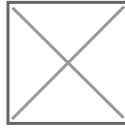


Q&A

VEXU 2019-2020: Tower Takeover



Welcome to the official VEX Robotics Competition Question & Answer system, where all registered teams have the opportunity to ask for official rules interpretations and clarifications. This Q&A system is the only source for official VRC Tower Takeover rules clarifications, and the clarifications made here from the Game Design Committee (GDC) are considered as official and binding as the written [Game Manual](#) itself.

Please review the [Q&A Usage Guidelines](#) before posting. This system is only intended for specific VRC Tower Takeover rules questions.

- For event, registration, or other competition support questions, please contact your [REC Foundation Regional Support Manager](#).
 - For VEX technical support, contact support@vex.com or sales@vex.com.
- For game questions, suggestions, or concerns outside of specific and official rules questions, contact GDC@vex.com.

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431: <SG3> Defense Strategy in Protection Zone

22-Nov-2019

G12 G14 SG3

Hi, First, I want to reference some previous rulings back in Nothing But Net Protection Zone. The climbing/loading zone in Nothing But Net received similar protection to Inner/Outer protection Zone this year. I know Q&A from previous rulings do not carry over but they may affect any rulings that will be made for this season. I am also referencing previous rulings in case any other teams want to check on any of the decisions made in the past.

<https://www.vexforum.com/t/answered-question-regarding-sg11/30136> It was ruled here that it is allowed to block opponents from entering the protection zone, and the opponent's robot is allowed to push the robots in an attempt to enter the zone.

<https://www.vexforum.com/t/answered-legal-defense-of-elevation/31912> It was ruled here that being pushed into the protection zone does not result in a violation if the robot being pushed in leave the zone immediately.

<https://www.vexforum.com/t/answered-forced-into-climbing-zone/33118> However, the decision was overturned here, robot being pushed into the zone DOES cause a violation here, even if the robot being pushed leaves the zone immediately.

Now comes to this year's game.

<SG3> Stay away from your opponent's protected areas. Robots may not intentionally or **accidentally**, directly or indirectly, perform the following actions:

A> Contact an opponent Robot which is fully contained within their Protected Zone.

B> Contact any Scored Cubes in either of opposing Alliance's Goal Zones.

D> Contact either of the opposing Alliance's Goal Zones or Barriers.

Minor violations of points A, B, C, or D that do not affect the Match will result in a warning. Match Affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.

E> Contact an opposing Alliance's Inner Protected Zone

F> Cause Scored Cubes within the opponent's Protected Zone to no longer meet the definition of Scored (i.e. "knock over their stack"). Any violation of points E, F, or G will result in a Disqualification, whether the interaction was Match Affecting or not.

<G12> a. VEX Robotics Competition Tower Takeover is intended to be an offensive game. Teams that partake in solely defensive or destructive strategies will not have the protections implied by <G12> (see <G13>). However, defensive play which does not involve destructive or illegal strategies is still within the spirit of this rule. d. Game elements in possession of a Robot are an extension of that Robot. Therefore, Entanglement (e.g., grasping, hooking, attaching) with Cubes that are in the possession of an opposing Robot is a violation of this rule.

<G14> **You can't force an opponent into a penalty.** Intentional strategies that cause an opponent to violate a rule are not permitted, and will not result in an infraction on the opposing Alliance. Minor violations of this rule that do not affect the Match will result in a warning. Match Affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.

Are robots allowed to park in the outer protection zone with the intention to block opponent robot from entering the inner protection zone?(Assume Case A is not met)

Will robots be in violation of Case D, E if the robots playing defense are being pushed into the inner protection zone/ by the opponents if they leave immediately upon being pushed into the inner zone?

Will robots be in violation of Case D if the robots playing defense are being pushed to contact the barrier/goal zone in the unprotected zone if they leave immediately upon being pushed into the barrier/goal zone?

Will robots be in violation of Case B,F if there are scored cubes in the goal zone, and robots playing defense are being pushed into the inner protection zone and touched/ knocked over a stack if they leave immediately upon being pushed into the inner zone?

