Technical Director Manual

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V26-27.1	Initial 2026-27 Season Release

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Overview

Job Description

The Technical Director (TD) is a technical leadership volunteer who takes on specialized responsibilities that the *FIRST* Technical Advisor (FTA) would otherwise need to manage, similar to the way the Field Supervisor offloads field operations from the FTA. The Technical Director is responsible for:

- Setting up and managing the **scoring system** (the Event Portal and FTC Live), including displays and volunteer tablets.
- **Wi-Fi configuration and management**, including surveying and monitoring the wireless environment.
- Coordinating the **technical needs of streaming** and audio/visual systems, and helping with their setup if needed.
- Supervising the **Scorekeeper**.

The duties of this role can often be filled by a general equipment manager that some regions may already have. Most smaller events will not need a Technical Director. **Regional Championships and dual-division events will want to fill this role** because of the larger technical footprint of those events, and because the FTA is otherwise spread too thin.

> **New for the 2026–2027 season:** The Lead Scorekeeper (LS) and Wi-Fi Technical Advisor (WTA) roles have been retired. Scoring system setup and Wi-Fi responsibilities now belong to the Technical Director or, at events without a Technical Director, the FTA. The FTA or Technical Director may still recruit additional specialized volunteers to help with these duties.

Requirements	
Technical	High
Physical	Medium
Administrative	High
Communication	High
Pre-event Training	High

Time Commitment

A Technical Director should expect to spend 10-12 hours at a full day event, plus time at event setup, which usually takes place the day before the event. Approximately 6-8 hours of pre-event training and planning is required.

Attire

- Comfortable closed-toe, closed-heel shoes; much of the day will involve standing and walking.
- ANSI Z87.1 (or regional equivalent) certified safety glasses are required in team pits and competition areas.
- As one of the event leaders, comfortable professional wear is encouraged.

Training and Certification

Read and complete all tasks listed in the *Pre-Event Training* section. The Technical Director completes the **Scorekeeper** training and certification; there is no separate Technical Director certification test.

Any volunteer who applies to a role will be able to get into the Learning Management System (LMS) using the *FIRST* Training button. Roles with the training required will appear in the 'roles missing certification' area. For more help, you can read more about how to access your training.

If you have applied for a role but have not received access to the training, please email training@firstinspires.org. A separate confirmation of the role assignment will come later.

Technical Directors should speak to the FTA and Event Director to learn about additional requirements, such as meetings before the event or run-throughs of the space before the event.

All volunteers are expected to read and comply with the Volunteer Handbook.

Roles and Responsibilities

> ***FIRST* is fun for all.** The most important role of a volunteer is to provide a safe, fun, and welcoming environment to all *FIRST* participants. When executing the duties of your role, always make decisions with the team experience in mind. Ask for help from event leadership if you feel your required duties conflict with the best team experience.

Core Responsibilities

The Technical Director assists the FTA by managing the event's technical systems. In particular:

- Together with the FTA, ensure *FIRST* Tech Challenge events **provide an exceptional team experience** where participants feel safe and supported.
- **Set up, test, and manage the scoring system**, including Event Portal event configuration, FTC Live, the scoring network, audience and field displays, and volunteer tablets (previously managed by the Lead Scorekeeper).
- **Supervise and support the Scorekeeper(s)** so that matches are started, scored, and posted efficiently.
- **Plan, configure, and monitor the wireless environment** so teams can control their robots without interference (previously managed by the Wi-Fi Technical Advisor).
- **Coordinate the technical needs of streaming** and audio/visual systems with the Event Director and any streaming or A/V crew, and help with setup if needed.
- **Lead setup and teardown of the event's technical equipment**, and keep track of that equipment for the region.
- **Troubleshoot technical issues** and keep the FTA informed of anything that may affect match play or the schedule.
- Serve as a model for Gracious Professionalism®.

Core Skills

Highly successful Technical Directors develop the following skills:

- **Technical problem-solving** in:
  - Desktop operating systems (Windows, with Mac OS or Linux helpful) used by the FTC Live scoring system,
  - The FTC Live scoring system and the Event Portal,
  - Wired networking and Wi-Fi, including Wi-Fi Direct used for robot control,
  - The Android-based robot control system and its diagnostic tools, and
  - Audio/visual equipment such as displays, video switchers, and streaming encoders.
- **Organizational skills** to plan, inventory, set up, and pack out event technical equipment.
- **Empathetic and clear communication** with volunteers, venue staff, and participants of all ages.
- **Leadership and decision-making skills** to guide the Scorekeeper and other technical volunteers.

Prerequisites for Technical Director

To serve as a Technical Director:

- Minimum age: 18 years old (must be post-high school or equivalent)

    - Exceptions may be granted by event Volunteer Coordinators after review and approval by the local Program Delivery Partner
- Completion of the Scorekeeper certification is required.
- Prior experience as a Scorekeeper or Lead Scorekeeper is strongly encouraged.
- Either *FIRST* or related technical field experience is preferred.
- Experience with tools such as Wireshark, Wi-Fi Analyzer, the NetSpot app, or the NETSCOUT AirCheck meter may be helpful.

Reporting Structure

Technical Directors report to the FTA (for single-division events) or the Lead FTA (for multi-division events). They supervise the Scorekeeper(s) and any Wi-Fi, streaming, or equipment volunteers recruited to help with technical duties. Before the event, the Technical Director will most likely work with the FTA, the Event Director, and the Program Delivery Partner (PDP).

