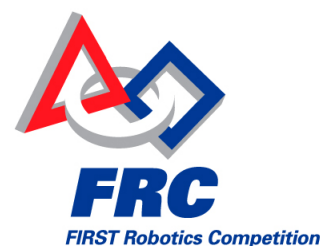


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# Introduction



## 1 Introduction

### 1.1 What is the FIRST Robotics Competition® (aka FRC)?

The *FIRST* Robotics Competition (FRC) pairs high-school students with adult mentors (primarily engineers and teachers) to design and build robots that compete against one another in this high energy “varsity Sport for the Mind™”. Each year at the Kickoff in January, a new, challenging game is introduced. These exciting competitions combine the practical application of science and technology with the fun, intense energy and excitement of a championship-sporting event. Teams are encouraged to display Gracious Professionalism™ and to cooperate while competing – known as “Coopertition™”.

In 2012, FRC will reach 60,000 high-school students representing approximately 2,400 teams. FRC teams come from nearly every state in the United States, as well as from Australia, Bosnia-Herzegovina, Brazil, Canada, Chile, Dominican Republic, Germany, Israel, Mexico, Puerto Rico, Turkey and the United Kingdom,. FRC teams will participate in 52 Regional Competitions, 14 FRC District Competitions, one State Championship, and one Region Championship, and approximately 340 deserving teams will qualify to go to the *FIRST* Championship in the Edward Jones Dome in St. Louis, MO.

This year's challenge will be presented at the 2012FRC Kickoff on Saturday, January 7, 2012. At the Kickoff event, all teams:

- See the 2012 game field for the first time;
- Learn about the 2012 game rules and regulations; and
- Receive the official Kit of Parts (KOP) which includes motors, sensors, chassis hardware, transmissions, software packages, control systems and batteries. The intent of the kit is to provide a level starting point for all teams.

## 1.2 Gracious Professionalism™, A FIRST Credo

Dr. Woodie Flowers, *FIRST* National Advisor and co-founder of FRC, elaborates on the significance of Gracious Professionalism™ in *FIRST*:

“*FIRST* celebrates high-quality, well-informed work done in a manner that leaves everyone feeling valued. Gracious Professionalism™ seems to be a good descriptor for a big part of the ethos of *FIRST*. It is one of the things that makes *FIRST* different and wonderful.

Gracious attitudes and behaviors are win-win. Gracious folks respect others and let that respect show in their actions. Professionals possess special knowledge and are trusted by society to use that knowledge responsibly. Thus, gracious professionals make a valued contribution in a manner pleasing to others and to themselves.

In *FIRST*, Gracious Professionalism™ means that we learn and compete like crazy, but treat one another with respect and kindness in the process. We try to avoid leaving anyone feeling like they have lost. No chest-thumping barbarian tough talk, but no sticky sweet platitudes either. Knowledge, pride and empathy comfortably blended.”

## 1.3 Prominent FRC Awards

*FIRST* values and acknowledges team performance, both on field and off, that promotes our mission to change culture. The three most prominent FRC awards that celebrate our culture are described below.

Additional awards recognize outstanding technical expertise, community involvement and safety practices. A complete list and description of awards available to teams as well as past winners to date can be found in *Section 6* of the manual.

### 1.3.1 The Chairman’s Award

Every year, veteran FRC Teams have the opportunity to compete for *FIRST*’s most prestigious award; i.e., the Chairman’s Award, which represents the spirit of *FIRST*. This Award was created to maintain focus on changing culture in ways that would inspire greater levels of respect and honor for science and technology, as well as encourage more of today’s youth to become scientists, engineers and technologists. The Chairman’s Award honors the team that best embodies the goals and purpose of *FIRST* and is a model for other teams to emulate.

One team is chosen at each regional to receive this award; these teams go on to be considered for the Chairman’s Award at the Championship. Teams who have won the Chairman’s Award at the Championship are entered into the *FIRST* Hall of Fame.

### 1.3.2 The Woodie Flowers Award

The Woodie Flowers Award, founded in 1996 by Dr. William Murphy, celebrates outstanding mentors who lead, inspire and empower their team. Woodie Flowers Award winners demonstrate effective communication in the art and science of engineering and design.

Students submit an essay that nominates one mentor from their team for consideration.

### 1.3.3 The Dean's List Award

Now in its third year, this award celebrates outstanding student leaders whose passion for and effectiveness at attaining *FIRST* ideals is exemplary. Finalists are chosen by a panel of Judges at each FRC Regional, The Mid-Atlantic Robotics FRC Region Championship and the Michigan FRC State Championship. From the Finalists, the Dean's List Award Committee will select 10 Winners at the Championship in St. Louis, MO. Student winners are invited to a summit at *FIRST* HQ and DEKA which coincides with the FRC Supplier's Summit held over the summer.

Mentors submit an essay nominating a maximum of two (2) junior students from their team for consideration.

## 1.4 Safety: A FIRST Culture

Safety is critical within *FIRST* and must be observed continuously by all participants. As a part of the "Safety Awareness and Recognition Program", teams are observed and evaluated both at many levels and by many individuals at both the events and the Championship.

#### Key People in this Process:

*Safety Advisors* - evaluate team safety behavior and practices at Regional Competitions

*Referees and other Field Personnel* - observe safety on the playing field as well as adherence to the game rules

*Judges* - evaluate how teams have integrated safety into their robot designs when considering the team for technical awards

*Teams* - Safe practices at the competitions are mandatory. Teams are required to adopt safe habits throughout the entire competition season including during travel to and from events and while working in their shops at home, etc...

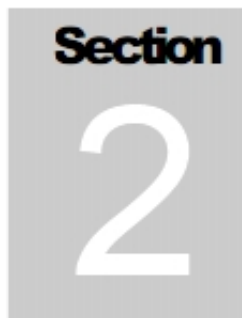
More information on our safety program can be found here:

<http://www.usfirst.org/roboticsprograms/frc/safety-video-and-manual>

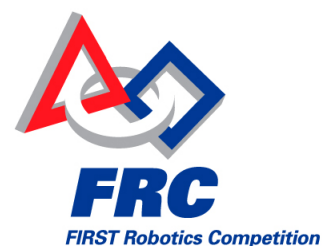


**PLEASE** take the time to read the sections of this manual. It was prepared with **YOU** in mind and is a great resource for important information you will need throughout the season.

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# Communication



## 2 Communication

### 2.1 Overview

This section provides teams with necessary information for contacting *FIRST*<sup>®</sup> staff, key vendors and others, and how *FIRST*<sup>®</sup> will communicate important season information. This section also contains help regarding the use of the *FIRST* logo, finding materials on the website, the Team Information Management System (TIMS) and tips on reserving hotels.

### 2.2 FIRST Headquarters - Contact Information

You can reach *FIRST* via mail, email, phone, and fax, or get information from our website. The office is open Monday through Friday from 8:30 AM to 5:00 PM, EST. Refer to the sections below for the appropriate help resource.

***Be sure to provide your TEAM NUMBER on all communications!***

Mailing Address	200 Bedford St, Manchester, NH 03101
Email Address	frcteams@usfirst.org
Phone Numbers	(603) 666-3906, "0" for team support (800) 871-8326, "0" for team support
Fax Numbers	(603) 666-3907 (Main) (603) 647-5772 (Finance)

## 2.3 Team Support

The Operations (Team Support) Group is eager to answer your FRC program and season related questions. Please call or email us with any questions you may have – we look forward to helping you!



### 2.3.1 Emails and Subject Lines

Please write to [frcteams@usfirst.org](mailto:frcteams@usfirst.org) with your questions.

To facilitate a quick reply, always include your **Team Number** in the **subject line**.

## 2.3.2 Please Do Not Duplicate Efforts

We ask that you do not contact or copy multiple persons about the same problem. Being a small group, we must work efficiently and avoid having more than one person working on the same issue. We can usually answer questions or requests within one to two working days. Please do not hesitate to contact us by phone if your question requires immediate assistance.

## 2.4 Control System Support

Information on the 2012 Control System, including software and hardware, will be available after kickoff, please refer to the Kit of Parts section at the bottom of this page.

## 2.5 Software Contact Information

<http://www.usfirst.org/roboticsprograms/frc/competition-manual-and-related-documents>.

### **Autodesk**

Please go to [www.autodesk.com/FIRST](http://www.autodesk.com/FIRST) and join the Community to download Autodesk software products. Visit the Community often to check on new information and resources; to get your 2012 Kit of Parts modeled in Autodesk Inventor Professional 2012 (available after Kickoff); and to submit your questions and requests for technical support.

### **PTC Software**

Please visit [www.ptc.com/go/first](http://www.ptc.com/go/first) for information on the free software that PTC donates to all FIRST teams (Creo-CAD, Mathcad-Engineering Calculations software and Windchill-Project and Document Management software). If you *cannot* find answers to your questions from the above website, please contact [FIRSTsupport@ptc.com](mailto:FIRSTsupport@ptc.com) with any questions.

## 2.6 FIRST Robotics Competition Website

Visit the *FIRST* Robotics Competition (FRC) area on [www.usfirst.org](http://www.usfirst.org) where you can find answers to administrative concerns and link to other areas of support.

- Check deadlines and dates for the Team Information Management System (TIMS), entries, grants, registration and payments, robot shipment, and awards submissions. <http://www.usFIRST.org/roboticsprograms/frc/content.aspx?id=454>
- Find links to the “Competition Manual and Related Documents” page”, “Awards” page, the “Robot Control System” page, the “ Robot Shipping” page, the “Season News and Email Blasts” page, , and other information at: <http://www.usfirst.org/roboticsprograms/frc/game-and-season-info>
- You may also find more important information for teams on our "Resources" page at: <http://www.usfirst.org/roboticsprograms/frc/resources>

## 2.6.1 Getting Answers to Your Competition Questions

- **Competition Manual** - is available at <http://www.usFIRST.org/roboticsprograms/frc/content.aspx?id=452>. Sections relating to the game will be posted after Kickoff.
- **Team Updates** - will be posted at <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=450>

After the Kickoff, *FIRST* will start posting Team Updates online. Team Updates provide rules updates, important information about parts and administrative reminders/deadlines. Please note that some updates will result in *FIRST* publishing revisions to manual sections.