Will the two robots playing defense in this scenario receive protection from G12? My interpretation is that since they are partaking in defensive strategy, they will not receive protection for trapping, is this interpretation correct?

SG3 does not supersede G14.

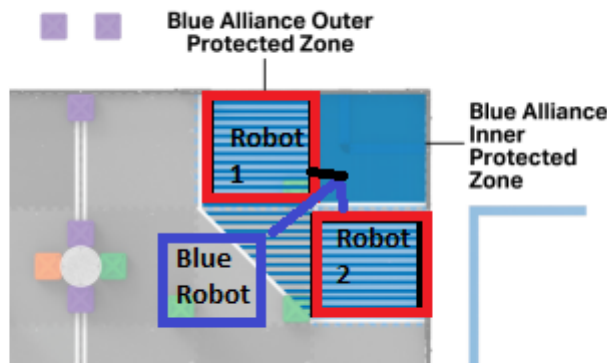


Figure 11: Close-up of a corner of the field, depicting the Protected Zones.

Answered by Game Design Committee

Are robots allowed to park in the outer protection zone with the intention to block opponent robot from entering the inner protection zone?(Assume Case A is not met)

There are no rules prohibiting this, thus it is legal.

Will robots be in violation of Case D, E if the robots playing defense are being pushed into the inner protection zone/ by the opponents if they leave immediately upon being pushed into the inner zone?

Will robots be in violation of Case D if the robots playing defense are being pushed to contact the barrier/goal zone in the unprotected zone if they leave immediately upon being pushed into the barrier/goal zone?

Will robots be in violation of Case B,F if there are scored cubes in the goal zone, and robots playing defense are being pushed into the inner protection zone and touched/ knocked over a stack if they leave immediately upon being pushed into the inner zone?

SG3 does not supersede G14. Therefore, it will be at the Head Referee's discretion whether this contact was solely the result of being pushed by their opponents. If this is the case, then it would not be considered a violation, provided that the defensive Robot makes immediate and visible attempts to leave the Inner Protected Zone.

That being said, it is impossible to provide a blanket answer that would cover all possible hypothetical interactions. G13, which states that offensive Robots receive the "benefit of the doubt", may be used liberally in these judgment calls. Therefore, in contrast with the above, a Head Referee may make the judgment call that G14 is not applicable, and an SG3 violation would result. Some scenarios that could drive this judgment call are as follows (although this is not a comprehensive list):

- A defensive Robot "baiting" an offensive Robot into causing contact
- A defensive Robot driving in a manner that causes accidental contact ("A Team is responsible for the actions of its Robot at all times" per G12)
- A defensive Robot not making an immediate and visible attempt to exit the Inner Protected Zone upon entry

Teams attempting a defensive strategy such as the one included in your attached image should be very cognizant of this possibility, and the risk they are taking in doing so.

Will the two robots playing defense in this scenario receive protection from G12? My interpretation is that since they are partaking in defensive strategy, they will not receive protection for trapping, is this interpretation correct?

We are not entirely sure what you mean by "protection for trapping". To be clear - if you are asking about an offensive Robot attempting to utilize their Goal Zone, if they will receive a Trapping count for confining the defensive Robots, then your interpretation is correct. Per G13, the offensive Robot should receive the "benefit of the doubt" and not receive a Trapping violation.

300: <RSC3> clarification for VEX U teams

13-Jun-2019

Other

In the VEX U appendix it states: All rules apply from VRC Appendix B – Robot Skills Challenge, with no modifications. VEX U Teams are permitted to use both Robots in their Robot Skills Challenge Matches, per <VUG1>, <VUG6>, and <VUR1>.

In the robot skills appendix: <RSC3> Prior to the start of each Robot Skills Matches, the Robot must use its one (1) Cube available as a Preload, per <SG1>. The **other three (3) Preloads**, and the two purple Match Loads, are not used in a Driving Skills Matches.