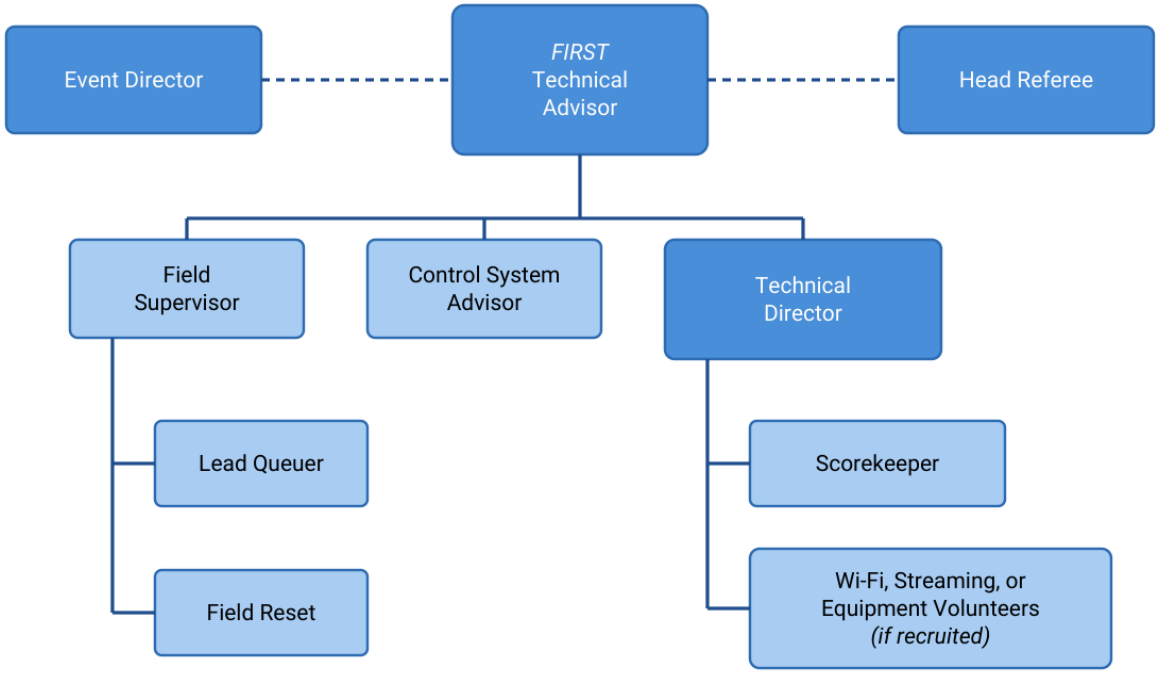


Figure 1: Technical Director Reporting Structure (simplified view)

In practice, the Technical Director will:

- Assist the FTA with as-needed technical tasks.
- Empower Scorekeepers to **support the efficient flow of matches**.
- Manage the electronic systems and wireless environment so the FTA can focus on field operations, robots, and teams.
- Support all technical staff with managing stress, maintaining safety, and staying hydrated.

At events where the Technical Director role is not staffed, the FTA assumes these responsibilities to the extent that their time allows, prioritizing support for scorekeeping and wireless environment issues that affect team experience.

Before the Event

FIRST Tech Challenge competitions squeeze a lot of activity typically into a single day. One of the keys to running a smooth and successful event is for teams and volunteers to show up prepared. Teams spend countless hours preparing for competition day, and we ask our volunteers to prepare too. It is important that prior to the event, the Technical Director reviews the *Pre-Event Training* resources listed in the checklist below.

Pre-Event Training

Technical Directors must complete the required reading in this section and are required to pass the Scorekeeper certification test prior to serving in this role.

Resources for training and certification:

Technical Director Pre-Event Training List	
Requirement	**Resource**
Required	Welcome to *FIRST*
Required	Technical Director Manual (this document)
Required	Scorekeeper Manual, which covers the Scorekeeper duties the Technical Director supervises
Required	FTC Live Setup Guide, which covers event data transfer, FTC Live software, hardware and network setup, and event management system features
Required	FTC Live Network Setup Guide, which covers setting up the FTC Live scoring network
Required	*FIRST* Tech Challenge Wi-Fi Event Guide and the included Wireless Event Checklist
Required	Competition Manual, specifically: • Section 3 — Competition Eligibility and Inspection • Section 8 — Game Overview • Section 9 — ARENA • Section 13 — Tournament • Section 14 — League Play Tournaments (if applicable)
Encouraged	Venue Networking Requirements Guide
Encouraged	Event Technical Checklist, which guides Event Directors and FTAs on the technical planning of an event
Encouraged	Event Streaming Best Practices, a guide to help Technical Directors manage broadcasts and streaming at events
Encouraged	Tournament Guide, for recommended staffing and event layout
Encouraged	Field Operations Guide, which gives an overview of field staff operations and FTC Live
Encouraged	Control System Troubleshooting Guide, which reviews common issues with the Android-based control system

Technical Director Pre-Event Training List	
Requirement	**Resource**
Encouraged	Pit Map Builder, which lives in the Event Portal and FTC Live; you may be asked to help build the pit map
Encouraged	Judge and Judge Advisor Guide, so you can support the Judge Advisor with entering awards
Encouraged	Complete the Strategies for Inspiring Success for All modules.
Encouraged	Attend the Scorekeeper/Scoring System and FTA Volunteer Calls
Informational	Watch the game animation video for an overview of the game
Required	Complete the Scorekeeper Certification Test in the *FIRST* Learning System (For volunteers outside of North America without a *FIRST* Dashboard Account use the PDF to self-certify)

Pre-Event Preparation Work

Prior to every event, the Technical Director should:

- Check in with the FTA and Event Director regarding event planning and setup, using the Event Technical Checklist.
- Verify with the Event Director that a table, chairs, and power drops are available for the scorekeeper's table, Wi-Fi monitoring equipment, and any streaming equipment.
- Confirm technical staffing with the FTA and Volunteer Coordinator: at least one Scorekeeper per field or division, and any additional Wi-Fi, streaming, or equipment volunteers. Recommended staffing levels can be found in the Tournament Guide.
- Inventory the region's technical equipment (scoring computers, routers, tablets, displays, cables, A/V gear) and arrange for transport to the venue.
- Obtain the venue's IT on-call phone number in case there is a need to contact them on event day.
- Collect and verify all passwords and codes for the computers and devices that will be used.
- Get a copy of the public schedule and planned match schedule, and plan the distribution of printed scripts and reports.
- Prepare a short briefing for the Scorekeeper(s). The Technical Director usually does not meet the Scorekeeper until the morning of the event, so have setup notes, the event schedule, and timing ready to share then.

Event Management System

Prior to the event, the Technical Director is responsible for working with the Event, League, or Region Admin or Manager to configure the event in the Event Portal (the cloud event management site, formerly FTC Scoring). Then, they are responsible for setting up, testing, and operating FTC Live (the local scoring software). These responsibilities may be shared with the FTA, Event Director, or Scorekeeper.

- In the Event Portal, configure the event with teams, leagues (when applicable), and other event information. This requires the help of an Event, League, or Region Admin/Manager.
- Within three days prior to the event, update FTC Live and download the latest data from *FIRST*.
    - Go to the Event Portal to download the FTC Live setup wizard, if needed, and review the latest release notes.

    - If FTC Live is already installed, re-open the application to download automatic updates.
- 1-2 days prior to the event, transfer the event database from the Event Portal onto the local FTC Live instance. Review the process of transferring data to FTC Live in the FTC Live Setup Guide.
- Test the software system, tablets, and logins at least a week prior to the competition.
- Test the scoring system again during event setup and the morning of the event.

