ALLIANCE has made their final pick during ALLIANCE Selection, REFEREES **the lead queuer** will poll the remaining eligible teams. In rank order, REFEREES **the lead queuer will** invite remaining teams to accept or decline a position in the BACKUP POOL, i.e. the group of teams willing and able to join an ALLIANCE during the Playoff MATCHES, if needed, until up to 8 teams accept.

Section 11.2 District Championship Eligibility

Table 11-5 2025 District Championship Capacities (edited rows only)

District Championship	Capacity	Divisions
Pacific Northwest District Championship	4550	1
Peachtree District State Championship	5045	1

Section 11.5 FIRST Championship Eligibility

Table 11-8 District FIRST Championship and awards allocations (edited rows only)

District	Allocated FIRST Championship Slots	FIRST Impact Award Winners	Dean's List Award Finalists	Engineering Inspiration Award Winners	Rookie All-Star Award Winners	Woodie Flowers Award Finalists
FIRST Mid-Atlantic	23	32	4	2	1	2

Section 12 Regional Tournaments

Table numbers have been adjusted to match section number.

Section 14.1 General Rules

E102 *Be nice.

Repeated text deleted.

Section 15 Glossary

Term	Definition
LEAVE	a scoring accomplishment in which a ROBOT must move such that its BUMPERS no longer overlap its ROBOT STARTING LINE at the end of AUTO .

Team Update 00

General

Team Update 00 is provided as a quick reference of evergreen rule changes. The approach taken in this Team Update is to describe changes to content only. Editorial changes to verbiage, rule and section references, game specific examples that relate to evergreen content, and formatting changes are not described.

As always, it's important to read the whole manual at least once and become an expert on sections of the manual that directly relate to your role and responsibilities on your team. Teams are welcome to ask (thoughtful, informed) questions through the [official Q&A system](#), opening at noon (Eastern time) on January 8th, 2025.

Game Manual

General Updates

- The terminology for FOUL has been updated to MINOR FOUL, TECH FOUL has been updated to MAJOR FOUL, and GAME PIECE has been updated to SCORING ELEMENT to better align terminology between *FIRST* Tech Challenge and *FIRST* Robotics Competition.
- The terminology for FRAME PERIMETER has been updated to ROBOT PERIMETER.
- Violation wording style has been updated. Violations are stated in the first sentence. Any exceptions or additions to the first violation are noted with in subsequent sentences. All violations are per instance unless otherwise noted.
- Changes to evergreen content (i.e. rules with green headlines) are described below. Sections are presented according to the 2025 manual presentation, and rule references present the 2025 rule number first followed by the 2024 rule number as a reference.

Section 6 Game Details

- **Section 6.6** Table 6-3 Rule Violations has been updated and VERBAL WARNING added
- **Section 6.6.2 YELLOW and RED CARD application** card application timing has been consolidated prior to Qualification MATCHES.

Section 7 Game Rules

- **G203 → G203, Asking other teams to throw a MATCH – not cool.**
G204 → G204, Letting someone coerce you into throwing a MATCH – also not cool.
G205 → G205, Throwing your own MATCH is bad.
 - The violation changed from “Verbal warning, plus YELLOW CARD if subsequent violations during the event” to “**VERBAL WARNING. RED CARD if subsequent violations during the event**”
- **G206 → G206, Don't violate rules for RPs.**
 - Rule language has been updated to prohibit teams from colluding with *any* other team.
- **G207 → G207, Don't abuse ARENA access.**
 - The violation changed from “YELLOW CARD” to “**VERBAL WARNING. YELLOW CARD if subsequent violations during the event.**”
- **G208 → G208, Show up to your MATCHES.**

- Figure 7-1 has been updated to match the change made to I102.
- **G210 → G211, Don't expect to gain by doing others harm.**
 - The violation changed from "FOUL, plus TECH FOUL if REPEATED." to "MAJOR FOUL. YELLOW CARD if REPEATED."
- **G303 → G303, Start your ROBOTS.**
 - Violation has been updated from "If fix is a quick remedy, the MATCH won't start until all requirements are met. If it is not a quick remedy, DISABLED and, at the discretion of the Head REFEREE, must be re-inspected. If a ROBOT not compliant with part B participates, its ALLIANCE receives a RED CARD. If a ROBOT not compliant with part C participates, its team receives a RED CARD." to "If fix is a quick remedy, the MATCH won't start until all requirements are met. If it is not a quick remedy, DISABLED and, at the discretion of the Head REFEREE, must be re-inspected. If a ROBOT not compliant with part B or C participates, its team receives a RED CARD."
- **G407 → G406, Keep SCORING ELEMENTS in bounds.**
 - Violation has been updated from "TECH FOUL per NOTE" to "MINOR FOUL. If REPEATED, MAJOR FOUL."
- **G425 → G420, There's a 3-count on PINS.**
 - Rule language and violation has been updated to change 5 seconds to 3 seconds.
- **N/A → G434, COACHES, SCORING ELEMENTS are off limits.**
 - This rule has been readded for the 2025 season.

