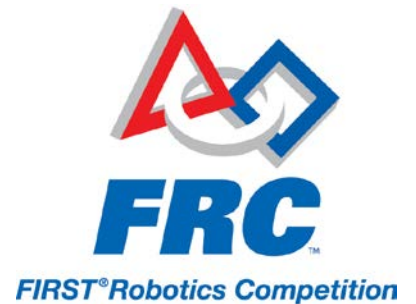




RECYCLE *rush* SM

2015 Off-Season Field Manual





Chapter 1 – The Event Shipment

The Event Shipment

1.1 Unpacking the Truck

1.1.1 Notes on Road Cases

While the Road cases are built to be rugged and withstand stress in transport, all cases should be handled with care and respect.

Wheels

The wheels on all cases and carts are rubber so they will absorb shock reasonably well. They are positioned on the carts such that they will fit within a standard 24"-wide truck ramp. As the wheels are made of rubber, pay attention to the following cautions:



- Do not try to force (push) a case over a raised threshold as this may damage or rip the rubber wheels. Be a bit gentler and get help to lift the case over.
- Avoid pushing a case over any wide openings such as a drain grating as the wheels may turn, slip into the openings and become trapped and/or break.

Stacking

Many cases, except for the tall electronics cases, have caster cups on the covers. The caster cups allow other "like-sized" cases to be stacked. Pay attention to case weight and when necessary, only put lighter cases on top of heavier cases. When stacking, rotate the wheels so they are pointing outward and sit properly in the caster cups.

Handles

The Lifting Handles on the ends of the cases are heavy duty and well fastened. However, there is a limit as to how much force they can support. So be careful to not pick up heavy cases by the handles!

Latches and Safety

The travel cases have "locking latches". Lifting and turning the spanning latch turn mechanism counterclockwise will unlock the latch.

Keep your free hand ready to catch the spanning latch tongue, as it is spring-loaded, and will hit against the turning latch mechanism and maybe pinch your fingers.

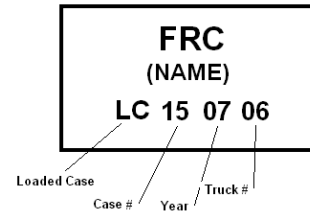
MAKE SURE THAT YOU FOLD THE SPANNING LATCH TURN MECHANISM DOWN FLAT AGAINST THE CASE when the case is opened so that the spanning latch tongue will lie flat. If the handle stays upright, the edge of the latch tongue will stick out and will likely rip into someone's pants, and /or a leg, causing an injury. Whenever the cases are moved to storage, assure that all latches are closed and locked.



Please advise your volunteers on the safe handling guidelines.

1.1.2 Road Case Labeling

All FRC road cases are color-coded by truck route, and labeled with the name, the letters "LC", the case number, the year the case was originally designated, and the truck route number on each end of the container. For some cases the "Name" implies the intended location at the venue where the container should be stored. (i.e. "#15 = Judge Room" in this case). The case number is also repeated in a large numeric on several faces of the cart/case for easy recognition.