**NOTE: Please be sure to check these website locations often during the build season to ensure that you have the latest information.**

## 2.6.2 FRC Q&A Forum

After Kickoff, *FIRST* provides an on-line forum for questions and answers (Q & A). For the 2012 season, FRC is migrating to a new Q&A system. More details will be published shortly. The new Q&A system can be found here: <http://www.usfirst.org/roboticsprograms/frc/qanda>.

## 2.6.3 Email Blasts

Email blasts are important communications that *FIRST* sends to team contacts identified in TIMS. The email blasts remind teams of important deadlines, updates, and other timely FRC information.

*FIRST* archives the email blasts on the *FIRST* website at “**2012 News and Email Blasts**” webpage at: <http://www.usfirst.org/roboticsprograms/frc/emailblastarchive.aspx>.

*FIRST* will typically send out one email blast on the **Thursday** of each week throughout the FRC Season.

Rookie Email Blasts will be sent to rookie teams periodically on Tuesdays during registration and throughout the FRC season.

## 2.6.4 "Bill's" Blog

Is located at <http://frcdirector.blogspot.com/> and should be read weekly for additional important updates from the Director of FRC, Bill Miller.

## 2.7 The TIMS - Supplying Information to FIRST

The TIMS is the online system used by the Main and Alternate Contacts of the team to:

1. Create a Team Profile,
2. Register for events,
3. Enter Kit and Kickoff Preferences,
4. Enter Judge's Information (for awards),
5. Accept students to the team, track their electronic Consent and Release Forms, print a Team Roster, and assign students to submit for key awards and track their progress.

The TIMS additionally provides options to allow teams to register themselves as a team willing to mentor others, or for a team to identify itself as a team in need of mentoring.

## 2.8 Judges' Information

**The Judges' Information Section is the best way to provide an overview of your team to the competition judges. Please take advantage of this opportunity and provide this important information in TIMS.**

The Judges' Information is a team overview page. It is your team's opportunity to share valuable information and statistics with *FIRST* and the judges at the events. These data are very valuable for planning events and very helpful in our efforts to procure funding. *FIRST* may use the robot photos you submit in the Awards Ceremonies. Enter the information under the "Judges' Information" section in TIMS.

The purpose of the Judges' Information is to provide:

- a common starting point for judging each team;
- insight for judges into team's workings, history, goals, strengths, and robot; and,
- team data for *FIRST* and its archives.

Please refer to the team manual, *Section 6 - The Awards*, for more information about the awards.

## 2.9 Event Specific Information

Event specific information such as agendas, site information, pre-order lunch forms etc. are posted under each event at: <http://www.usfirst.org/roboticsprograms/frc/regionalevents.aspx?id=430>

Check back periodically as this page is updated in stages.

## 2.10 Regional Events and Championship Hotel Information

Steele Meetings, Inc. will once again be handling the hotel reservation system for Regional Events and Championship. Please click on the following link for more information and to make your reservations: <http://www.firstchampionshiphousing.com/Home.aspx>

## 2.11 FIRST Logos

You have numerous creative opportunities for designing your own team identity. Every year, we see great examples of how teams "brand" their efforts with websites, incredible team logos on robots, T-shirts, hats, banners, fliers and giveaways. These branding activities are a great way to get students interested in art, communications, computer and language arts to join and work on the team.

As you manage your own promotion, you may want to incorporate the *FIRST* logo in what you do. Because our mark - the combination of the composite graphic element plus the *FIRST* word mark – is a registered trademark, we have a few guidelines for you to follow when using the *FIRST* logo or the FRC logo. You can find the logos and information about how to legally use them at [www.usfirst.org/brand](http://www.usfirst.org/brand).

### 2.11.1 Logo Use

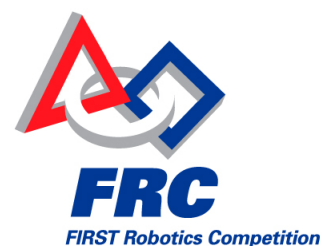
Once the game is announced at the Kickoff, you will be able to download this year's game logo at

<http://www.usfirst.org/roboticsprograms/marketing-tools/frc> (see link in FRC GAME section).

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**Section**  
**3**

# Team Organization



## 3 Team Organization

### 3.1 Getting Started: Guides, Handbooks, and Other Helpful Resources

Read and print the following documents at:

<http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=5504>

- "Starting an FRC Team"
- "FRC Handbook"
- "*FIRST* Mentoring Guide"
- Community sponsored resources

Each of these documents provides information and suggestions for organizing your team. For help with other practical aspects of the competition, refer to the "Resources" fly-out on the left hand side of the FRC Home page

at <http://www.usfirst.org/roboticsprograms/frc>. Here you will find sponsorship links, tutorials, technical links for programming and pneumatics, ideas for team sustainability, mentoring resources and other assets.

**Tip!** Safety is an integral part of the *FIRST* programs. Be sure to read the safety page at <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=470> where you will find the link for the “*FIRST* Robotics Competition Team Safety Manual.”

Start your season off by assigning a Safety Captain, creating safe work places, and establishing a safe work ethic.

## 3.2 Suggested Leadership Roles

Developing a team leadership structure that assigns clear roles and responsibilities is the first step to organizing your team. Once complete, it will be much easier to prepare for the season, unify and manage the team, keep current with important information and meet season deadlines. Your team is encouraged to align its leadership structure with the contact requirements of the TIMS as outlined on the tables below, but team structure is the team’s prerogative and the following are only suggestions.

Examine the roles, and compare recommended qualities and abilities with your mentors from a *FIRST* perspective. Please remember it is essential that team members and mentors share the workload!

### 3.2.1 Main Contact Responsibilities

The Main Contact is the primary contact who provides team information to *FIRST* and undertakes key actions on behalf of the team via the TIMS. It is recommended this role is filled by the lead mentor of the team. This person may choose to delegate some of the responsibilities listed below, but should still be up to date with their progress and ensure their completion. **This position must be held by one over the age of 18.**

- **Award Submissions:** Assign student submitters in TIMS. Ensure submissions of Woodie Flowers, Website, Chairman’s, and other Awards by the respective deadlines. Find details in the “Awards” section of the FRC Manual. Review <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=440>
- **Bill's Blog:** Monitor FRC Director, Bill Miller’s blog for additional news and updates. <http://frcdirector.blogspot.com/>
- **Calendar of Important Deadline Dates:** Monitor the *FIRST* website calendar for changes, additions at: <http://usfirst.org/roboticsprograms/frc/content.aspx?id=454>
- **Communications:** Receive *FIRST* communications, read Team Updates, Bill’s Blog, etc. (see below).

Ensures team is educated on important information. Contacts *FIRST* Team Support with any questions.

- **Consent and Release Forms:** Ensure all team Consent and Release Forms are submitted. Please refer to [Chapter 4- At the Events Section 4.8.1](#) of the Team Manual for more information regarding the Consent and Release form. Review <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=8128>
- **Contact Information:** Keep all contact information up to date in the TIMS Team Profile Section. Provides his/her accurate email address, mailing address, and phone number to allow timely communication with *FIRST*, especially for use during vacations or team travel.
- **Email Blasts:** Receive, read and share with team e-mail blasts. Email blast and News Archive Page located at <http://www.usfirst.org/roboticsprograms/frc/emailblastarchive.aspx>
- **Event Information:** Register team for Events in TIMS.
- **Judges' Information:** Enter the submission into the TIMS by the deadline.
- **Kit and Kickoff Information:** Submit selections in TIMS by deadline.
- **Robot Transportation:** Invite Shipping Contact to team, or assume role. Ensure the Shipping Contact is actively learning the rules and making plans to transport your team's robot. Also ensure that they are meeting all deadlines.
- **Safety:** Work with team's Safety Captain to ensure team member safety. Review *FIRST* Safety Policies/Procedures.
- **Scholarship Opportunities:** Invite team Scholarship Contact in TIMS.
- **Team Profile:** Maintain and update Team Profile Information in TIMS to reflect correct team contacts, partner organization, team demographic information
- **Team Updates:** Reads Team Updates posted at:  
<http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=450>
- **TIMS (Team Info System):** Maintain and update ALL team's TIMS record at  
<https://my.usfirst.org/frc/tims/site.lasso>
- **Track Twitter Feed:** Monitor the FRC Twitter Feed for announcements about updates, news and important information. <http://twitter.com/FRCTeams>

### 3.2.2 Alternate Contact Responsibilities

This person is the Main Contact's "right hand" and shares in providing and maintaining accurate information in TIMS, as well as providing leadership to the team. The Alternate Contact should read and share in the responsibilities of the Main Contact as outlined above. Generally the Alternate Contact assumes the Main Contact role should the Main Contact not be able to fulfill his/her duties. **This position must be held by one over the age of 18.** Key duties include:

- **Calendar of Important Deadline Dates:** Monitor the Calendar of Important Deadline dates for changes, additions at: <http://usfirst.org/roboticsprograms/frc/content.aspx?id=454>
- **Communications:** Receive and send relevant *FIRST* communications
- **Chairman's Award (CA):** Collect information about, and document, the successes and accomplishments

of the team. Organize the CA submission for the team and help prepare the CA presentation to be given to the judges at the event. Please refer to Team Manual, [Chapter 6– The Awards](#) for more information about the Chairman’s Award.