Wireless Environment Planning

The robot control system does not require any centralized control infrastructure. Teams bring their own driver stations and robot controllers to the event. However, the Technical Director should conduct a wireless survey of the venue a week or more before event day, to make sure the wireless environment is clear and that there are no Wi-Fi suppressors operating in the venue. This helps avoid troubleshooting wireless issues immediately before an event.

- Coordinate this activity and share the results with the Event Director and the FTA.
- Use one or more pairs of Android devices to measure the ping time in different areas of the venue and on different Wi-Fi channels. If available, use a tool (such as the NETSCOUT AirCheck meter) to measure Wi-Fi and non-Wi-Fi activity. If no hardware tool is available, a free software tool such as "Wi-Fi Analyzer" or the free version of the "NetSpot App" is sufficient for a cursory survey.
- If necessary, coordinate with local IT staff at the venue to turn off Wi-Fi signals that could be detrimental to the event, particularly for events involving 40 or more robots.
- Wi-Fi channels only need to be selected for events with 40 or more robots. For those events, select preliminary Wi-Fi channels for robot communication, the FTC Live scoring network, streaming, and any other Wi-Fi access points needed to run the event, and share the channel recommendations with the Event Director and the FTA.
- When selecting channels, if there are any Wi-Fi or wireless devices operating in the venue that cannot be turned off by the local IT staff, select channels that will not overlap or interfere with these existing devices.
- If your event takes place alongside a *FIRST* Robotics Competition (FRC) event, coordinate with the FRC event organizer. FRC robots now use 6GHz and do not overlap with FTC robot channels, but some FRC events use 2.4GHz and 5GHz for event staff communication, so negotiate with the FRC organizer on the channels that equipment will use.

> **Important Note:** A Wi-Fi Suppressor or Blocker is a device that disrupts the operation of unauthorized Wi-Fi networks in a venue. They are typically used to prevent people from creating Wi-Fi hotspots through cellular tethering. Schools often use the device to force students onto the school's network where it can monitor traffic and institute firewalls to block sites deemed unsuitable.

If a Wi-Fi Suppressor or Blocker is present at an event, teams will be unable to control their robots properly. The most common symptom is that the driver station and robot controller will not be able to pair, or will pair but then disconnect shortly afterwards. Check for the presence of such a device **before** the event, then work with the venue IT staff to disable it for the day of the event.

Streaming and Audio/Visual Coordination

Many larger events stream matches and use projectors, screens, and sound systems in the arena. The Technical Director coordinates the technical needs of these systems with the Event Director and any streaming or A/V volunteers or vendors, and helps with setup when needed:

- Confirm who is providing and operating streaming, A/V, and sound equipment, and what they need from the event (power, tables, network connections, video feeds).
- Plan how the FTC Live audience display, field timer displays, and video switch outputs will connect to projectors, screens, and the stream.
- Confirm the venue's internet connection and bandwidth for streaming. Use wired connections where possible, and make sure streaming equipment does not use Wi-Fi channels reserved for robot communication or the scoring network.
- Schedule a test of the full video and audio path during event setup.

Event Setup

Competition setup generally occurs on the day before the event. Setting up the arena, testing the wireless environment, and testing the FTC Live scoring system normally takes 2–3 hours for single-field events, 3–4 hours for a two-field event, and anywhere from half to a full day for larger events. See the FTC Live Setup Guide and the Field Operations Guide for more information.

The Technical Director leads setup of the event's technical systems, in collaboration with the FTA and the Field Supervisor (who sets up the fields and the physical scorekeeper's table). This includes:

- The FTC Live scoring network and related infrastructure:
  - Scoring Server running FTC Live (a single Scoring Server, even at multi-division events)
  - Scorekeeper computer for each division
  - Wired and wireless networks
  - Audience and field timer displays
  - Official Scorer, Head Referee, inspection, and other volunteer tablets
- Survey the wireless environment in the arena and practice area. For events with 40 or more robots, confirm the Wi-Fi channel allocations for robot communication, the scoring network, and any other Wi-Fi infrastructure with the FTA.
- Print a copy of the FTC Live account login information.
- Set up and test streaming and A/V connections with the streaming or A/V crew, as needed.
- Run a test match end-to-end to confirm scoring, displays, and video switching work together.

Feel free to use the tech support telephone number in *On-Call Support Numbers* to contact on-call technical support if there are any problems with setup or the wireless spectrum.

Required Event Day Equipment and Document List

- ANSI Z87.1 or regional equivalent certified safety glasses are required.
- Closed-toe, closed-heel shoes that will not damage the playing field are required.
- Hardcopy or electronic copy of the Technical Director Manual (this document)
- Hardcopy or electronic copy of the FTC Live Setup Guide and FTC Live Network Setup Guide
- Hardcopy or electronic copy of the *FIRST* Tech Challenge Wi-Fi Event Guide and Wireless Event Checklist
- A pair of *FIRST* Tech Challenge approved Android devices, with:
  - Current FTC Driver Station app installed on one device (Driver Hub or approved smartphone),

- Current FTC Robot Controller app installed on the other device (Control Hub or approved smartphone), and
- Wi-Fi Analyzer app (available from the Google Play Store) installed on the driver station device.

The Technical Director should coordinate with the FTA to ensure the following items are available, with the help of the Event Director or local Program Delivery Partner:

- ☐ Scoring computer(s) and chargers
- ☐ Scoring network router(s)
- ☐ Volunteer tablets and chargers
- ☐ Spare Ethernet cables
- ☐ HDMI/DisplayPort cables and adapters
- ☐ Power strips and extension cords
- ☐ Gaffer's tape
- ☐ Cable ties (zip ties)
- ☐ Labels and marker
- ☐ Printer, paper, and toner
- ☐ Printed FTC Live login sheets
- ☐ Multimeter
- ☐ Wi-Fi analyzing tools (if available)

Technical Director Topics for Emphasis

The following are important topics the Technical Director needs to be aware of prior to event day.

Practice Matches

Practice matches (defined in Section 13.5 of the Competition Manual) are an optional part of an event. If the FTA and Event Director schedule practice matches, the Technical Director should make sure the scoring system and displays are ready for them. More information is available in the Practice Matches sections of the Tournament Guide, FTC Live Setup Guide, and Field Operations Guide.

Electronic Inspection Checklists and Tracking

Automated inspection checklists and inspection status tracking are available in FTC Live. Inspectors can use tablets or computers connected to the scoring system network to complete the inspection checklists and track team inspection status. Make sure these devices are set up and connected before inspection begins.