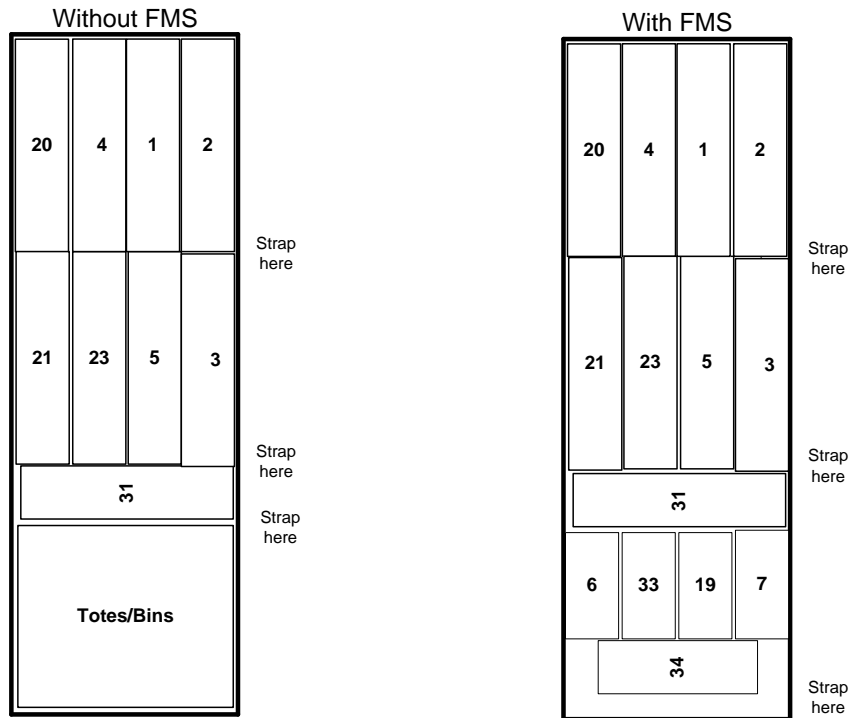


The color-coding of the cases and carts is useful where, such as at the Championship, there may be cases from more than one field present.

CAUTION: Use caution when opening travel cases as dropping the case lid into the open position could cause the lid cable supports to break or (when the case is empty or lightly loaded) cause the case to tip over.

1.1.3 2015 Off-Season Truck Layout

2015 - Invitational Truck Packing Diagram



B = Place On Bottom
T = Stack On Top

Listed in approximate order of loading:

- End Panels (20)**
- Side Borders (04)**
- Uprights (01)**
- Uprights (02)**
- End Panels (21)**
- Game Specific 1 (23)**
- Side Borders (05)**
- Lexan (03)**
- Game Specific 3 (31)**
- Field Electronics (06)**
- Scorpion (33)**
- Spare FMS Console (19)**
- Scoring (07)**
- Touch Screen Case (34)**

Notes:

1. Make sure that all materials and cases are fully and tightly strapped in place.
2. In the layout that includes FMS, totes and recycling containers will need to be stacked on road cases 1-5, 20 and 21. **Do not stack on the FMS cases. Especially Case 33.**

1.1.4 Standard Road Cases

On the following pages, the Road Cases are identified by number, name, and the area where the cases and carts should be positioned during setup and during matches. For the most part, these cases stay the same from year to year. Section 1.2.5 describes the cases specific to this year.

Also, be sure to look at the documentation that is attached to the inside lid (or on the base) of many of the cases for further information on packing, contents and usage.

Case #	Description	Case #	Description
1	Uprights	19	Spare FMS Console
2	Uprights	20	End Panels
3	Lexan	21	End Panels
4	Side Border	33	Scorpion Case: Scoring
5	Side Border	34	Touch Screen Case
6	Field Electronics		
7	Scoring		

Case 1 & 2: Uprights

This case contains all of the Uprights used to build the Driver Stations. One case should be placed at each end of the field during set-up and tear down. Case should be stored out of sight during the event.

Contents:

Qty.	Description
2	Gate Ramp
3	Top Rail Assembly (glass holder)
2	Drivers Station Upright
1	Sheet of HDPE, large
1	Corner Upright Drivers Station (right)
1	Corner Upright Drivers Station (left)
4	Vertical Support, Angle Wall
2	Backstop
2	Backstop Bracket
4	Horizontal Brace, Angle Wall
2	Tote Slide Cover
2	Backstop Base
2	Totes Slide Base Assembly



Case 3: Lexan

This case contains all of the plastic for the Side Borders. Case should be placed at the side of the field for set-up and tear down. During the event, it should be stored out of sight.

Contents:

Qty.	Description
5	Poly "A"
9	Poly "B"
9	Poly "C"
5	Gate Poly "G" (4 with brackets)



Cases 4 & 5: Side Borders

These are the metal Side Border sections that create the sides of the field. During set-up and tear down there should be one case per side of the field. During the event the case should be stored out of sight.

Contents:

Qty.	Description
3	Border Rails
2	Corner Rails
2	Gate Rail Assembly
6	Outriggers (stabilizers)
6	Trip Guards
5	Connector Pins
2	Tote Chute Door (w/handles)
2	Small Platform Ramp 1
2	Small Platform Ramp 2
2	Platform Side Ramp
8	Platform Ramp
4	Platform Top
2	Small Platform Top



Case 6: Field Electronics

This case contains the Station Control Cabinets (SCC's), lights and other devices for installation at the Driver Stations. During set-up and tear down it will need to be moved from one field end to the other. During the event it should be stored out of sight.