- **Contact Information:** Provide current contact information for the TIMS, including an alternate phone number and address in case *FIRST* has to make contact during vacation or while the team is traveling.
- **Public Relations:** Confer with Main Contact. Notify Public Relations (PR) Contact of any upcoming team fundraising or events.
- **Robot Transportation:** Be familiar with the robot transportation responsibilities and deadlines in case the Shipping Contact needs help. Can also assume role of Shipping Contact.
- **Safety:** Work with team’s Safety Captain to ensure safety while working and traveling.
- **Support:** Provide any support the Main Contact or team may need.
- **School Vacation Coverage:** Assist Main Contact with receiving communications and handling team issues during vacation periods.
- **TIMS (Team Info System):** Assist Main Contact with maintaining and updating team’s TIMS record at <https://my.usfirst.org/frc/tims/site.lasso>

### 3.2.3 Shipping Contact Responsibilities

This is a critical position on the team as this contact is responsible for handling robot transportation and receiving any items shipped from *FIRST* to the team (e.g., a replacement part).

- **Communications:** Receive and read *FIRST* email blasts, read Bill’s Blog and the Team Updates. Communicate with *FIRST* on any robot transportation related questions.
- **Contact Information:** Provide the Main or Alternate Contact with current contact information for the TIMS, including a valid phone number to enable *FIRST* contact during vacation times or when the team is traveling.
- **FedEx Donation:**

Receive and safeguard any shipping paperwork the team is given because of travel to Championship or because you have been granted a Bag and Tag Exemption. The FedEx donation can save your team hundreds of dollars on shipping your robot. Carefully guard the shipping documents. Use the shipping paperwork as specified in manual *Chapter 5 Robot Transportation*.

**NEITHER *FIRST* NOR FEDEX WILL REPLACE LOST SHIPPING DOCUMENTS!!!**

- **Kit of Parts:** If your team opted to pay for your Kit of Parts shipment (i.e. elected the “Team Pays” choice in the TIMS), confer with Main/Alternate Contact to ensure that the shipping address in the TIMS is correct.

If your team wants to pick up the kit, make sure the Main Contact meets the deadline for this TIMS entry.

Designate an adult mentor to pick up the kit at a Kickoff.

If your team wants to designate another team to pick up the kit, make sure the appropriate Surrogate Kit Pickup paperwork is delivered to *FIRST* by the deadline as indicated on Calendar of Important Deadline Dates at <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=454>

- **Robot Transportation:** Read *Chapter 5 - Robot Transportation* in the FRC Team Competition Manual as well as review supplemental instructions as directed in that chapter.

Be familiar with the following:

- Bag and Tag requirements and procedures.
  - Deadlines and requirements for shipping your robot crate, if you are travelling to Championship or have been granted an Exemption.
  - Customs requirements if you travel over a border.
  - Other requirements that pertain to your particular team situation.
- **TIMS Team's FedEx, UPS, or USPS Account Number:** Provide the Main or Alternate Contact with a shipping account number for the TIMS. This could directly impact the missing, defective, or broken parts replacement system for your team.

Sponsor/school may let team use its shipping account, or obtain a number from the companies' websites.

### 3.3 Recommended Additional Contacts

#### 3.3.1 Corporate / University Contact Responsibilities

This contact provides information about the team to the University or Corporation sponsoring the team. Keeping the sponsor/partner informed of team progress and achievements throughout the season is a great way to ensure their support.

- **Communications:** Receive related team e-mails. Provide information if necessary.
- **Contact Information:** Provide up to date contact information for the Main Contact for the TIMS. Provide an alternate phone number and address in case *FIRST* needs to make contact during vacation or while the team is traveling.
- **Public Relations:** Notify university/sponsor contacts of any upcoming team fundraising or events. Confer with Main Contact. Let supporters know about trials and successes regarding the robot design and build. Get them excited right through the process and continue providing information throughout the year. Invite them to an event.
- **Scholarships:** Know the website area concerning scholarships and inform students about the opportunities and deadlines. Encourage and assist students interested in applying for them.

#### 3.3.2 Public Relations Contact Responsibilities

This person's role in advertising the team's goals and accomplishments is critical. Work with the team contacts to ensure the partners are apprised of the team's progress and accomplishments.

- **Communications:** Receive relevant *FIRST* communications and reply when necessary.
- **Contact Info:** Provide up to date contact information to the Main Contact for the TIMS.
- **Fundraising:** The team would be wise to advise this person of any fundraising activity or team appearances at least two weeks before the date so that advance notification of the event can be prepared and sent to media contacts.
- **Public Relations Updates:** Responsible for receiving and disseminating any PR updates issued by *FIRST*, and using them to the team's advantage in local newspapers, as well as TV/radio stations.
- **Sponsors:** Send any PR information to current sponsors all during the year, and prepare "marketing" materials to attract potential new sponsors.

### 3.3.3 Scholarship Contact Responsibilities

This team contact is responsible for disseminating information about *FIRST* Scholarships to the student FRC team members and their parents. It is HIGHLY RECOMMENDED a Scholarship Contact is assigned to team and entered in TIMS!

- **Communications:** Receives key Scholarship Information from *FIRST* and shares with team students and parents. Communicates with *FIRST* on any Scholarship related questions.
- **Contact Information:** Provide up to date contact information for the TIMS. Provide an alternate phone number and address in case *FIRST* needs to make contact during vacation or while the team is traveling.

### 3.3.4 School Contact Responsibilities

This adult representative is responsible for knowing and enforcing all school rules regarding team participation. A teacher or principal may be best qualified for this role to facilitate the team's progress and meeting deadlines.

- **Communications:** Receive school related team e-mails. Provide information/reply if necessary.

If no one is specified to work on the following projects, work with Main Contact to make sure students get them done. Refer to the web *Calendar of Important Deadlines*.

<http://usfirst.org/roboticsprograms/frc/content.aspx?id=454>

Monitor Award due dates. Please refer to the Team Manual - *Chapter 6 - The Awards*.

- **Contact Info:** Provide up-to-date contact information for the Main Contact in TIMS
- **Public Relations:** Notify Public Relations contact of any upcoming team fundraising or events.

- **Safety:** Stress safety whenever possible.
- **Scholarships:** Inform students early about scholarship opportunities and deadlines and encourage/assist those interested in applying for them.

### 3.3.5 Technical Contact Responsibilities

This person will assist the team with technical issues and problems related to engineering.

- **Communications:** Receive team e-mails. Provide information/reply if necessary. Keep the rest of the team apprised on your technical successes/issues. Ask for help/ideas.
- **Contact Information:** Provide up to date contact information for the TIMS. Provide an alternate phone number and address in case *FIRST* needs to make contact during vacation or while the team is traveling.
- **Pre-Ship Inspection:** Work with the team members to perform a robot inspection before your robot ships. Use the Inspection Sheet that will be listed in the *FRC Game Manual – Section 4* after Kickoff. This inspection will show where problems are so you can correct them before transporting your robot. . It will also provide the students with information they will need to know during the on-site, pre-competition inspection since the inspectors will be asking the students questions.
- **Public Relations:** Notify Public Relations Contact when your robot nears completion or when you have an opportunity to show off your robot.

If the PR contact is not available, notify local media of any upcoming team fundraising or events. Plan these opportunities with your Main Contact.

- **Safety:** Stress safety and ensure safe working conditions, safety glasses use, etc.

### 3.3.6 Travel Contact Responsibilities

This person will make event(s) travel and hotel arrangements for the team members and mentors. Tackle this task early to ensure there is room on preferred flights and in preferred hotels.

- **Communications:** Receive relevant *FIRST* communications and communicate with *FIRST* and team as necessary.
- **Contact Information:** Provide up to date contact information for the TIMS. Provide an alternate phone number and address in case *FIRST* needs to make contact during vacation or while the team is traveling.
- **Hotel Reservations:** Regionals and Championship: Refer to *Chapter 2 - Communications* section of the Manual for hints and good advice on choosing team hotels.
- **Manual and Website:** Refer to the “Site Info” on the website for special travel/parking instructions. Bring the directions for the venue.
- **Stores/Suppliers:** Refer to the *Chapter 4 - At the Events* portion of the Manual to find links to various types of stores, such as printing, supplies, hardware. Find stores near your chosen event and print out the

directions to them.

- **Travel Pricing:** Obtain, consider, and compare travel costs prior to registering for an event(s). The web has many opportunities to compare airfares. Ask for group rates to see if that is a good option. Is bussing an option?

## 3.4 Other Important Team Positions

Your team may want to consider appointing one or several Rules Monitors and Safety Captains. Students are welcome to fill these positions if the team members and mentors agree and find responsible candidates. *FIRST* does not need their contact information in the TIMS.

Please read below for some job-related roles these students or adults may want to fill.

### 3.4.1 Game Rules Monitor Responsibilities

- **Know Point System:** Be sure the team understands the system; implement the best strategy.
- **Know Penalties:** Be sure all mentors and operators know and understand all penalties.
- **Learn Game Rules:** Read and understand the rules of the game and communicate them to the team members so they know the ins and outs of the game.
- **Learn Web System:** Check the online Manual for rules, changes, and web-based question and answer system.

Online manual is at <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=452>

Q&A is at <http://www.usfirst.org/frc/qanda>

- **Monitor Team Updates:** Communicate any changes, written in the updates, to the team.

Team Updates are at <http://www.usfirst.org/roboticsprograms/frc/team-updates>

News and Email Blasts are at <http://www.usfirst.org/roboticsprograms/frc/emailblastarchive.aspx>

### 3.4.2 Safety Captain Responsibilities

- **At the Events:** Bring enough safety glasses for the team and all guests. Make sure persons who will unpack your robot crate will have glasses to wear as they arrive at the Pit, and make sure all persons wear safety glasses/goggles properly.