Since both robots are used in skills challenge for VEX U teams, does this imply that the interpretation should be that for VEX U teams, each robot must use its 1 cube as perload, the other **2 **preloads are not used in robot skills matches?

Ps. I think there is a typo at the end. I believe it should be robot skills matches as opposed to driving skills matches as it applies to both driver and programming skills.

Thanks in advance!

Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. Please see this similar Q&A post, which we believe answers your question, as well as being captured in the August Game Manual Update. If it does not, please feel free to rephrase and re-submit.

<https://events.vex.com/VRC/2019-2020/QA/321>

301: <RSC1>a. Starting side clarification for VEX U teams

13-Jun-2019

Other

<RSC1> a. Robots may start on either side of the field, as long as they fulfill the constraints set forth in <SG1> and <G7> for the chosen Alliance's side

As VEX U teams use two robots for robot skills, do both robots have to start on the same side of the field? For example, can one robot start from the red alliance side and the other robot start from the blue alliance side?

Thanks in advance!

Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. Please see this similar Q&A post, which we believe answers your question. If it does not, please feel free to rephrase and re-submit.

<https://events.vex.com/VRC/2019-2020/QA/409>

310: Clarification regarding "Stacked" status of cubes

24-Jun-2019

Other

The "Stacked Cube" definition (under "Scored"), and associated Figure 13:

- **Stacked Cube** - A Cube status. A Cube is considered a *Stacked Cube* if it meets the following criteria at the end of the *Match*:
 1. Contacting the *Top Surface* of a *Base Cube* or *Stacked Cube*.
 2. Not contacting the top of the field perimeter wall.
 3. Not contacting the *Top Surface* of any Cubes which are not *Scored*.



Figure 13: An example of a Goal Zone with Cubes are Scored (green checkmark) and not Scored (red "X"). This Cube is not Scored because it is being contacted by a Robot of the same Alliance color as the Goal Zone.

The text of the definition suggests that the top (orange) cube in the figure should **not** be considered "Stacked", because it is touching the top surface of a cube (purple) which is not scored (because it is in contact with a robot, as indicated in the figure caption). However, this contradicts the figure, which shows this cube as "Scored" (requiring it to be either "Stacked" or a "Base Cube"). We would assume that the figure has an error in this case; is that correct?

Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. However, we do not believe there is a discrepancy in this image/description; the top orange Cube has a red "X" over it, denoting that it is not Scored.

350: Programming platforms & Student Centered Policy

4-Sep-2019

Other

Hello,

I'd like to clarify the intent of this section of the [newly released REC Foundation Student Centered Policy](#):

Teams that utilize example code or custom libraries from outside sources should use caution. The program used in the robot should represent the students' design efforts and abilities. Blindly using code without understanding the code functionality is not consistent with the educational goals of this program. Students should be able to understand and explain the code used on their robots, and students should be able to demonstrate that they can program on par with the code included on their robot.

Specifically, does functionality included in and packaged/distributed with any of the official programming platforms (which from my understanding are VEXCode, RobotMesh Studio, and PROS) count as "custom libraries from outside sources"? Here are a few examples, in order of increasing ambiguity in my opinion, of features that could hypothetically be covered by this rule (with links to associated tutorials in PROS documentation):

- [smart motor functionality such as position and velocity control](#)
- [preemptive task scheduling and concurrency](#)

- [file i/o](#)
- [brain LCD control](#)
- [chassis control for various types of drives](#)
- [abstraction of autonomous drive motion](#)
- [filtering sensor input](#)
- [2D motion profiling](#)

There are various other examples that could be included, including work-in-progress features which are not yet released. I believe this question applies to all competitions and age groups, as the basic expectations as outlined in the policy are universal.

Thank you for your time.

Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. However, per the [Q&A Usage Guidelines](#), the Q&A system is intended for Game Manual rules clarifications only. For REC Foundation event and policy questions, please contact your [REC Foundation Regional Support Manager](#).