FTA Notepad

The FTC Live scoring software has an optional FTA user role that can be used to take notes related to team and match issues via a tablet or computer. Make sure the FTA has a working device and login if they plan to use it. See the FTC Live Setup Guide appendix on the FTA Notepad for more information.

Multi-Division Events

Events with more than one division need a single Scoring Server, plus one scorekeeper computer (and Scorekeeper) for each division, and a plan for the finals. Plan the network, displays, and staffing for each division with the FTA (or Lead FTA) well before event day.

Awards and Publishing Results

Awards must be entered in FTC Live before the event results are published. Coordinate with the Judge Advisor ahead of time on how awards will be entered. See the Judge and Judge Advisor Guide.

Event Day

Report Time

The Event Director or Volunteer Coordinator will confirm the time you should arrive, typically via email the week before the event. In most cases the Technical Director should arrive as soon as the doors open for staff and key volunteers. When you arrive onsite, check in with the Volunteer Coordinator and the FTA.

Set-up

After checking in, the Technical Director should head directly to the arena. In collaboration with the FTA, perform a final check to ensure the technical systems are ready for volunteers and teams:

- Verify that the scoring system, displays, and volunteer tablets are working and logged in.
- Verify that the reserved wireless channels for the competition are clear and that low ping times are observed for a test robot controller–driver station (RC-DS) pair operating on these channels.
- Check for safety hazards around technical equipment (make sure cables are taped down and pathways are clear).
- Confirm streaming and A/V systems are ready, if applicable.
- Meet the Scorekeeper(s) and brief them on the setup, event schedule, timing, and plan for the day.

Event Day for the Technical Director

The following is an overview of the Technical Director's focus on event day:

- Check in with the FTA regularly and advise them on important technical decisions.
- Supervise the Scorekeeper(s) as they:
    - Verify participating teams and edit team profiles per the Event Director prior to running the match software,
    - Create the qualification match schedule (the FTA verifies the draft against the *Public Schedule* before it is published),
    - Manage the flow of scoring with the Head Referee and the Official Scorers, and post match scores to audience displays,
    - Manage alliance selection, create the playoff schedule, and present the playoff bracket, and
    - Print scripts and reports from the scoring system, as needed.
- Monitor the wireless spectrum to make sure the Wi-Fi channels designated for robot control are clear and not overloaded and look for clues of potential malicious activity. Report issues of concern to the FTA.
- At events with assigned channels, help guide teams to their designated channels. Help the FTA and Control System Advisor(s) troubleshoot wireless issues.
- Support streaming and A/V needs throughout the day.
- Troubleshoot scoring system, network, display, and tablet issues, and keep the FTA informed of anything that may affect the schedule.
- Write down observations about successes and issues faced during the event and share these with the FTA to include in post-event reports.

When dealing with potential wireless interference (such as a spectator running a portable hotspot), it is better to communicate the goal of keeping the spectrum clear than to act like an enforcer. This turns spectators into assistants in keeping the spectrum clean instead of creating an adversarial situation.

Providing a safe and exceptional team experience is the highest priority, and an efficient flow of matches is one measure of this experience.

Schedule Mindset

A valued measure of event quality is starting and finishing on time. The Technical Director and Scorekeeper are well-positioned to help ensure a smooth and successful event by keeping the scoring system running and reporting how well match cycle times adhere to the published schedule. For a deeper discussion of this topic, see the Schedule Mindset section of the Field Operations Guide.

Volunteer Interaction

As a volunteer leader, the Technical Director interacts and collaborates with many volunteers on event day. The following is an outline of key volunteer relationships the Technical Director should maintain.

FTA

The Technical Director takes on technical operations that would otherwise fall to the FTA. Check in with the FTA during event setup and early on event day to confirm that the technical systems supporting the field are ready. By observing the FTA's workload and level of stress, the Technical Director can strike a balance between collaborating with the FTA on non-urgent issues and managing them without the FTA's input. In either case, record information about issues so the FTA can track long-term issues and make post-event reports.

Scorekeeper

The Scorekeeper reports to the Technical Director. The Scorekeeper controls the Match Control page and all its options (such as Video Switch and Alliance Selection) during the event. Support them, step in when they need a break, and help resolve any system issues so the flow of matches is not interrupted.

Field Supervisor

The Field Supervisor leads field operations and sets up the physical arena, including the scorekeeper's table. During the event, make sure the Scorekeeper communicates to the Field Supervisor how well match cycle times adhere to the published schedule. The FTA and/or Field Supervisor may request an adjustment to the cycle times or match schedule.

Head Referee and Official Scorers

Official Scorers are managed by the Head Referee and operate the scoring tablets. In most cases, the Head Referee uses a tablet with the Head Referee account to view and validate the Official Scorers' score entry. Make sure all scoring tablets are working and logged in to the correct accounts, and that the Head Referee and Scorekeeper have agreed on how the next match will be cued. Only the Head Referee can make rulings about scores; route scoring disputes to the Head Referee.

Control System Advisor

Control System Advisors (CSAs) provide in-depth technical support to teams. Help them with issues that may be caused by the wireless environment.

Judge Advisor

For some events, the Judge Advisor needs to work with the Scorekeeper to enter awards. The options for entering awards are in the Judge and Judge Advisor Guide.

Game Announcer/Emcee

The Game Announcer may require a team list, match schedule, playoff brackets, and award winners for the event to keep notes. Pre-plan these with the Scorekeeper, Event Director, and possibly the FTA.

Event Director, Venue IT, and Streaming Crew

Keep the Event Director informed of technical decisions that affect the event, and stay in contact with venue IT staff and any streaming or A/V crew throughout the day.

End of the Day

Once the matches and awards have been entered into FTC Live, make sure the Scorekeeper uses "Send Results to *FIRST*" once the FTC Live event laptop is connected to the internet. Verify that the results are displayed on FTC-Events.

Lead the teardown of the scoring system, network, and A/V equipment. Inventory and pack all technical equipment for load-out, return any borrowed equipment, and make sure any changes made to the venue's IT equipment are reverted as agreed with venue staff.

Complete a final check-in with the FTA to share notes on successes and issues faced during the event. At the end of the day, walk away from the event knowing you have done your absolute best to be an exemplary role model and provide an exceptional event experience.

Team Interaction and Support

When interacting with teams please always consider the team's perspective. The teams have put significant time and effort into preparing for this event and may be feeling very stressed about everything working out as they have planned. **Today is a very big deal for the team and we are here to help!**

While it's our job to help guide the teams to a successful event, it's their responsibility to follow the rules and be on time for judging and matches.