Be sure your team transports and lifts the robot safely.

Know where the EMT area is, and report any injuries to the Pit Supervisor at the time of injury or treatment.

Discourage running in the Pit or Competition Arena, and work with the green-shirted Safety Advisors to

keep things safe and the Pit aisles clear.

Bring any serious safety infractions, such as metal grinding or open flames to the attention of the Pit Supervisor, as well as any blatant discourtesies.

- **Home Work Site:** Obtain enough safety glasses for the team. Ensure all persons wear them over their eyes when working on the robot or in the "work" vicinity. People who wear glasses must have regulation safety glasses with side shields or wear safety goggles over their glasses.

?Make sure the work area is safe and the floor is clear at the team's workplace and at the events.

- **Read FRC Competition Manual:** Read "Courtesies and Rules" section in *Chapter 4 -At the Events* section of the Manual. Meet with team members and decide what the team deems important in the safety area. Diplomatically enforce their findings.
- **Read FRC Team Safety Manual:** Print and read the "*FIRST* Robotics Competition Team Safety Manual." Meet with the team and go over the manual with everyone.
- **Safety Policies:** Review Safety Policies and Procedures in the "*FIRST* Robotics Competition Team Safety Manual." and inform the team of the mandates and suggestions. Encourage all team members and mentors to read the document, follow the suggestions, and become familiar with the safety awards.

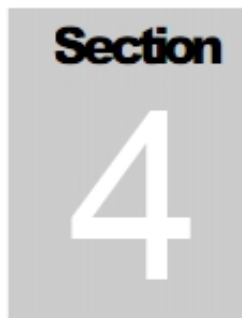
Suggest that the team build a robot cart if it doesn't have one.

- **Use Courtesy:** At all times, think with a *Gracious Professionalism*® attitude.

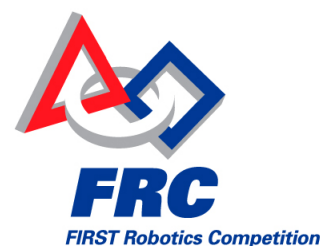
This position is one that should make teams aware of safety issues and make team members want to improve conditions, not balk at the methods *FIRST* uses to ensure a safe environment. Use common sense and good judgment when bringing an infraction to someone's attention. Please be kind and positive because the Safety Captain is an ambassador for your team.

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# At the Events



## 4 At the Events

### 4.1 Overview

This section provides a general summary regarding safety, mascots/uniforms, recommended items and equipment for teams to bring. You will also find information about pit rules, generic event schedules, robot inspections, replacement parts and competition manners. The following section provides a "feel" for competition schedules, event check in procedures, practice times and matches. Please familiarize your team with this overview so all team members know what to expect and will understand the routine and the rules.

### 4.2 FIRST Safety

Participants and team mentors should review the FIRST safety policies and the FIRST Safety Manual located at <http://www.usfirst.org/roboticsprograms/frc/safety-video-and-manual?id=470>. It provides sound safety practices for your workplace and FIRST events.

Every team should know, understand, and follow the safety rules found in the FRC Team Safety Manual.

#### 4.2.1 Safety Recommendations

At events, the pure anticipation and excitement of being there sometimes overshadows common sense and safety fundamentals. One safety area that teams sometimes overlook is the particular need to wear appropriate and proper clothing when working or just hanging around the robots. In addition to the ANSI-approved safety glasses required for eye protection, FIRST also highly recommends that team members and mentors:

- Refrain from wearing dangling jewelry or loose, baggy clothing near the robots;
- Tie back long hair so that it will not get caught in the robot or other machinery;
- Wear gloves to protect hands and fingers when handling the robot or the robot crate;
- Remember that fire extinguishers are available at the Pit Admin station and near the playing field; and
- Please stay within your team pit or move to the competition viewing area. If the pit area becomes too crowded for teams and their machines to move back and forth to the field safely and quickly, FIRST will request that some team members leave the area.
- See the FIRST Safety Manual located at <http://www.usfirst.org/roboticsprograms/frc/safety-video-and-manual?id=470> for more information

## 4.2.2 Robot Carts

To protect team members from muscle strains and other injuries as they transport the robot between the pits and the competition area, we strongly recommend that team members use a cart. Please keep the following in mind:

- Carts must remain in the team pit area when not in use for robot transportation;
- All carts should fit through a standard 30-inch door;
- Wheels on the cart must not damage site flooring; and
- Do not add music or other sound devices to the cart.
- Put your team number on your cart so it can be identified by field personnel

Refer to the "FIRST Safety Manual" for robot lifting techniques. By practicing these safety techniques, your team members will also develop a quick, fluid routine.

## 4.2.3 Safety Recognition Program

Throughout the competition, the easily recognizable, green-shirted Safety Advisors will continuously tour in pairs to observe activities in the pit, practice field, queue line, and playing fields to observe the safety habits of the teams. This includes observing the uncrating of robots and transporting them between the pit and playing fields. The Safety Advisors will rate safe performance in three key areas:

- 1.) Safe Behavior;
- 2.) Physical Conditions; and

3.) The use of Safety Glasses as well as other Personal Protective Equipment (PPE) as appropriate.

See the FIRST Safety Manual located at

<http://www.usfirst.org/roboticsprograms/frc/safety-video-and-manual?id=470> for more information

## 4.3 Courtesies and Rules

The pit is where you can get to know other team members and perhaps pick a few brains and learn something new. The *FIRST* staff and volunteers want you to enjoy the competition and ask that everyone follow courtesy rules while in the pit, on the playing field, and in the audience.

Please help to make guests feel comfortable and welcome. Provide your team with the site restrictions and rules so everyone can work and compete in a safe, sportsmanlike and friendly environment.

### 4.3.1 Robot Wireless Control

- Robots may be operated via wireless control only on the competition fields and the practice field with the FIRST supplied radio; and
- Teams are not allowed to set up their own 802.11a/b/g/n (2.4GHz or 5GHz) wireless communication (access points or ad-hoc networks) in the venue
  - Note that a wireless hot spot created by a cellular device would be considered an access point, and thus not allowed

## 4.4 Staff/Volunteer Badges

At events, staff and volunteers will wear distinguishing badges. Should your team members or mentors have questions or a problem, staff and volunteers will help you find the answer (especially your friendly Pit Admin staff!).

## 4.5 Competition Overview

This section provides general competition information and necessary details regarding scheduling, robot inspection, practice times, safety, rules, regulations and suggestions for teams.

### 4.5.1 Practice Matches

Your event check in envelope should contain the Practice Match Schedule. If the Practice Match Schedule is not in your envelope, check with Pit Admin. Practice matches take place on the competition field. The Schedule will indicate on which competition field you will practice and with what teams. Teams cannot switch practice times.

### 4.5.1.1 Time Slots

All teams will receive a comprehensive list of practice times. Your team must be at the field and ready to practice at the designated times. If your team/robot cannot be ready for your practice time slot, don't forfeit your team's practice time entirely. Send in your human player to practice alone. Your team members may want to scout other teams and their strategies during practice and the actual competition matches.

### 4.5.1.2 The Filler Line

Although teams may not switch practice times, there will be a designated Filler Line at each competition. Teams whose robots are ready for practice may join the Filler Line, if they have passed full inspection. Teams from the Filler Line will be used on a first come, first served basis to fill empty spots in practice matches left by other teams that do not show up for their own practice match. Filler Lines will be limited to, at most, six (6) robots, but the number is dependent upon space at venues. Criteria for joining the Filler Line are as follows:

- Robots in the Filler Line must have passed full inspection;
- Teams must join the Filler Line with their robot;
- Teams may not work on their robot while in the Filler Line;
- Teams may not occupy more than one spot in the Filler Line; and
- If a team is queued up for their practice match, they may not join the Filler Line.

### 4.5.1.3 Courtesy

In order to make the most of practice time, there will be specified teams on the field during an assigned practice slot. Each team must be respectful of the other teams sharing the field. Friendly interaction between machines is acceptable, if all teams are willing. Unsportsmanlike conduct on the part of a team during practice could result in loss of practice time or other unfavorable action.

## 4.5.2 Competition Matches

Once your team robot passes inspection and receives its official sticker, you are eligible to compete.

### 4.5.2.1 Qualification Match Schedules

Before the pit opens on the morning of the second day, the Pit Admin Supervisor will place a copy of the Qualification Schedule on each team's pit table. This list provides information as to when teams will participate, with whom and against whom. The list is final and the schedule will not be altered.

#### 4.5.2.2 Scouting

Teams often use the Qualification Schedule to scout other teams to watch their strategies and robot capabilities. This is especially helpful when choosing alliances, should your team advance to the final matches.

#### 4.5.2.3 Early Matches

Make sure your team is on time and in place if you have an early match on competition days. If your team is scheduled for any of the first four (4) matches on those days, you must queue up before the opening ceremony. Matches begin immediately after the conclusion of the opening ceremony.

#### 4.5.2.4 The Schedule at Events

You will need to know when you will compete. The Pit Announcer and Queue Team will work together throughout the days to line up teams for competition matches and maintain the schedule. Pay attention to the match schedules and listen for announcements throughout the day, especially about any changes to the number of the ending match before lunch or which match designates the end of the competition day.

Please note that there will not be audible queuing at the Championship. As such, teams must queue up a half hour prior to each designated match.

### 4.5.3 Competition Agendas

Print the event-specific agenda from the web site for each event you will attend. This information can be found at <http://www.usfirst.org/roboticsprograms/frc/regional-events?id=430> . Bring it with you so your team will have the event's agenda.

For Championship, please refer to the Championship Agenda which can be found here: <http://www.usfirst.org/roboticsprograms/frc/championship-event>.