351: Enforcement of Student Centered Policy

4-Sep-2019

Other

Hello,

I have a question regarding the "REC Foundation Enforcement" section of the [newly released REC Foundation Student Centered Policy](#):

The goal of this guide is to communicate expectations to organizations and encourage an alignment of best practices within the community. The REC Foundation will evaluate concerns related to behaviors inconsistent with this policy per the Code of Conduct. Although it is never the desire to punish students for adult behaviors, it is imperative that organizations are held accountable to ensure fairness and increase the learning opportunities for students.

This section is vague regarding how organizations will be held accountable. Is my interpretation that this means that, under certain circumstances, teams may be disqualified from tournaments for actions falling under the "red" column of the policy?

Additionally, given the following excerpt:

If a student team member that has expertise on a specific portion of the robot design or programming cannot attend the VEX Worlds or an event that qualifies teams directly to VEX Worlds, the other attending team members should be prepared to share the knowledge and demonstrate functionality.

This is the first mention that I've seen anywhere of effectively requiring the students who built a robot to necessarily attend its events. How will the REC Foundation balance enforcement of this Policy with ensuring that teams are not unfairly penalized (in awards or via disqualification, etc as discussed above) for failing to have all team members understand the entirety of the robot? While this is obviously encouraged, it has never been required, and it has the potential to especially affect teams who take on the challenge of implementing more advanced mechanical and software concepts. Furthermore, how will unforeseeable absences (i.e. medical or other emergency)? While absences always have the potential of hurting a team's performance at events, I don't recall any previous policy having the potential to actively punish teams for it.

Thank you for your time.

Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. However, per the [Q&A Usage Guidelines](#), the Q&A system is intended for Game Manual rules clarifications only. For REC Foundation event and policy questions, please contact your [REC Foundation Regional Support Manager](#).

400: <SG2> What Cubes are robots allowed to contact in autonomous

29-Oct-2019

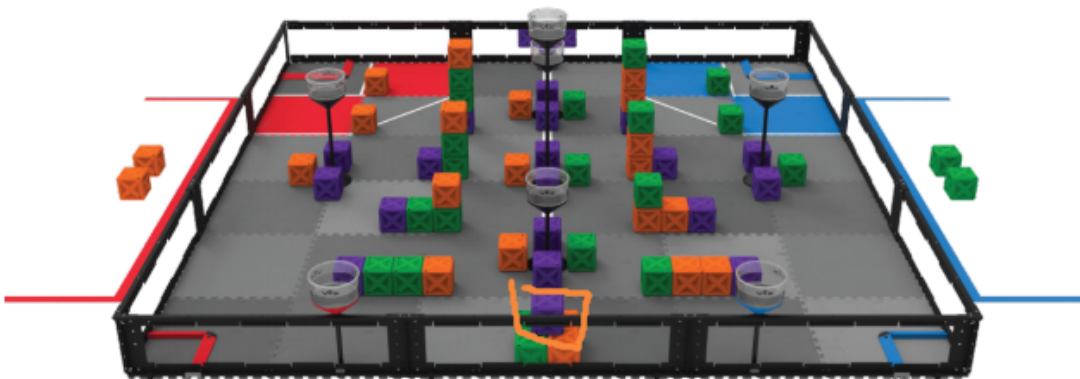
Other

<SG2> Stay on your side in Autonomous. During the Autonomous Period, Robots may not contact the foam tiles, Towers, or **Cubes which are on the opposing Alliance's side of the Autonomous Line**. Violations of this rule will result in the Autonomous Bonus being awarded to the opposing Alliance. Intentional, strategic, or egregious violations, such as intentional contact with an opposing Robot while completely across the Autonomous Line, will result in a Disqualification. Note: Towers and **Cubes which begin the Match in contact with the Autonomous Line** are not considered to be on either side, and may be utilized by either Alliance **during the Autonomous Period**. If attempting to utilize these Towers or Cubes, Teams should be cognizant of the possibility that opponent Robots may attempt to do the same. <SG7>, <G10>, <G11>, and <G12> will be taken into account when these types of Robot interactions occur.

According to this rule, we are not allowed to contact any cubes that are fully in the opponent's side of the autonomous line. Now, the question is, would the following actions be legal?