If you feel there is an issue with an individual or individuals from a team that warrants specific intervention beyond just a kind reminder, please ensure the correct stakeholders for the team are aware. Here is a generally acceptable process when working with a student or team who you need to change their behavior:

The ABCs of Managing Team Behaviors	
Ask for an Adult	Do not directly reprimand a student one-on-one without an adult from their team present. Ask the student to bring an adult who is responsible for the team to meet you, before moving forward with any discussion about the concerns at hand.
Be aware of the Environment	Is the environment conducive for the feedback you are about to give? Is it loud in the area where you are? Are there other teams around that may hear the reprimand? Moving the conversation to a quieter, more private space as needed can be helpful.
(Offer a) Clear Explanation	Explain the concern to the team and offer clear examples of the behavior that is concerning.
Discuss any Questions	Offer the opportunity for students and adults to ask clarifying questions.
Explain Next Steps	Outline with the students and adults what the next steps are if the issue is not corrected. Certain behaviors may include the risk of yellow cards.

Note: the only person at an event who can give an official warning or issue a yellow/red card is the Head Referee. Please refer these more severe issues to the Head Referee and notify the Program Delivery Partner.

Volunteers should not provide feedback about team behavior to the Judges. Concerns about team behavior should be handled through the normal escalation channels as described in Section 1 of the Competition Manual. If there are issues which are repeated or egregious follow the process for *Reporting Other Issues or Concerns* and inform the Program Delivery Partner. The Judge Advisor may seek feedback from the Event Director to determine if there is any relevant information to provide the Judges for their evaluation process.

Teams may only be completely disqualified from awards consideration for very rare egregious actions and only with approval from *FIRST* HQ. The Event Director and/or JA should call the on-call number to discuss the issue.

Conflict of Interest

> **Conflict of Interest** – a conflict between the private interests and the official responsibilities of a person in a position of trust.

All listed volunteer roles will be asked to disclose any potential Conflicts of Interest, and to complete the Conflict of Interest and Disclosure form. During the Judges meeting, Judges will be asked to declare any potential conflicts to the rest of the judging pool. During the Referee meeting, Referees will be asked to declare any potential conflicts to the rest of the referee team. Some scenarios of conflict of interests:

- A coach/mentor volunteers as a judge or a referee.
- A parent/relative of a team member volunteers as a judge or a referee.
- A recent alum (student or adult) of a team competing at the event volunteers as a judge or a referee.
- A sponsor of a team competing at the event volunteers as a judge or referee.

Having a Conflict of Interest, or even the perception of a Conflict of Interest can affect a team's experience, even if decisions that were made throughout the day were not biased in any way. The perception of potential favoritism is enough to discourage a team, coach, or mentor, and take away from their overall experience at an event. Knowing what Conflict of Interest is, and how to avoid being in a position that could be a conflict will ensure all teams feel they have been evaluated fairly.

> All volunteers at an event have a responsibility to act in the best interest of the event which means to treat all teams fairly and equitably. Volunteers should use prior *FIRST* experience to help inform their decisions but should not use prior knowledge or perception of any specific team to inform their decisions either good or bad. Every team, at every event, deserves a fresh blank slate with all volunteers.

A volunteer who does not disclose their conflict of interest can compromise the integrity of *FIRST* Tech Challenge events. In judging, this could cause teams affiliated with the volunteer with a Conflict of Interest to be removed from consideration for awards.

Conflict of Interest, in some cases, can be quite easy to see. In other cases, it may be less obvious, and it may be difficult to decide what constitutes a true Conflict of Interest. In some cases, the bias may be apparent, while other times a Conflict of Interest may be perceived by a team or a coach. It is best to keep the following in mind when volunteering:

- Be open and forthcoming about any conflicts you may have with a team competing at the event.
- If there is a known Conflict of Interest, avoid making decisions about a team that would change the outcome of the day, such as speaking for or against a team in judge deliberations, or holding some teams to a different refereeing standard than others.
- Remove yourself from any situation that could be perceived as a Conflict of Interest.

Emergencies

The Program Delivery Partner, Event Director and the event site host organization are responsible for having safety and security plans in place for each event. Included in the plan should be topics such as:

1. A map of all the emergency exits
2. Knowledge of where on-site medical support is located

3. Shelter in place plans in the case of severe weather
4. Evacuation plans

Teams should have their own safety plans before attending the event. Here are some team-focused recommendations for Preparing to Safely Attend a *FIRST* Event.

Lost Children

FIRST Tech Challenge events can be very hectic, and it can be easy for a child to get lost amongst the shuffle of a busy event. Ensure you have a plan prior to the event in the instance of a lost child.

In some cases, the team roster will list Coach phone numbers which can be used to reunite team members; in some regions they collect "Day-of" cell phone numbers from each team at check in. Coordinate your plan with your Program Delivery Partner.

Code Adam Guidelines (www.missingkids.com/CodeAdam) are also a great resource.

Medical Incident Reporting

Event volunteers are not responsible for diagnosing student injuries, handing out medication, or first aid equipment. You and other event volunteers should refer medical issues and emergencies to a medical professional on site, such as an EMT. If an incident or illness occurs at an event, the Event Director, Pit Administrator, or another trained delegate should do the following:

1. Call 911 if there is any question whether the injured person/persons require urgent medical attention.
2. Respond to the scene immediately. Bring a clipboard, pen, or electronic device to complete the incident report on the *FIRST* Reporting Portal.
3. Complete the incident report for the injured party.

www.firstinspires.org/report

The Event Director or Pit Administration volunteers are responsible for completing incident reports.

Although most incidents will not result in a claim, it is better to act on the side of caution and report them. Should an incident result in a claim after the event, the documents will be on file, complete with witnesses and a written report.

Youth Protection Reporting

Issues that are non-medical but are of concern to a participant/participants should also be reported. Anything that happens during an event that made a youth volunteer, team member or spectator feel uncomfortable or threatened should be addressed.

As appropriate and if you feel safe doing to, speak directly with the offending party and try to quickly and calmly defuse the immediate issue. Call the Event Director and/or the Program Delivery Partner and inform them of the issue and seek assistance as needed with any immediate remediation of the issue.

www.firstinspires.org/report

Ensure all issues are reported in a timely manner using the *FIRST* Reporting Portal. Youth Protection Concerns encompasses a wide variety of one-time or ongoing issues such as suspected abuse, bullying, harassment, discrimination, questionable behavior, or violation of the *FIRST* Code of Conduct.