Section 8 ROBOT Construction Rules

- The terminology for FRAME PERIMETER has been updated to ROBOT PERIMETER.
- **Section 8.4 BUMPER Rules** has been re-written to attempt to make BUMPERS easier for teams to construct and provide options to increase protection. For more information about the motivation behind these changes, see [this document previously shared in a blog](#).
- **R101, ROBOT PERIMETER must be fixed.**
 - Example updated to a more realistic robot
- **R103, ROBOT weight limit.**
 - Robot weight reduced from 125 lbs. to 115 lbs.
- **R302, MAJOR MECHANISM, from this year only.**
 - This rule has been re-written from prohibiting FABRICATED ITEMS created before Kickoff with limited exceptions to only prohibiting MAJOR MECHANISMS created before Kickoff.
- **R304, During an event, only work during pit hours.**
 - Exceptions modified to be stated directly rather than referring to R302 where they no longer appear
- **R501, Allowable motors.**
 - Added CTR Electronics Minion, West Coast Products Kraken x44. These motors were also added to the table in **R505**.
 - Servo requirements changed from <\$75 to rotational servos with stall current ≤ 4A and mechanical output power ≤ 8W at 6V. Linear servos with max stall current ≤ 1A at 6V.
 - Electrical solenoid actuators and electromagnet requirements updated to allow any device downstream of a 20A breaker. These items were combined with the linear actuator line.
- **R504, Power (most) actuators off of approved devices**

- Added Koors40, TalonFXS, and Thrifty Nova motor controllers. Added REV Servo Hub servo controller, and to the list in **R506**.
- **Section 8.6 Power Distribution**
 - Rules updated throughout to include the CTR Electronics PDP 2.0
- **R602, Other batteries for cameras or computers only.**
 - Battery restrictions modified to 100Wh or less (27000mAh at 3.7V) with 5V/5A max output or 12V/5A max output using USB-PD per port. Batteries for powering CMOS/RTC feature no longer required to be coin cell.
- **R609, Connect main power safely.**
 - Updated to permit SB120 to SB50 adapters
- **R614, No high voltage allowed**
 - Updated to specify only measurable voltages are limited to 24V and to allow COTS Power over Ethernet devices as an exception.
- **R619, Only use specified circuit breakers in PDP/PDP2.0/PDH.**
 - Updated to permit ATM circuit breakers with values equal or less than the fuses permitted in R620.
- **Section 8.7 Control, Command & Signals System**
 - Rules **R702 to R704** updated to reflect the use of the Vivid Hosting VH-109 radio at most events and the OpenMesh OM5P radios at limited events.
 - Includes an increase in bandwidth limit to 7Mbps/second for events using VH-109 radios
- **R701, Control the ROBOT with a roboRIO.**
 - Updated to reflect current season roboRIO image 2025_v2.0
- **R707, Limited wireless allowed**
 - Updated to allow RFID or NFC devices completely within the robot
- **R716 → N/A, Connect the PDP/PDH to the roboRIO CAN bus.**
 - Removed
- **R901, Use the specified Driver Station Software.**
 - Updated to the 2025 Driver Station version, 25.0
- **R907, No AC inverters**
 - New rule prohibiting AC inverters on OPERATOR CONSOLES

Section 9 Inspection & Eligibility

- **I102 → I102, Get Inspected before playing a Qualification/Playoff MATCH**
 - Violation has been updated from “If prior to the start of the MATCH, the team is DISQUALIFIED and not eligible to participate in the MATCH. If after the start of the MATCH, the entire ALLIANCE receives a RED CARD for that MATCH.” to “If prior to the start of the MATCH, the team is DISQUALIFIED and not eligible to participate in the MATCH. If after the MATCH, the team receives a RED CARD and the MATCH may be replayed per T201”.

Section 10 Tournaments

- **Section 10.6.1 ALLIANCE Selection Process** has been updated as announced in [this blog](#).

Section 11 District Tournaments

- **Section 11.3** has been updated to clarify that the process for assigning teams to divisions balances need for accessible seating between divisions.

Section 12 Regional Tournaments

- **Section 12** is new and describes the new process for Regional teams advancing to the *FIRST* Championship as announced in [this blog](#).

Section 13 *FIRST* Championship

- **Section 13** has been updated to clarify that the process for assigning teams to divisions balances need for accessible seating between divisions.

Section 14 Event Rules

- **E116** is a new rule outlining that only COTS batteries are allowed at events.
- **G209 → E117 Enter only 1 ROBOT.**
 - This rule has been moved to the event rules section.
- **E304** has been removed.
- **E403 → E403, Load-In Restrictions**
 - Rule language has been updated to allow ROBOT and BUMPER weighing to the permitted activities (if available at your event).
- **Section 14.6 Practice Areas** is an entirely new section with rules for using Practice Areas at events.
 - **E601 → E117 Inspection for Practice Fields.**
 - **E602 → E107 Practice Only when/where permitted.**
 - These rules have been moved to the new section.