- In an attempt to intake cubes, the cube that were originally on your side of the autonomous line was pushed to touch the opponent's side of the autonomous line (e.g. Trying to intake a cube and the cube was pushed by the robot and touched the opponent's side of autonomous line). Are robots still allowed to interact with that said cube if the cube is not entirely on the opponent's side of the autonomous line? What if the said cube is fully in the opponent's zone?
- The rule states that cubes begin the match **in contact** with the autonomous line are not considered to be on either side. What about the purple cube that sits above the 4 cubes, as seen in picture? It is not in contact with the autonomous line, since autonomous line is not a 3D space.
- My interpretation is that "Cubes which begin the Match in contact with the Autonomous Line are **not considered to be on either side**", which means that those cubes are not on either side for the **duration of the autonomous** and as long as the robot does not touch foam tiles or towers on the opposing alliance side, they can interact with those said cubes which started neutral but are now fully on opponent's side? Robots can easily push the cubes forward a little in the process of trying to intake it and in the process may result in that cube to be fully on opponent's side of autonomous, and can easily make contact with a cube which now is in opponent's zone if two robots are fighting for the same cube.

Thank you for explaining this long question!



Answered by Game Design Committee

We sincerely apologize for this extremely delayed response.

What about the purple cube that sits above the 4 cubes, as seen in picture? It is not in contact with the autonomous line, since autonomous line is not a 3D space.

The purple Cube in question should be considered a "neutral" Cube alongside the others which physically contact the Autonomous Line.

For your other questions, please see these similar Q&A posts, which we believe provide answers. If they do not, please feel free to rephrase and re-submit.

<https://events.vex.com/VRC/2019-2020/QA/405>

<https://events.vex.com/VRC/2019-2020/QA/446>

292: <VUR3> Clarification on "Stock"

2-Jun-2019

VUR3

We would like some additional clarification on which shapes of stock material are allowed in VEXU per VUR3. The definition of stock material can be considered very broad and we'd like to ensure that we know exactly what we can use before we begin working this season. Some of the stock material we'd like clarification on are:

1. Block (Ex: Used in milling machines)
2. Cylindrical (Ex: Used by lathes)
3. Sheet
4. Tube

Thank you, Afnan Ali MASON

Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. These descriptions would all be considered legal "stock" under VUR3.

340: Can VexU teams 3D print custom license plates?

28-Aug-2019

VUR3

Because VexU teams are allowed to create custom parts through 3D printing in <VUR3>, could VexU teams 3D print license plates instead of using the Vex license plates. Teams are already allowed to custom make stickers with the team ID to use on the Vex license plate. If a VexU team 3D printed their license plates where they still had two blue and two red license plates on two opposing side and the text was in a readable large white font would this be allowed? Do the plates need to be the same or similar size to the Vex license plates? Could VexU teams be able to 3D print their license plates and the head ref have final say in if the plates are not readable compared to the Vex license plates and the team then use the Vex license plates? I attached a example of what I am talking about below.



Answered by Game Design Committee

We sincerely apologize for this extremely delayed response. Please see this similar Q&A post, which we believe answers your question. If it does not, please feel free to rephrase and re-submit.

<https://events.vex.com/VRC/2019-2020/QA/363>

593: <R21> Custom Motor Caps for VEXU

16-Mar-2020

VUR3

<R21> specifically states that electronic components, including V5 motors, may NOT be altered from their original state in ANY way. With many of the VRC restrictions being lifted for VEXU (in regard to being able to fabricate custom components per <VUR3>) and with the 2020-2021 season not being released yet, could a consideration be made for next season and beyond to allow VEXU teams the ability to make custom aluminum and/or plastic motor caps? The purpose of this would be to allow for more unique mounting methods to C-channels and other hardware. My team and I find the threaded insert method quite restricting for many reasons but primarily for drive trains. Changing motors on many drive train designs is tedious because a lot has to be taken off just to reach the screws for the motor. Any consideration would be appreciated. Thank you.

Answered by Game Design Committee

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