Contents:

Qty.	Description
2	Station Control Cabinet
8	LED Display
2	SCC Power Cords, 75'
3	Team Lights (red with amber)
3	Team Lights (blue with amber)
6	E-stops
2	LED Data cable - 16'
6	LED Data cable - 6'
2	LED Power cable - 16'
6	LED Power cable- 6'
6	E-stop cables (yellow)
6	Team Light cables (yellow)
2	SCC Ethernet cable- 75'
2	SCC Power cable- 75'
2	Tripp Lite Power Strip
2	Yellow Jacket Cableway (on top)
2	Player Station Power Outlets
2	SCC Pigtail



Case 7: Scoring

This case contains all of the equipment needed to set-up the scoring table. During field set-up and tear down it should be located at the scoring table. During the event it should be kept behind the coring table for easy access to spare parts.

Contents:

Qty.	Description
4	Panasonic Toughbook (Inspection, FTA Monitor, Pit Display, Parkway)
3	Mouse (USB)
2	Keyboard (USB)
2	Tripp lite power strip
1	17" monitor
1	15" or 17" monitor
1	13" CRT Monitor (not included in Districts)
1	BNC Cable - Scan Converter to CRT (not included in Districts)
1	Field E-stop
1	Printer
2	Printer replacement toner cartridges
2	Paper (500 sheet pack)
6	Power cable (printer, CRT, PC, LCD Monitor)
2	VGA cable
2	USB (for printer)
5	Ethernet Cable (12')
1	Scorpion Case power
1	Field Access Point w/power supply
2	Dlink DAP1522 AC power supply (for Radio Kiosk)
6	Color Kinetics lighting controller w/power cable
6	17 node light string
1	Practice Field Wireless Access Point
2	Practice Field Radios
1	Yellow Jacket cableway (on top of road case)



Case 19: Spare FMS Console

This contains spares and other materials for the Field Management System. It should be located behind the scoring table for the duration of the event.

Contents:

Qty.	Description
1	Station Control Cabinet
2	LED Display
1	SCC Ethernet Cable (75')
1	LED Power Cable (16')
1	LED Data Cable (16')
1	LED Power Cable (6')
1	LED Data Cable (6')
1	Team Light Brace/Assembly with pin (to attach light to alliance wall)
1	E-stop cable (yellow)
1	Team light cable (yellow)
1	E-stop
1	Ethernet Cable (6')
2	Tripp-lite power strip
12	Tracks for Player Station lights
5	Ethernet
2	AirTight Sensors
1	Scorpion power
1	SCC Pigtail
1	Spare PLC
1	Player Station Ethernet (per event on truck, 18) Tote on top of road case
1	Spare Player Station Power Outlets
1	Player Station light string



Cases 20 & 21: End Panels

This case contains the primary metal and plastic parts for the Driver Stations and Human Player Stations. During set-up and tear down, there should be one case located at each end of the field. Case contents are identical except Case 20 has an additional Drivers Station Panel, 4 instead of 3. During the event the case should be stored out of sight.

Contents:

Qty.	Description
3 or 4	Drivers Station Panel Lexan
3	Driver Station Panel Assembly
2	Corner Goal, Lower Frame (on top of case, 1 left, 1 right)



Case 33: Scorpion Case: Scoring

This case houses the servers that run FMS. It should be located at the scoring table for the duration of the event.

Contents:

1	Field Router
2	Event Server
1	Scan Converter (not included in Districts)
1	Arena Status Light (red, blue, amber, green, sounder)
1	UPS



Arena Side of the Scorpion Case



Scorekeeper Side of Scorpion Case

Case 34: Touch Screen Case

This case houses all of the referee touchscreens and tripods. During set-up it should be located near the scoring table. During the event the case should be stored out of sight.

Contents:

Qty.	Description
6	Touchscreens w/power cables
2	Extension cords
6	Stands
3	Ethernet, 10M
1	Spare Pedestal Power/Data (50')
8	Leader cables
4	Ethernet, 75'
1	Backup Field AP w/power supply and antennas
1	Dlink DIR-825 router



1.1.5 2015 Game Specific Road Cases

On the following pages, you will find the information on the cases built specifically for the 2015 competition.