Reporting Other Issues or Concerns

Feedback about issues such as game play, rule changes, awards, and event management (other than medical/safety issues) are considered program related concerns and not youth protection issues and should be shared with *FIRST* via customerservice@firstinspires.org or by contacting support.

Please note that match results and award results are final and that we will not review match videos.

help.firstinspires.org/s/contactsupport

Safety

An important priority for all volunteers is to observe their event areas to help promote a safe and orderly space for all the participants. It's likely that various volunteers and event participants will bring concerns to your attention, but you should also be proactive in identifying areas of concern. For the Technical Director, this includes making sure cables are taped down and that technical equipment does not block aisles, walkways, or doors.

Prioritize working with the teams to help identify and correct potential safety issues in the area. Please review the section about *Team Interaction and Support* for the best ways to work with teams on making changes.

Safety Glasses and Closed Toe Shoes

All volunteers, teams, coach/mentors, and spectators are required to have safety glasses and wear closed toe shoes while in the competition areas and in the pit when robots are active or situations require the use of safety glasses (using high speed drills, etc.), and in any areas required by the venue. It is important to watch out for anyone entering these areas without proper Personal Protective Equipment (PPE) and to ask them to put on proper PPE before entering. Some events will have volunteers staffed at the pit entrance with spare safety glasses to pass out. Other events may not have spares to provide.

Pit Spaces

Specific rules governing what teams can have and do in their pit space are covered in the Competition Manual, but the Event Directors may add additional restrictions which must be published before the event based on limitations set by the venue.

Common areas where teams need help to stay safe and within the rules:

- No open flames or sparks.
- Power tools are generally permitted if they are not causing damage to the venue.
- Aisles, walkways, and doors should be clear of obstructions.
- Teams may set up practice spaces if they are fully within their designated space.
- No structure may be taller than 10 feet.

Important Tools

Public Schedule

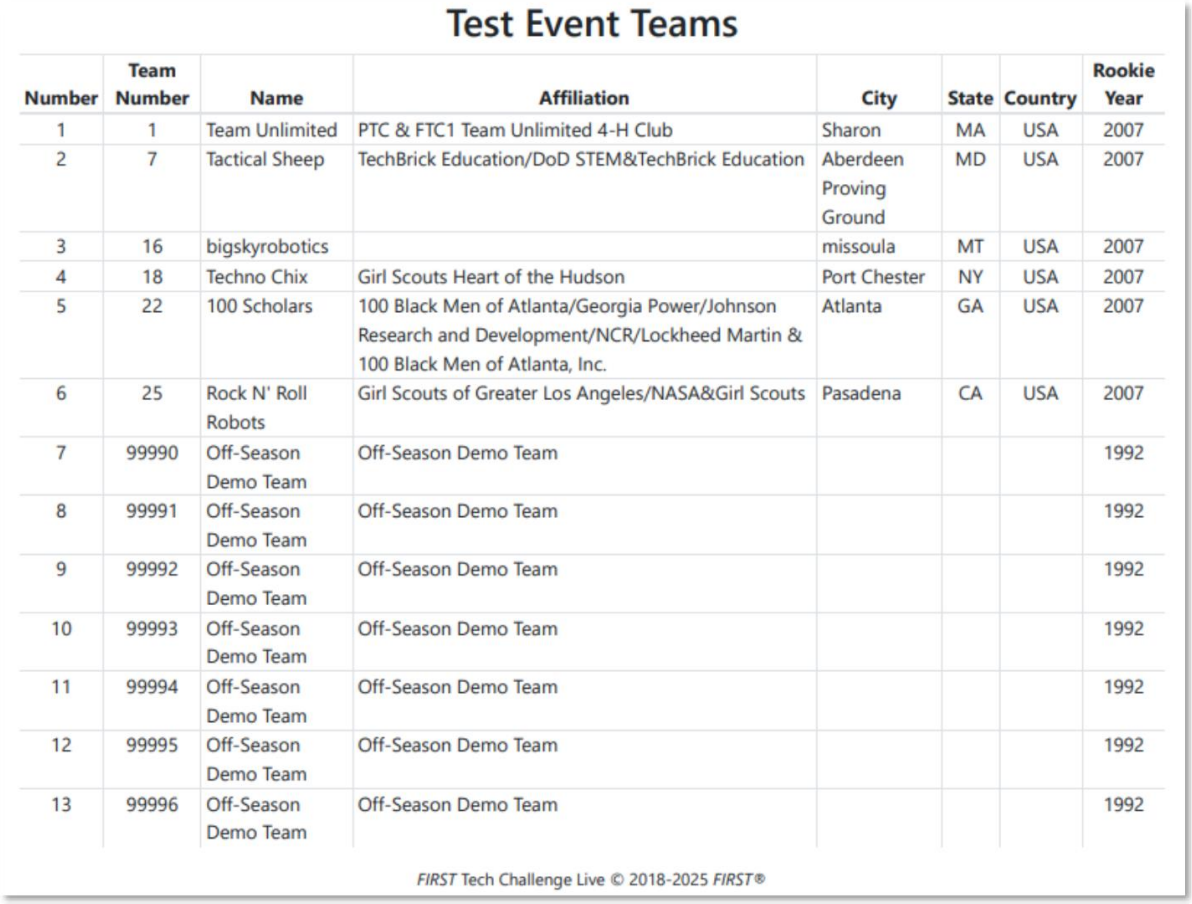
The Program Delivery Partner or the Event Director should publish the public schedule of events before the event. This schedule will have a high-level overview of all the activities for the event. It is important that everyone at the event does their best to stay true to the public schedule so that teams and volunteers who have planned their day around these times have a good experience.

Time	Agenda
7:15 am	Doors Open for Staff & Key Volunteers
7:30 am	Judges and Inspectors Report
8:00 am	Doors Open for Teams
8:30 am	Judging & Inspection Commences
10:15 am	Team Check-in Hard Deadline (Check the Competition Manual)
10:30 am	Match schedule is generated and distributed to teams. (Check the Competition Manual) *Note to Scorekeeper: 6 Matches total (Check the Competition Manual)*
10:40 am	Drivers' Meeting with Head Referee & Opening Ceremony
11:00 am	Qualification Matches 1 - 8 *Note to Scorekeeper: 7-minute cycle-time*
12:00 pm	Lunch
12:45 pm	Qualification Matches 9 - 45 *Note to Scorekeeper: 5-minute cycle-times*
3:50 pm	Qualification Matches Projected End
4:00 pm	Alliance Selection
4:20 pm	Double Elimination Rounds 1 - 4
5:10 pm	Award Ceremonies Start & Double Eliminations Round 5
6:20 pm	Projected End of Event
7:00 pm	Doors Close
Occasionally things that happen out of the event's control may impact the schedule. In these cases, work closely with the Event Director to understand the updated agenda.	