## 4.6 Load In Procedures

### 4.6.1 Bag and Tag

This year ALL US and Canadian FRC District and Regional Events will be Bag & Tag. Don't know what Bag & Tag means? On Stop Build Day - Feb 21st teams must stop work on the robot and seal it in a large bag (using a tag) that will be included in the 2012 Kit of Parts. Teams record when the robot is sealed on a Robot Lock-Up Form. Teams then transport the robot to and from the event on their own. Please check the public agenda for robot drop-off times. No work on the robot is allowed until the Robot Lock-Up Form has been reviewed and signed off by an inspector.

See FRC Administration Manual section 5 for more Bag and Tag details.

## 4.6.2 At Championship

For Championship, teams will ship their robots to the event in a crate. See FRC Administration Manual section 5 for more details.

For convenience and to help ensure safety in the pit, five (5) people from each team will be allowed to uncrate and work on their robot on Wednesday. Uncrating and robot work will be allowed on Wednesday evening. See Championship Agenda, when published, for specific times. . At least one (1) of the five (5) team members entering the pits must be a post-high school adult (The others may be either students or adults).

The priority tasks for team members are to uncrate their robot, have their Robot Lock-Up form signed off by an inspector before they unbag their robot, and move their crate to the aisle so that it is accessible to Shepard for removal. Teams can then set up their pit and get the robot INSPECTED. No work on the robot is allowed until the Robot Lock-Up Form has been reviewed and signed off by an inspector. The rules for Wednesday night pit entry at the Championship are as follows:

- Teams will not be allowed to use the practice fields Wednesday night. Teams should be focused on setting up their pits and getting inspected.
- The five (5) team members will be permitted to load in team materials on Wednesday night;
- Team members may only make one trip with load-in materials;
- There is no set limit to the amount of material teams may load-in, but it must be done in a safe, manageable way (Safety Advisors and other volunteers will be on site checking for, and helping mitigate, unsafe conditions);
- Safety glasses are required while in the pit; and
- An adult team member (one (1) of the five (5) permitted in the pit) may use this time to
- Check-in early to avoid the rush on Thursday morning.

The Shepard Exposition Services (SES) Desk personnel will be on hand to help during this limited opening.

- If your crate has incurred damage, do not open it until you notify the SES Desk personnel right away about the problem.
- Look for any label on your crate having to do with weight or crate damage questions regarding your shipment. Contact the SES Desk before opening the crate. Once the team opens a crate, you cannot protest a weight issue.
- SES - Resolution time for weight overage / damage problems: Notify the SES Desk personnel immediately.
- When you have uncrated, notify the SES Desk personnel so haulers can remove the empty crate(s) and keep aisles clear and safe.

## 4.7 Event Check In

Event check in takes place at the Pit Admin Station the first morning of the event at the Regional Competitions and Wednesday evening and Thursday morning for the Championship. At each event, an adult member of each team should check in by noon on the first day of the event.

Prior to attending your event(s), please download the Agenda and review other important information specific to your event. You can find agendas and other information on the 2012 FIRST Robotics Competition Regional Events page: <http://www.usfirst.org/roboticsprograms/frc/regional-events>

### 4.7.1 Consent and Release Forms

We are highly encouraging all FRC team members to submit their Consent and Release form electronically.

FRC Team Mentors registered in TIMS will submit in TIMS. Student team members will submit via the FIRST Student Team Information Member System (STIMS) at:

<https://my.usfirst.org/stims/site.lasso>

Please note that if a team member decides to submit their Consent and Release form electronically, it will cover the team member's attendance for the entire season – from Kickoff through Championship. However, if a team member chooses to turn in a "hardcopy" of the form (i.e. printed out from the website and signed) he/she will have to provide it both at the Kickoff event (if attending) and at the initial competition. If one does not attend the Kickoff event, then the team member will only have to provide one (1) form at their initial competition event.

### 4.7.2 Event Check In Envelope

Upon receipt of the team's consent/release forms, each team will receive an event specific event check in envelope containing:

- Pit Map
- Practice Match Schedule
- Safety Captain Badge
- Team List
- Operator Badges
- Participation Pins

## 4.8 The Pit

Teams, volunteers, *FIRST* Staff and guests spend a lot of time in the Pit area. Get to know other teams, help each other when you can, and keep the aisles clear. Time is short and help is very often right "next door" in the adjacent

team pits.

***Children under 12 MUST be accompanied  
in the Pit by an Adult at all times!***

### 4.8.1 Pit Admin Station

The Pit Admin Station is centrally located in the Pit area. *FIRST* staff members and/or volunteers run this area to check in teams and help teams and visitors. Come to the Pit Admin station to:

- Turn in a printed roster and the remainder of your team's Consent/Release Forms;
- Check in and receive your check in envelope, and badges. Check your event agenda for the Pit opening/closing time for each event;
- Get answers to most questions, including machine shop access;
- Ask about lost and found articles; and
- Report an illness or injury.

### 4.8.2 Team Pits

These are the areas where teams work on their robots. These numbered spaces help organize team placement and help team members, judges and visitors find teams easily. These areas are set up to be as equal as possible. Each team's pit will have a table and power outlet.

#### 4.8.2.1 Rules

For safety and because of insurance regulations:

- Teams cannot build any structure that supports people, or items for storage, above the work area in their team pit;
- No Team Station structures, signs, flags, or displays can be higher than 10 feet above the floor;
- Team Station signs, flags, and displays must be securely mounted to the structure; and
- *FIRST* personnel, event management, and/or local committee members will require teams to remove any pit structure that is deemed unsafe or outside specifications.

#### 4.8.2.2 Space Regulations

Each team is allotted approximately the same amount of workspace at an event, usually about 10'x10'x10'; however, the size will vary from event to event, and in many cases the space is smaller. Be sure your equipment will fit in a space smaller than those dimensions. In all cases, the height cannot exceed 10'. This includes the height of signs, flags, banners, etc.

Keep your equipment and team members within your assigned area and do not “grow” into the aisle or undesignated space. If your team is too large to fit into the allotted space, encourage your team to leave the area to scout other teams and/or to watch the matches.

***Don't add to your space by setting up in another area.***

### 4.8.3 Spare Parts Station

Spare parts will be available at the events; however, item availability varies from event to event. *FIRST* asks that teams bring any unused parts from their kits to events to assist and support each other or donate them to the spare parts cart (which will be used at other events). This kindness can expand your *FIRST* network of friends as you exchange parts.

Batteries & chargers will NOT be available at any event unless you have made prior arrangements with *FIRST* (email [FRCParts@usfirst.org](mailto:FRCParts@usfirst.org) for more information).

Teams are responsible for all items required at events. If a team needs a replacement high-value item, *LOANERS* will be available under restrictions that will be published after Kickoff.

### 4.8.4 Inspection

To ensure all robots are safely constructed and fall within the *FIRST* parameters, there is an official robot inspection at each event. Certified inspectors will be on site. Inspectors can sometimes help find problems and/or provide suggestions during an early inspection. Go to the Inspection Station, shown on the Pit map. Read below for criteria and caveats:

- To ensure safety and readiness, pre-inspect your robot before you ship it. This will make your official inspection go more smoothly and quickly;
- Inspectors will use an official inspection sheet for checking robots; a draft copy of the inspection checklist will be available to teams during the build season. Inspectors check off items on an Inspection Sheet as the team passes those portions of the process;
- Don't wait until the last moment to begin the process. Bring your robot to the Inspection Station early. Partial inspections, such as for height and weight compliance, help prevent an inspection clog at the end of the day;
- Student team members must accompany the robot and be prepared to answer Inspectors' questions;

- Correct items and return for inspection until your robot passes;
- Teams may practice on the first day of the event, during their scheduled practice times only, without completing the inspection process; however, if field personnel deem a robot unsafe, it will not be allowed to practice until the unsafe condition is fixed. See section 4.1.6.2 regarding requirements to participate in a practice session as a 'Filler'
- Robots must pass inspection before actually competing in qualification matches;
- Each time you alter the form, fit, or function of your robot, you must request and pass a robot re-inspection; and
- Inspectors may re-inspect randomly before or after matches to ensure continued safety and compliance.

## 4.8.5 Machine Shop

Some events have a machine shop to help teams with repair and fabrication either sponsored by NASA or local organizations. While the machine shops vary, *FIRST* strives to have welding and a variety of high-powered tools available at the shop.

The staff and volunteers in the Pit Admin Station will be able to tell you how to make use of the machine shop. Sometimes the machine shop is on site and readily accessible to all teams, but when it is off site, we require teams to use the mandatory transportation provided at the venue. Teams cannot travel to the machine shop "on their own".

<b>Pit/Machine Shop Hours</b>	Specific hours are necessary to provide teams with equal work time. Please be aware aware of the opening and closing hours of the Pit/Machine Shop posted on the agenda event specific agenda which can be found on the <i>FIRST</i> website.
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## 4.8.6 Team Provided Mobile Machine Shops

*FIRST* welcomes team provided mobile machine shop facilities/trailers at events, but the proposed facility has to comply with *FIRST* and venue requirements. The mobile machine shop/trailer sponsor must adhere to the following two (2) sections.

### 4.8.6.1 Approval, Liability, and Security Coverage

- If your team would like to provide a mobile machine shop, please have *FIRST* approval and clearance prior to each event. E-mail [frcteams@usfirst.org](mailto:frcteams@usfirst.org) to request approval prior to Kickoff on January 7th, 2012.
- Teams must provide liability coverage. Note that liability coverage at event venues varies, and specific venue policies may further restrict the use of these team provided mobile machine shops. Without the

proper additional insurance certificate, the mobile machine shop cannot be used at the event. The requirements are:

- Name *FIRST* as an additional insured.
- Fax the certificate to 603-666-3907, Attention: Team Support.
- Present a copy of the certificate to the Event Manager on site prior to setting up the machine shop.
- Include an appropriate team-provided staffer to perform the requested work. Each staffer must be covered under the provided liability coverage.
- Provide for any security requirements. Neither *FIRST* nor the venue is liable and/or will provide these services for you.