Case#	Description
23	Game Specific 1
31	Game Specific 3

Case 23: Game Specific 1

This case contains all of the Step Assemblies for the field and practice field as well as the Scoring Platforms for the field. This case should be located in the middle of the field during set-up and tear down. This case should be stored out of sight during the event.

Contents:

Qty.	Description
8	Step Assembly
8	Scoring Platform

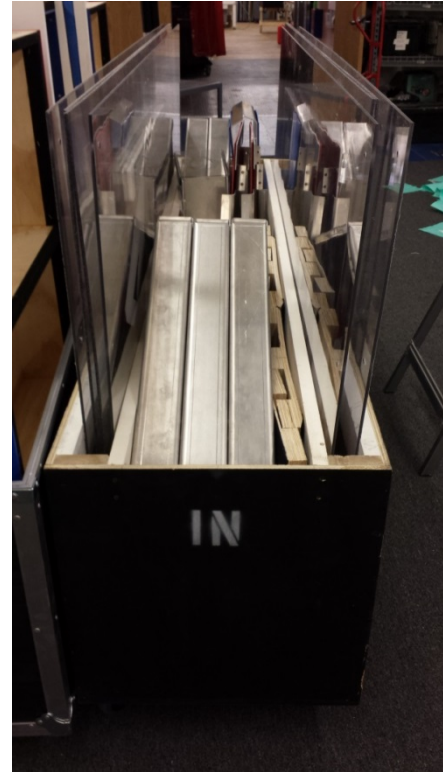


Case 31: Game Specific 3

This case houses many of the components used to build the Human Player Stations at each corner. As such it should be unloaded at each field end during set-up and stored out of sight during the event.

Contents:

Qty.	Description
4	Tote Chute Door Assembly (w/Door Removed)
4	Angle Wall Plastic 1 (w/logo)
8	Tote Slide Leg
4	Litter Slides (w/cover and litter guard attached)
4	Tote Slide
4	Chute Plastic (2 red/2 blue)
4	Small Scoring Platform





Chapter 2 - Building the Field

2.1 General Notes

This section contains step-by-step guidance on building the 2015 “Recycle Rush” playing Field. Also included are some cautions and general reminders about FTA tasks and the Competition components. Before you begin, you are urged to review these instructions completely, and get comfortable with the task at hand.

2.1.1 Field Build Volunteers

Depending on the venue, you will likely receive help from either contract or union labor and/or from a dedicated Field Build volunteer group. Some will have experience from prior competitions; others will be seeing the equipment for the first time.

Due to the nature to the job, the builders should be physically able individuals capable of lifting up to 70 pounds above shoulder height and should be aware of general safety. As noted later, the FTA and Field Supervisor will probably want to set up “build teams” for each major section of the Field.

2.1.2 Field Assembly

FIRST strives to deliver playing Fields that are identical at all events. These Fields travel, are unpacked, used and repacked repeatedly. While the Field is in your care, it is your responsibility to ensure that it is treated in a manner consistent with the demands of multiple uses; protect it, keep it organized, and keep it complete.

FIRST requires the cooperation of all to not modify Field components without first contacting *FIRST* Engineering for approval. This includes adding stickers, writing, tape, cable tie mounts, Velcro strips, etc.

Unless specifically instructed by *FIRST*:

- Do not remove any bolts or rivets from any Field structure.
- Do not drill, bend, straighten, or cut Field components.
- Unless you are SURE that Velcro or cable tie points are missing, do not add any.

Each Field has already been set up at *FIRST* or at other events. If a component does not fit, it is likely being placed in the wrong position, location or orientation. Do not force anything.

All Field Border Guardrail segments are labeled with numbers, and all Field Border plastic panels are labeled with a letters, which represent their respective placement on the Field. The numbers on the Guardrail segments are attached near the joints, and they match like numbers on



the mating segments. (i.e. 1-1, 3-3, etc.) If a volunteer is trying to connect rail 2 to rail 6, it may not fit.

During disassembly of the Field at the end of the event, take time to monitor the repacking of the Field components. All parts to the Field and FMS have specific locations in the road cases, and they must be packed according to the photographs and diagrams provided in each road case and in this document. Missing or damaged components must be reported to *FIRST* as soon as possible to ensure repair or replacement for the next event.