Figure 2: Example Schedule for a 30 Team Event

Registered Teams List

The Program Delivery Partner may provide a list of teams registered for the event, or the Scorekeeper can export a report of all the registered teams for the event. Sometimes this list may change the day of the event based on which teams show up. The Scorekeeper report will have the most accurate information about who is competing at an event. Note that teams may be competing only in the judging portion of the event and not have a robot present.



Test Event Teams

Number	Team Number	Name	Affiliation	City	State	Country	Rookie Year
1	1	Team Unlimited	PTC & FTC1 Team Unlimited 4-H Club	Sharon	MA	USA	2007
2	7	Tactical Sheep	TechBrick Education/DoD STEM&TechBrick Education	Aberdeen Proving Ground	MD	USA	2007
3	16	bigskyrobotics		missoula	MT	USA	2007
4	18	Techno Chix	Girl Scouts Heart of the Hudson	Port Chester	NY	USA	2007
5	22	100 Scholars	100 Black Men of Atlanta/Georgia Power/Johnson Research and Development/NCR/Lockheed Martin & 100 Black Men of Atlanta, Inc.	Atlanta	GA	USA	2007
6	25	Rock N' Roll Robots	Girl Scouts of Greater Los Angeles/NASA&Girl Scouts	Pasadena	CA	USA	2007
7	99990	Off-Season Demo Team	Off-Season Demo Team				1992
8	99991	Off-Season Demo Team	Off-Season Demo Team				1992
9	99992	Off-Season Demo Team	Off-Season Demo Team				1992
10	99993	Off-Season Demo Team	Off-Season Demo Team				1992
11	99994	Off-Season Demo Team	Off-Season Demo Team				1992
12	99995	Off-Season Demo Team	Off-Season Demo Team				1992
13	99996	Off-Season Demo Team	Off-Season Demo Team				1992

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Figure 3: Competing Team Report

Volunteer Roster

The Volunteer Coordinator or the Program Delivery Partner will have access to a list of applied and assigned volunteers for the event.

Event Layout/Map

The Program Delivery Partner and Event Director should publish a map of the venue before the event. In some cases, details on the map might not be available until the day of the event.

The Event Layout / Map should detail the following:

- Load-In Path
- Parking for Personal Vehicles and Busses
- Team Check-in
- Volunteer Check-in
- Competition Area
- Pit Area (May include the *Pit Map*)
- Judging Room Locations (if applicable)
- Safety Details as available (Emergency Exits, AED, Shelter in Place Locations)

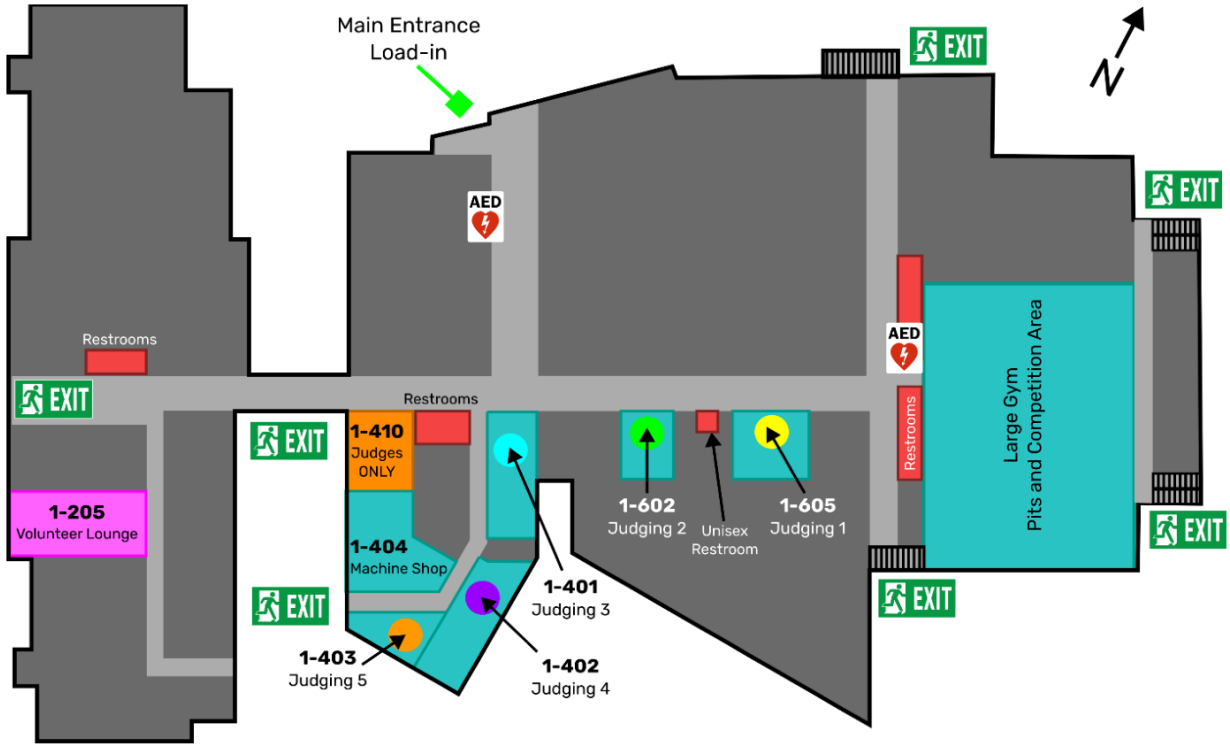


Figure 4: Example Event Map

Match Schedule

The match list will be generated on the day of the event after the teams have been confirmed. This schedule will list which teams will play in which alliance (Red or Blue) and it will also list a match start time (see Figure 5). Some events will have more than one competition field and/or more than one division, and each division will have its own schedule.