#### 4.8.6.2 Local Restrictions

Although *FIRST* may approve a local machine shop use at any Regional, there are local restrictions such as fire codes and venue approval that you must consider as part of the process. *FIRST* will do its best to convey any relevant needs and work on your behalf to gain venue approval through a professional, legal process.

#### 4.8.6.3 Other Requirements

In addition to the above, the sponsoring team(s) must:

- Include an electrical source for the mobile machine shop facility;
- Ensure that all teams have the ability to use tools/machines and its use. Access cannot be restricted to certain teams;
- Handle job requests through the same counter/process as the *FIRST* provided shop services. This includes the sponsoring team's requests; and
- Operate **ONLY** during event hours when the Pit is open.

#### 4.8.7 Machine Tools at Events

When using tools in the Pit, be sure to use them properly, in a safe and controlled manner. Unsafe operation, especially those that endanger those around you and your team, will be subject to scrutiny by the event staff and safety reviewers. Their findings may result in team caution or event expulsion.

Please adhere to the following safety rules regarding Pit safety and tool use:

- **Tools that throw sparks are prohibited.**  
Examples: Electric welders, bench grinders and angle grinders.

- **Tools that produce open flames are prohibited.**  
Examples: Gas welders and propane/MAPP gas torches.
- **Floor standing power tools are prohibited.**  
Examples: Full-size drill presses, full-size band saws and full-size table saws.
- **Grinding or painting in the Pit is prohibited.** Designated grinding and painting areas are available to teams.
- **Brazing/welding is prohibited at the team pits.** Use the machine shop.
- **Soldering is permitted.** Use electric iron/gun only.
- **Small, bench-top machinery, with appropriate guards, is permitted in team pits.** We consider 'small' machinery to be easily liftable by one person.  
Examples: Band saws, drill presses, and sanders.
- **Small, desktop machining centers are permitted as long as they are reasonably sized.** They must be appropriately covered to prevent throwing of chips during operation. We consider 'small' machining centers to be easily liftable by one person  
Example: Desktop CNC mill.

## 4.8.8 Suggested Equipment

We suggest you bring the following:

- Extension cord - heavy duty and at least 25 feet long;
- Power strip - to make best use of your power drop;
- Other items as suggested on the Team Checklist in this section of this Manual; and
- A relatively small cart to transport your heavy robot from the Pit to the playing field. See Section 4.3.2 for cart requirements.

## 4.8.9 First Aid Station

There will be an EMT in the pit to assist in the event of injury and illness. Mentors and the Safety Captain should refer to the Pit Map for the location and alert team members. Notify the Pit Admin Supervisor of any injuries or illness. Bring a travel size first-aid kit for minor injuries.

## 4.8.10 Traffic Flow

At each event, there is a predetermined traffic flow pattern to maximize efficiency of the team/robot entrance and exit and to maintain safety to the competition area. Refer to the Pit Map for the flow. The queuing team maintains this pattern at each event. Please obey the traffic rules to ensure an efficient lineup for practice and competition.

It is extremely important to keep aisles clear for safety, judging accessibility, robot mobility, courtesy and maintaining competition schedules. Keep chairs and equipment out of the aisles. Please sit in the audience, not on

the floor or in the aisles. Judges/Safety Advisors will notice noncompliance.

### 4.8.11 Announcements

We make every effort to keep noise down and announce only important items and scheduling, so PLEASE do not ask the pit announcer to make frivolous announcements.

### 4.8.12 Queuing Your Team

The Pit announcer and queue volunteers must maintain the practice and match schedules. Your team should designate team members to be your queue captains and carefully watch the schedule and alert the team when its turn is near. The queue captain should:

- Look at the Pit Map to find the pre-set traffic pattern for each event.
- Highlight team practice times on the Practice Schedule on the first day of the event and your competition match times on your Match List for the second and third days.
- Listen carefully for the queuing announcements at Regional events and line up your four (4) competing team members/mentor and robot when your team number is announced.
- Queue your team a half hour prior to your matches at the Championship since there are no match announcements. Ensure that you monitor play within your respective division and adjust your queuing time accordingly. Please check with the Lead Field Queuing personnel on your field if you have questions.

**NOTE:** Check the schedule. If your team is in the first four (4) matches of any day of competition, your team's robot and competition team must queue up prior to the Opening Ceremony, on or near the field.

### 4.8.13 Property Security

There have been occasions when items such as cameras and laptops have "disappeared" from the Pit or competition area. Use common sense and do not leave valuable items unattended. Neither the site nor *FIRST* is responsible for any theft. Take valuable items with you, or designate a team representative to remain with them in the team pit or competition areas.

### 4.8.14 Lost and Found

If you find an article or lose one, come to the Pit Admin Table to fill out a "Lost Item Report" or to turn in an article you find. We will make every reasonable attempt to return articles to owners.

## 4.9 Ceremonies

There are both Opening and Awards Ceremonies. These ceremonies allow everyone to show honor and respect for their countries, sponsors, teams, mentors, volunteers and award winners and to provide everyone with the opportunity to applaud the successes of team members and mentors.

They also give teams a chance to "meet" the judges, referees, MCs and other important persons and sponsors involved with the event.

At the Awards Ceremony, *FIRST* presents trophies and medallions to outstanding teams.

### 4.9.1 All Teams Should Attend

We encourage all team members to attend the ceremonies, on time, to show appreciation for the event and those people involved who are volunteering their time and efforts.

### 4.9.2 Pit Manners/Rules During the Ceremonies

- Team members will not be allowed to use power tools, hammers or other noisy tools during the ceremonies.
- All persons in the Pit should observe the code of behavior for the presentation of all national anthems:
  - Maintain a respectful silence;
  - Stand, facing the flag. If there is no flag, look toward the video screen showing a flag; and
  - ALL hats off please.

## 4.10 Pit Closing Etiquette

**On Time:** For many reasons, it is necessary that teams adhere to the Pit closing time each day. Many people working in the Pit are volunteers and deserve to have a set closing time met. Assign team members and mentors to the cleanup/organization of your team pit.

**Robot Transportation:** The team's shipping contact should have a plan to ensure that everything is packed and out the door by closing time. For further details about shipping your robot or participating in the new Bag and Tag system, please refer to Section 5 - Robot Transportation in the 2012 FRC Competition Manual.

## 4.11 Team Socials

Team socials may be held after the Awards Ceremony on the evening of the second day, and may include food, fun and an opportunity to unwind and get to know each other in an informal, relaxed and entertaining setting. These are NOT *FIRST* sponsored.

## 4.12 Championship FIRST Finale

This event takes place after the Awards Ceremony on Saturday evening. Please refer to the Championship event Information.

## 4.13 Team Spirit and Team "Look"

When deciding on a team name or acronym, consider how you can work a theme around it to make your team more fun and recognizable. Part of the pleasure of being a team member or mentor is the way the team stylizes itself.

Team numbers provide unique identification for FRC teams. We strongly recommend that you include the team number on all team T-shirts, trading buttons, hats, cheers and costumes.

### 4.13.1 Team Giveaways

Often teams bring small items to give away to others at the event. This is completely optional, but is certainly a great way to promote your team's identity. The most popular item to give away is a button with your team logo and number.

### 4.13.2 Mascots and Team Costumes

Keep safety in mind. Awards acceptance often means descending and ascending bleachers. Please make sure that mascot and team costumes are safe for the wearer as to vision and movement and that they are comfortable and cool enough to prevent fainting and dehydration.

### 4.13.3 Competition Spirit

We ask that you choose to bring attention to your team in ways that are in good taste and in the spirit of the competition. Please refrain from the following:

- Using noisemakers;
- Using objects that can damage bleachers or floors;
- Wearing inappropriate clothing; and/or
- Taping or affixing items or papers to walls, beachers, floors, or other site areas.

Please make sure your team pit and surrounding area is clean when you leave the site.

## 4.13.4 Banners and Flags

Sponsors provide FIRST with banners so we can display them in specified areas as a way of thanking them for their generosity. We encourage teams to bring team flags and/or sponsor banners, but we ask that you adhere to the following:

- DO NOT hang them in the competition area, since this area is designated for official FIRST sponsor banners ONLY.
- You may bring banners to the competition area while your team competes, but do not leave them or use them to section off seating. Saving group seats is not permitted.
- Hang banners only in your team pit.

## 4.14 Bleacher Rules

Sitting together in a group during competition matches makes the game more exciting and fun. It's where you can show support for your team. Since very often there is not enough seating to accommodate everyone, there has to be a policy regarding seating. Teams are not allowed to save seating space.

With this in mind, it is not permitted to hang banners or ribbons to designate such an area. We will remove and discard any banners, roping, etc... Please take turns sitting in the bleachers. Share the fun. When you see there is a crowding problem, leave after your team's match and return later for another few matches.

## 4.15 Site Restrictions

Please read the following common site restrictions and adhere to them in order to promote an orderly, safe, pleasant and exciting competition. Please refer to Section 4.2 of this manual section for additional site restrictions at your event.

- Do not bring food to the site. If you bring food, do not bring it onto the property.
- Do not use noisy devices, such as floor stompers, whistles and/or air horns.
- Do not arrange for Internet access or phone lines on the site or attempt to connect to the Internet.
- Do not sell any products. This includes food, hats, shirts or any promotional products.
- Do not distribute any food products, such as candy, water, soft drinks or fruit.
- Do not sell raffle tickets.
- Do not bring bottled gas tanks (e.g. helium). This is a safety concern.
- Do not use walkie-talkies.
- Do not invite or bring live bands to play in the audience. This dilutes the presentation on the playing field and is too loud and confusing for the audience.