2.1.3 Hand Tools

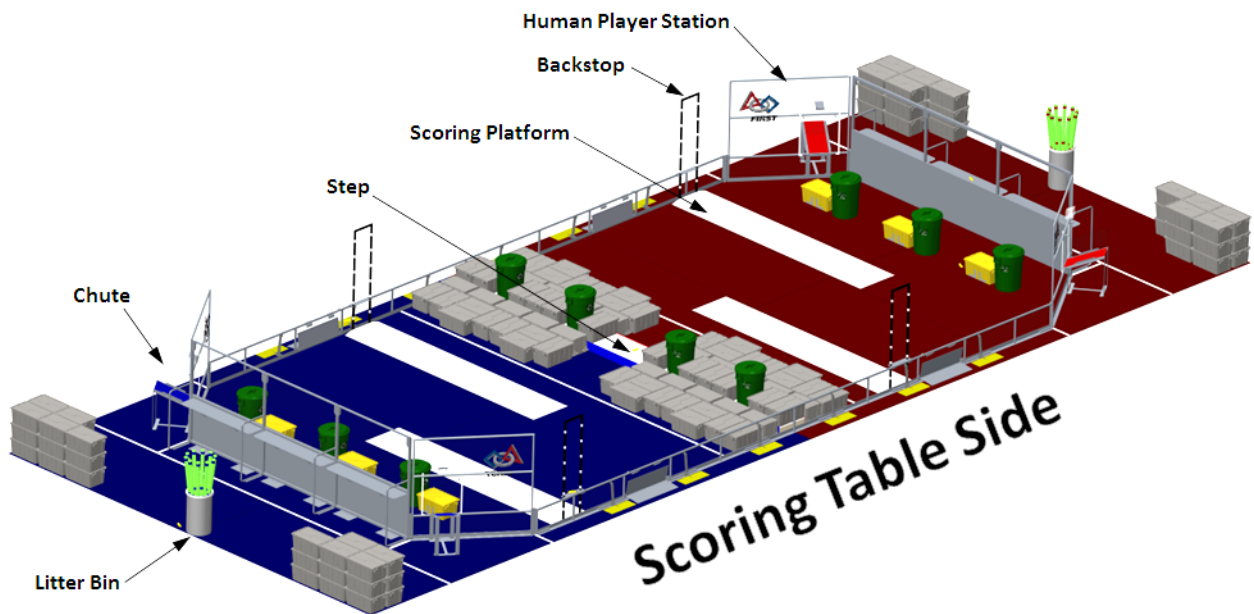
A minimum number of tools are needed to assemble the 2015 Field. All of the necessary tools are provided in the Tools Road Case – Case 8. You can expect to use tape measures, knives, scissors, wire cutters, mallets, shears, wrenches and a chalk line. You will also use cable ties to attach cables and plastic sheets to the Field framework.

IMPORTANT: There are two different kinds of cable ties – low and medium strength. Medium cable ties are used to hold plastic sheets to the Guardrail as well as securing Game Pieces, and low-strength cable ties are used to dress Field wiring and cables.

2.1.4 Assembly Teams

Setting up volunteer teams to manage the various tasks required to build the Field can increase efficiency, leading to quicker, more effective build times. The FTA and the Field Supervisor should discuss the teams needed, the tasks involved, and the ideal number of people per team.

2.2 Field Components by Name



2.3 Capet Installation

The playing Field carpet is shipped as two 74' x 15' rolls - one Red, one Blue. The playing Field is constructed on top of a 74' x 30' carpeted area, centered under Audio/Visual rigging. In most cases, the AV production crew must assemble and hoist their lighting/audio rigging before your Field build teams can access the floor. They will tell you when it is safe and proper to start your carpet and Field procedures.

The A/V director will mark the Field center of the A/V rigging on the floor to help you know the proper orientation of the Field; from which, you can derive where the scoring table is to be located. As you progress with installation, always be sure that you know where the Field center is located.

In general, the FTA is responsible for verifying that the Field is oriented correctly relative to the rigging and audience seating. Get it right from the beginning; this will prevent the need for difficult corrections later.