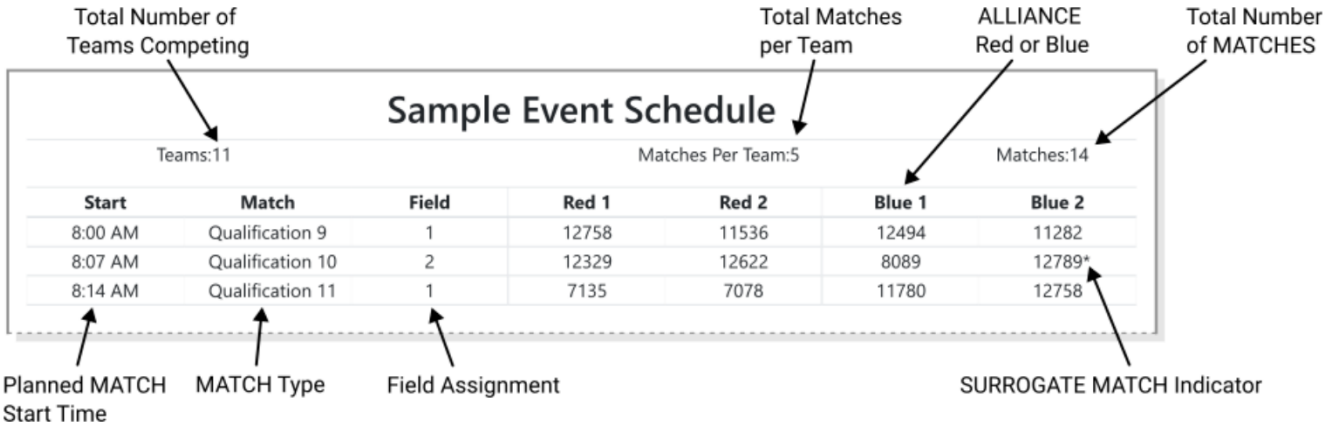


Figure 5: Example Match Schedule

Pit Map

Pit maps are typically provided by either the Event Director or by the Scorekeeper. Having a map of where each team is in the pit is key, as teams, parents, or Queuers might need to find them. Below are two sample pit maps in Figure 6 and Figure 7. Pit Maps created in the Event Portal will appear on the FTC-Events page.

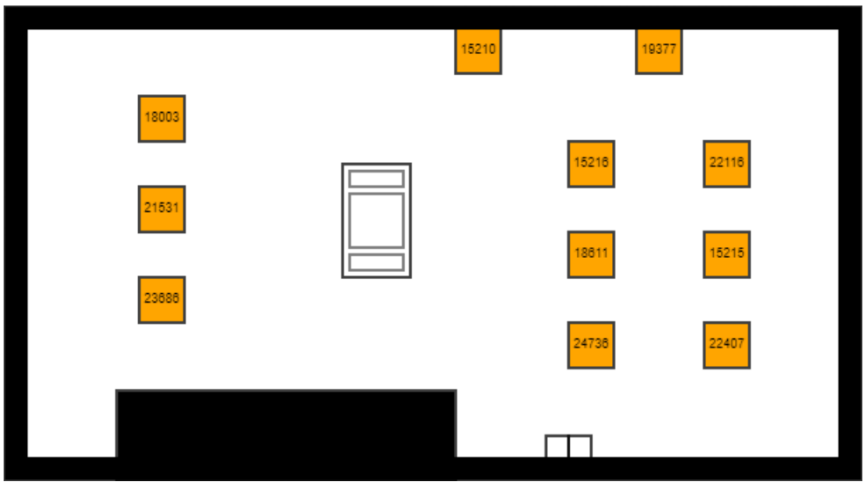


Figure 6: Example Pit Map for a Small 12-Team Qualifier Event

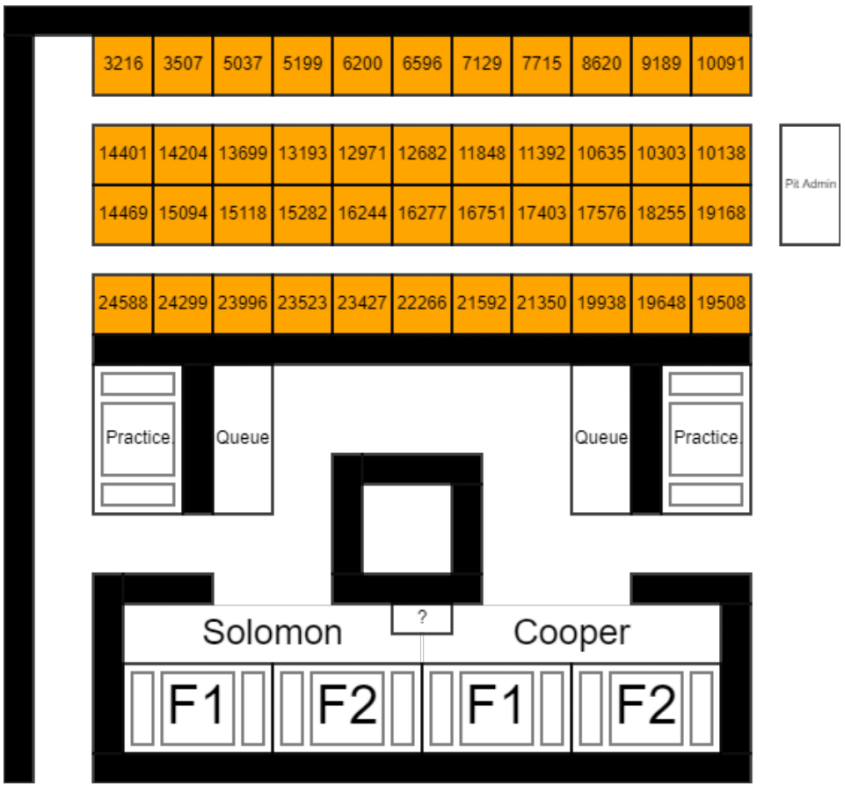


Figure 7: Example Pit Map for a Typical Regional Championship Event

Useful Links and Information

On-Call Support Numbers

These numbers are for *volunteer support only*. Teams should not use these numbers to call about rulings or technical assistance.

Administrative, Judge, Referee and Non-Technical Issues: (603) 206-2412
Scoring System (FTC Live) or other Technical Issues: (603) 206-2450

Call or use the **built-in chat feature on FTC Live** available for events with internet access.

Pre-Event Support

Mon – Fri 8:30am – 5:00pm Eastern Time (UTC-4 or UTC-5)
Contact Support including live chat or email customerservice@firstinspires.org

Program Resources

Event Search ftc-events.firstinspires.org	Game and Season Resources ftc-resources.firstinspires.org/ftc/game
FIRST Tech Challenge Blog	Event Resources ftc-resources.firstinspires.org/ftc/event
FIRST Tech Challenge Website firstinspires.org/robotics/ftc	Volunteer Resources ftc-resources.firstinspires.org/ftc/volunteer

Feedback

We strive to create support materials that are the best they can be. If you have feedback about this manual, please email customerservice@firstinspires.org or by contacting support. Thank you!