- Do not play loud music in the Pit because it interferes with important announcements. If a team receives more than a warning or two, the power to the team pit will be shut off and/or the music confiscated.
- Do not form "tunnels" during the Awards Ceremony. This can cause discomfort to those traveling through them and creates safety issues.

## 4.16 Considerations

You will often hear the expression Gracious Professionalism™ throughout your involvement in *FIRST*. You can read Woodie Flowers' definition in [Section 1 – Introduction](#) of the 2012 FRC Team Manual. One of our main goals is to encourage ALL team members and mentors to conduct themselves with kindness, sharing and consideration of others.

Gracious Professionalism™ is a central tenet of the *FIRST* experience. It is not acceptable to engage in hostile action, hostile/profane language or any other violent or antagonistic conduct. *FIRST* reserves the right, at its discretion, through the Event Manager or his/her designee, to arrange for any team, team member, event participant or other individual to be removed from participating or attending any *FIRST* event or program for engaging in such conduct. *FIRST* looks forward to everyone's cooperation in keeping our programs and events exciting, educational and full of Gracious Professionalism™.

<b><u>SAFETY GLASSES are REQUIRED!</u></b>	<b>Bring required completed CONSENT/ RELEASE FORMS for all team members and mentors, or complete them online!</b>
<b>Bring enough for your team and visitors.</b>	<b>ADDITIONAL ITEMS</b>
<b>TOOL BOX ITEMS</b>	<b>ADDITIONAL ITEMS</b>
<ul style="list-style-type: none"> <li>-- Ball driver set / nut driver set</li> <li>-- Batteries and Charger</li> <li>-- Box cutter</li> <li>-- Broom (small, for team pit cleanup)</li> <li>-- C-Clamp, large, medium, small</li> <li>-- Cutters</li> <li>-- Deburring tool</li> <li>-- Dremel tool/accessories</li> <li>-- Drill - cordless w/charger, Drill bit set</li> <li>-- Flashlight</li> <li>-- Glue, super and/or glue stick</li> <li>-- Hacksaw and blades</li> <li>-- Hammer (ball peen &amp; brass)</li> <li>-- Heat gun</li> <li>-- Leatherman-type tool</li> <li>-- Level, small</li> <li>-- Lithium grease, spray can</li> <li>-- Magnet on a stick</li> <li>-- Paint brush</li> <li>-- Pliers - large, small, needle nose assort.</li> <li>-- Power outlet strip / extension cord (2)</li> <li>-- Power screwdriver</li> <li>-- Saber saw/wood &amp; metal blades</li> </ul>	<ul style="list-style-type: none"> <li>-- Banners - Corporate signs &amp; flags for team pit</li> <li>-- Camera and film, disposable</li> <li>-- Cart for moving robot</li> <li>-- Drop light</li> <li>-- Epoxy</li> <li>-- File folder box for paperwork</li> <li>-- Hand truck</li> <li>-- Laptop / software / cables / discs</li> <li>-- Manual and Updates</li> <li>-- Medical Release Forms</li> <li>-- Message board - dry erase marker set</li> <li>-- Notepads / spiral notebook / clipboard</li> <li>-- Paper / Sticky Notes</li> <li>-- Paper towels and paper cups</li> <li>-- Pens / pencils / sharpies / markers</li> <li>-- Portable printer</li> <li>-- Release form for each person, completed</li> <li>-- Seat(s) for team pit (small, foldable)</li> <li>-- Schedule to set up and break down team pit</li> <li>-- Spray cleaner</li> <li>-- Stapler / staples</li> <li>-- Storage box / bins- trinkets &amp; trash (buttons)</li> <li>-- Team roster and contact information</li> </ul>

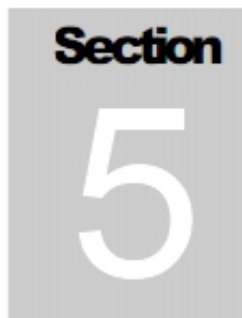
- Sandpaper - various grits
- Screws - nuts - washers
  
- Screw driver assortment, flat and Phillips
- Shrink tubing
- Socket set – 1/4", 3/8" drive
- Soldering iron (electric), solder, wick, flux
- Spare parts
- Square - small, medium
- Tap & die set/assorted taps
  
- Tape: clear/electrical/masking
- Tape measure / ruler
- Tie wraps / connectors / rubber bands
- Tin snips
- Tweezers / scissors
  
- USB stick/drive -- Vice grip - large, small
- Volt meter
- WD-40 / lithium grease, spray can
- Wire terminal crimpers / Wire strippers
  
- Work gloves- several pairs
  
- Wrenches, Allen, crescent, open and box --
- X-ACTO type knife and blades

- Trash can (small) / trash bags
- Plastic zip type bags

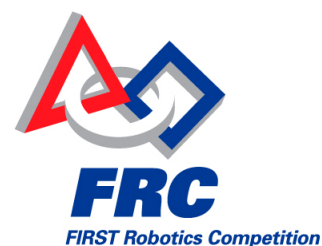
**PERSONAL ITEMS**

- First Aid Kit - Band-Aids / Blister Kit / Ice Pack
- OTC Pain Medication; i.e., Aspirin, etc...
- Alcohol Prep Pads / First Aid Tape
- Cough Drops / Sore Throat Medicine
- Eye Wash And Drops
- Hand Sanitizer / Liquid Soap
- Feminine Products
- Insect Sting Medicine / Insect Repellent
- Facial Tissues/ Cotton Balls / Wet Cloths/
- First Aid Cream
  
- Anti-Nausea or Diarrhea Medication
  
- Safety Glasses
- Sewing Kit (Small)
- Sunscreen / Sunburn Spray / Aloe Vera Gel

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# Robot Transportation



## 5 Robot Transportation

### 5.1 Overview

Following the guidelines will ensure that your robot arrives where it needs to be on time so that your team can focus on the important thing – participating in the event!

### 5.2 Stop Build Day

**All teams must cease work on their robot on or before Stop Build Day.** Any team that fails to comply may jeopardize their participation in the rest of the FRC season.

Note that Stop Build Day is a specific date, so you may work on your robot until that date turns in to the next date. In other words, you may work on your robot until midnight on that date, in whatever time zone you are working.

**STOP BUILD DAY is TUESDAY, FEBRUARY 21, 2012**

## 5.3 Bag and Tag

A “Bag and Tag Event” is a competition event where teams must carry their robots to and from the event. Teams attending these events must bag and tag their robots. Teams are not allowed to ship their robots in or out of these events unless they receive an Exemption.

**In 2012, ALL USA and Canadian FRC events are ‘Bag and Tag’ except for Championship.**

If you have been granted an Exemption, or will be attending Championship, see section 5.8 on shipping your robot. Even if you have been granted an Exemption, or are going to Championship, you will still be bagging and tagging your robot, and may not open the bag until an inspector has approved you to do so.

**Unless you have received an Exemption, drayage will not be available for Bag and Tag events. Do not ship your robot to the event. If you do so, you may not be able to compete.**

Each team will receive a special Bag and Tag kit in January with their Kit of Parts. The kit will contain:

- Two (2) plastic bags large enough to contain your robot.
- At least six (6) zip tie tags with individual serial numbers.

## 5.4 Requesting an Exemption

If bringing your robot yourself to the event presents you with a substantial hardship, you may request an exemption by emailing [frcteams@usfirst.org](mailto:frcteams@usfirst.org). Include as much detail as you can in your request, and use the subject line: “Bag and Tag Exemption Request, Team XXXX”, with your team number in place of ‘XXXX’. Exemption requests will be handled on a case-by-case basis. Not every request will be granted. **Exemptions must be requested by December 2, 2012.**

In cases in which an exemption is granted, *FIRST* HQ will work to establish an official drayage location for that event and provide shipping instructions and robot transportation services for approved teams.

The requirement to get advanced permission from *FIRST* HQ for robot shipping applies only to teams wishing to use the official drayage location and services. Teams may otherwise use any transportation method they wish for their robot, at their own risk and expense, as long as the robot remains sealed in the bag. However, unless a team has received an exemption approval, the final leg of the robot’s journey - arrival at the venue and delivery to the team pit, must be done by hand by the team.

If you have been granted an Exemption, you can find shipping instructions under section 5.8.

## 5.5 Instructions for Bag and Tag

1. Bag and Tag your robot on Stop Build Day, and complete the *Robot Lock-Up Form*.  
Proper bagging procedure:
  - Set the bag on the floor, leaving room for the robot in the center.
  - Place the robot in the center of the bag and pull the bag up around the robot. Be careful not to catch the bag on any corners or sharp edges.
  - Tightly seal the bag with your next numbered tag.
2. Complete the *Robot Lock-Up Form* as required in **Section 5.6** to verify the date and time that the bag was sealed.
3. For your convenience, the team may bag their bumpers separately from their robot. However, the separately-bagged bumpers must be sealed with their own tag, and that tag number must be entered on the *Robot Lock-Up Form*.
4. Transport your robot to your event venue in your own vehicle. If you plan to transport your robot in a personal vehicle, please ensure that you have adequate means to secure the robot. If the robot is being transported in open air, such as in the back of a pickup, be very careful to shield the bag from excessive wind. Wind can cause the bag to flap against the robot, causing damage to the bag.
5. You must carry your own robot into the event sealed in the bag through the designated robot entrance. Teams will not have access to the loading docks or forklifts; we recommend bringing a rolling cart or dolly to facilitate load in.
6. You may NOT open your bag until it has been checked, approved by an inspector, AND pits have officially opened for robot work. **You must have your Robot Lock-Up Form ready for review at the event. Do not forget to bring it.**
7. After your Robot Lock-Up Form has been properly inspected and approved, your team may open the bag and prepare to compete.
8. After the event, if you are waitlisted or will be attending another event, such as Championship or another regional or district event, re-seal your robot in the bag with a new tag and fill out the Robot Lock-Up Form. You may not access your robot until the next event, unless you are attending a 2-Day event, as explained in Section 5.7.
9. Remove your robot from the event through the designated exit.
10. **If** you are attending the Championship next, or have been granted an Exemption so you may ship your robot to the next event, follow the instructions in Section 5.8

## 5.6 Robot Lock and Unlock Instructions

### 5.6.1 Completing the Robot Lock-Up Form

The *Robot Lock-up Form* is available on the Robot Shipping page of the *FIRST* website. Make sure that you complete every item on the line. **Incomplete forms will be rejected by inspectors at events.** The *Robot Lock-Up Form* must be filled in by an adult, 18 years or older, who is not a student on the team. By signing this form the signor attests to the fact that he/she is 18 years old or older, is not a student member of the team, and that all rules

a regulations regarding access periods and lock or unlock are being followed. Phone numbers are required for verification in case inspectors at events have questions regarding the form.