2.3.1 Laying Carpet

2.3.1.1 Equipment Required

One Red Carpet Roll – 74' long
One Blue Carpet Roll – 74' long

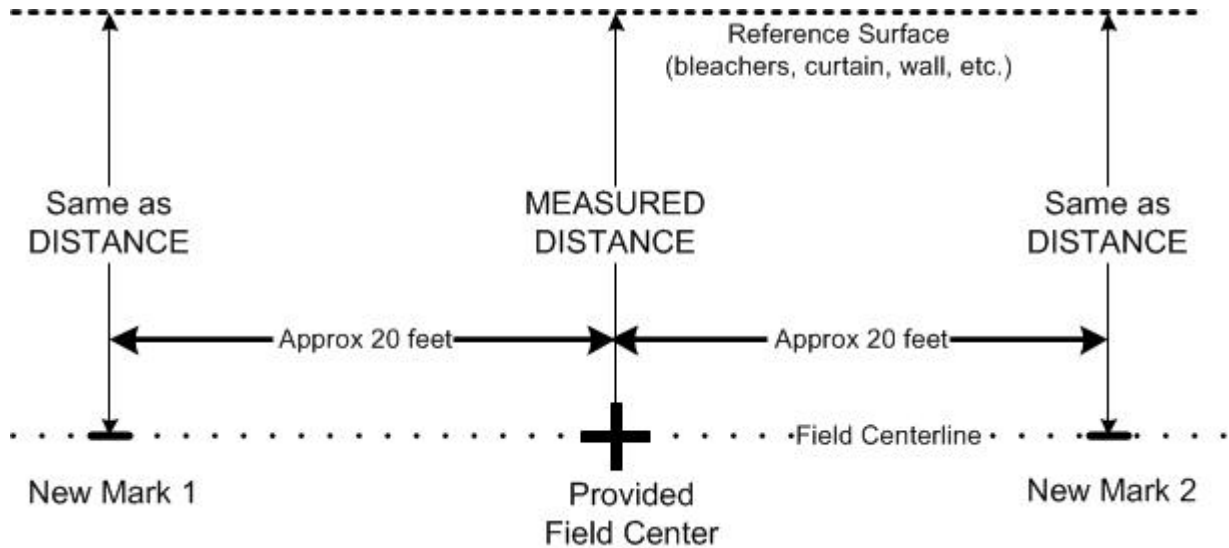
2.3.1.2 Tools Required

Carpet Tape – 7 rolls
2" Navy Gaffer's Tape – 2 rolls
2" Burgundy Gaffer's Tape – 2 rolls
Sharpie and/or White Paint Markers – 1 or more
100' Measuring Tape – 1
25' or 30' Measuring Tape – 1
100' Chalk Line – 1
Utility Knife – 1
Carpet Knife – 1 as shown



Gaffer's Tape is expensive and provided for carpet installation, Field marking and driver's station/human player area demarcation only. If you or others need to mark the floor (such as for queuing lines/boxes) please use the Gym tape that is provided in the FTA Case – Case 28. Also, please advise your team not to use any tape marked for another event.

1. Start by establishing your Field Centerline. As mentioned above, the A/V Director places a mark on the floor (often a small cross of tape) indicating the exact center of the Field. You will use that mark as your starting point for all subsequent layouts. Find a nearby wall, set of bleachers, drapes, stands, etc. and with your tape measure, determine the shortest distance (the “measured distance” in the diagram) from the Field center to that surface. As shown, using small bits of Gaffer’s tape put two marks on the floor the same “DISTANCE” from the reference surface. These three points constitute your Field Centerline.



Note: If there is no obvious reference surface, align the Field by eye to the best of your ability.

2. If not already in place, position both carpet rolls at approximately 37’ from the Field Centerline such that the carpet will uncoil in the intended direction, parallel to the Field Centerline.
3. Remove any protective plastic cover, and roll out the Red and Blue Carpet, keeping the edge of the carpet approximately 3” from the Field Centerline, respectively. Eliminate any ridges and puckers in the carpet by stretching (walking out) carpet sides. Measure the carpet length. Verify by measurement that the carpet is at least 74’ in length.



4. Measure 37’ and 74’ from the end of the carpet, and use a Sharpie to mark both sides of the carpet, both near and away from Field Center. These four marks will help chalk two lines to cut the carpet in half and to length.