**Remember to bring your *Robot Lock-Up Form* to your event. One of the top reasons teams are delayed in being allowed to open their robots at events is a missing Robot Lock-Up form.**

## 5.6.2 When the Robot Lock-Up Form is Used

The *Robot Lock-Up Form* **must** be used:

- On Stop Build Day
- During any 'Robot Access Period' you take advantage of if you are attending 2-Day events. See section 5.7 for details. **The 'Robot Access Period' only applies to teams attending 2-Day events. Teams attending 3-day events do not have a 'Robot Access Period'.**
- Before you leave an event, if you expect you will or may be attending a later event

The Robot Lock-Up Form does **not** need to be used:

- Before Stop Build Day
- During events
- After an event, if you will not be competing at any later events

## 5.7 'Robot Access Period' - For Teams Attending 2-Day Events

Two-day events for the 2012 season include all Michigan District Events and all Mid-Atlantic Robotics District Events. Teams attending these events will not have as much time to work on their robots at events as teams attending traditional 3-day events. Because of this difference, these teams are granted an additional 'Robot Access Period' to unbag their robot between Stop Build Day and their 2-day events.

**If you are not attending a District event in 2012, you do not have a 'Robot Access Period' after Stop Build Day, and this section does not apply to you.**

### 5.7.1 'Robot Access Period' - Permitted Actions

During the Robot Access Period, teams may perform any activity they would normally do during the build season, including practicing with the robot.

## 5.7.2 'Robot Access Period' - Schedule

Teams may unlock their robot for a total of 6 hours during the 7-day period preceding any two-day event in which their team will be competing with their robot. The 6 hours may be broken up in any way the team wishes, with the exception that no single access period may be shorter than two hours. The robot must be locked up in between sessions and this must be documented on the *Robot Lock-Up Form* each time.

## 5.8 Robot Shipping - For Teams Granted an Exemption or Attending Championship

If you are granted an exemption, *FIRST* will send you two (2) FedEx vouchers (bills of lading) for transportation to and from the official drayage location. All teams competing at the *FIRST* Championship in St. Louis will be issued a voucher because teams must ship robots to Championship. Note that if you are granted an Exemption and will be competing in the *FIRST* Championship, you will still only receive two (2) vouchers. **No team receives more than two (2) FedEx vouchers before Championship.** The donation from FedEx is generous, but we need to manage this resource so it is fairly shared.

**Note that even if you are granted more than one Exemption, you will still only be receiving two (2) FedEx vouchers.** *FIRST* will still arrange for the services needed to receive your robot near the venue, store it, transport it to and from the event, and bring it back to the storage location, but it is up to the team to decide on which legs of the crate shipment they wish to use their vouchers. In some cases, this will mean the team will need to pay for the shipping of the crate itself, even if all other support services are taken care of.

If you did not sign up for Championship, but qualify for Championship during an FRC event, and you were not granted an Exemption, you will be given one (1) FedEx voucher (bill of lading) at the event to be used for shipping your robot to Championship. If you were granted an Exemption, you will have already received the maximum of two (2) FedEx vouchers we give to teams before Championship, so you will not be given another.

If you attend the *FIRST* Championship, you will receive an additional FedEx voucher (bill of lading) at Championship to ship your robot home.

Teams shipping robots must build a crate to ship it in. FedEx will not pick up a robot that is not in a crate. See the 'Shipping Crate Construction' document posted with the FRC Administrative Manual for more details: [www.usfirst.org/frc/competitionmanual](http://www.usfirst.org/frc/competitionmanual). These minimum guidelines must be followed.

**Keep your filled crate weight below 400 pounds.** Teams are expected to use their crate primarily to ship their robot and to minimize any additional components or tools included, to keep crate weight below 400 pounds. **Any teams exceeding 400 pounds will be charged overage fees accordingly.** See the "How to Ship Your Robot" document in the FRC Administrative Manual web page for further details: [www.usfirst.org/frc/competitionmanual](http://www.usfirst.org/frc/competitionmanual).

Teams granted an Exemption or attending Championship may ship a tool crate. Some teams choose to ship a second crate containing tools to the event(s) to have additional tools available. Shipping a second crate is

allowed, but only if the team meets the following requirements:

1. **The team is financially responsible for all shipping and drayage costs for their second crate**
2. The second crate may **NOT** be shipped using the FedEx donation. Abuse of the FedEx donation may result in a loss of this option for all teams in the future.
3. Paint or stencil "TOOL CRATE – Pc 2 of 2" in letters at least 6 inches tall on each face of the crate. Failure to properly label which crate contains tools may delay arrival of your robot at the event.

FedEx Freight requires prior notice for pickups, especially if your location does not have a loading dock. If you have been granted an Exemption or are attending Championship, you must call one (1) week ahead to schedule your pickup.

### 5.8.1 If You Have Been Granted an Exemption to Ship to a Bag and Tag Event

Your robot will be shipped to a drayage location identified by *FIRST* and brought to the venue by the drayage organization in its crate. You will uncrate the robot at the event, and return it to the crate at the conclusion of the event for re-shipment. The drayage company will pick it up at the event, bring it back to the drayage location, and ship the robot to its next destination using instructions you provide.

**If your first event is the one to which you have been granted an Exemption** you must still bag and tag your robot on Stop Build Day. This is because you may be able to delay shipping your robot until after Stop Build Day, and inspectors will need evidence that the robot has not been worked on between Stop Build Day and shipment. Follow the Robot Lock and Unlock Instructions in Section 5.6 to lock up your robot. Do not open your bag at the event until it has been checked, approved by an inspector, AND pits have officially opened for robot work. Remember you will need to bag the robot again at the conclusion of the event if you are going to a later competition.

**If the event to which you have been granted an Exemption is not your first event** you must bag and tag your robot at the conclusion of the earlier event, bring it back to your build site or other location away from the event venue, crate the robot and prepare for shipment. Follow the Robot Lock and Unlock Instructions in Section 5.6 to lock up your robot at the earlier event. Do not open your bag at the next event until it has been checked, approved by an inspector, AND pits have officially opened for robot work. Remember you will need to bag the robot again at the conclusion of the next event if you are going to a later competition.

Additional shipping details may be found in the "How to Ship Your Robot" document in the FRC Administrative Manual web page: [www.usfirst.org/frc/competitionmanual](http://www.usfirst.org/frc/competitionmanual). **If you are shipping your robot, you must read this document to have a complete understanding of the process.**

### 5.8.2 If You Are Attending Championships

You will have already competed at another event, so you must ensure your robot is bagged and tagged at the conclusion of that event per the instructions in section 5.6. Bring your robot back to your build site or other location away from the event venue, crate the robot and prepare for shipment.

Do not open your bag at Championship until it has been checked, approved by an inspector, AND pits have officially opened for robot work.

If you are shipping to Championship from an earlier event to which you have been given an Exemption, your robot will be sent from that earlier event to that event’s drayage location. You may be able to ship from there directly to Championship.

All teams attending the Championship will receive one (1) shipment home for their robot under the FedEx donation. The Bill of Lading for this shipment will be distributed at the Championship in the team’s registration packet.

Additional shipping details may be found in the “How to Ship Your Robot” document in the FRC Administrative Manual web page: [www.usfirst.org/frc/competitionmanual](http://www.usfirst.org/frc/competitionmanual). **If you are shipping your robot, you must read this document to have a complete understanding of the process.**

## 5.9 Important Shipping Contacts

### 5.9.1 FIRST is Your First Contact

If you have any questions about robot shipping rules or processes, **CALL FIRST!** Rules in this chapter are written and administered by *FIRST*, not FedEx. *FIRST* is not responsible for information given by representatives of outside vendors.

<b>Additional instructions:</b>	<a href="http://www.usfirst.org/frc/competitionmanual">www.usfirst.org/frc/competitionmanual</a>
<b>Download shipping labels and Robot Lock-Up Form:</b>	<a href="http://www.usfirst.org/frc/robotshipping">www.usfirst.org/frc/robotshipping</a>
<b>Phone:</b>	(800) 871-8326 - 8:30 AM to 5:00 PM EST
<b>E-mail:</b>	<a href="mailto:frcteams@usfirst.org">frcteams@usfirst.org</a>
	<b>Subject line:</b> <i>FIRST</i> Team [your #] Shipping Question
<b>Fax:</b>	(603) 666-3907
<b>Address:</b>	Team Support/Operations 200 Bedford Street Manchester, NH 03101

## 5.9.2 FedEx

Call FedEx to schedule your pickup and with any FedEx tracking questions. Have your Bill of Lading and Pro Number available when you call.

<b>Website:</b>	www.fedex.com/us
<b>Phone - FedEx Freight:</b>	1-866-393-4585
<b>Phone - FedEx Express:</b>	1-800-GO-FedEx (1-800-463-3339)