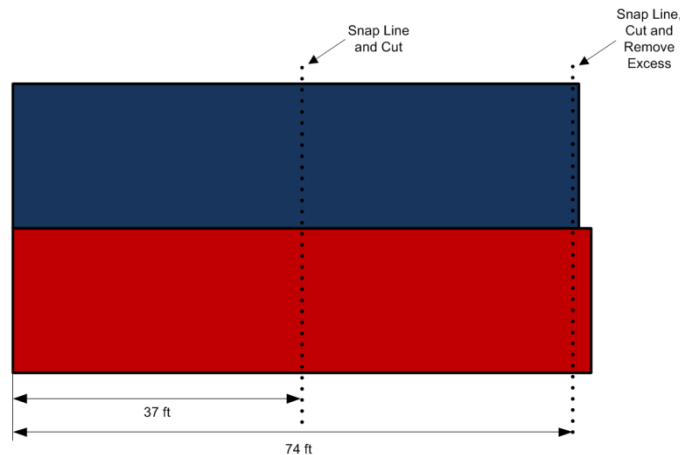
5. "Selvage" is the extra fabric (with no carpet) on each side of a new roll of carpet. You must remove all selvage material from both edges of each carpet. Trim the material in a long, clean, straight line along the edge of the carpet pile edge using the provided Carpet Knife. Take the necessary time to make clear, straight cuts to get the best match of edges when the carpets are mated together. Avoid leaving excess selvage, and do not cut into the carpet.



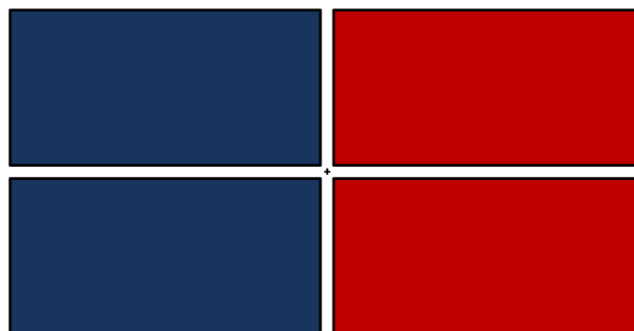
Note: You get one shot at removing the selvage material cleanly. Ensure that whoever is cutting it understands the need to cut precisely at the edge of the carpet the first time. When the blade of the carpet knife gets dull, replacement blades are provided. Protect this Carpet Knife from accidental loss. They're really useful and hard to replace. Experience has shown that a two-person team is best. One person does the cutting, and the other person manages the strip of cut selvage.

The Carpet Knife will give you the fastest and best cut. If you have to use a utility knife, take precautions to protect the floor and your fingers.

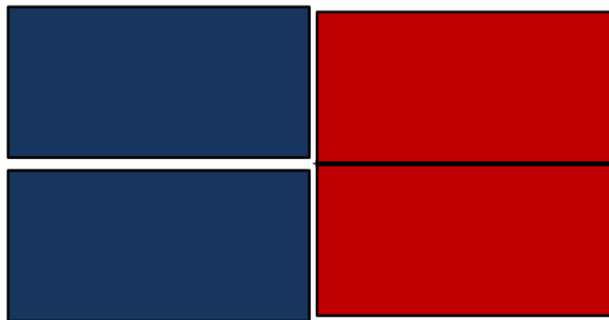
6. Chalk four lines using the marks you made in Step 4. There will be one cut line across the center and one cut line for the length of both the Red and Blue carpets.
7. Cut along the Chalk lines.



8. Move carpet sections into proper position, so that Red carpet is to the right of the Scoring Table, and Blue carpet is to the left.



9. Eliminate any ridges and puckers in the carpets by stretching (walking out) the carpet. If time permits, allow the carpet to settle and flatten out on its own. Some volunteers will try to remove wrinkles and bulges by lifting the carpet and pulling down quickly, creating a traveling wave. This frequently creates more problems than it solves, and it is not recommended. The best results are often achieved by having a large group of persons pulling simultaneously along one or two edges.
10. Slide one Red carpet section up to the provided Field Center mark, and make sure it is flush with the mark.
11. Position the second Red carpet section flush against the Field Center mark with the first Red carpet section, matching the long center edge, and without any major gaps between the pieces of carpet. It should look approximately as shown in this diagram:



12. Repeat steps 9 through 11 with the Blue Carpet so that the Field Carpet looks like this diagram:



13. Fold back the carpets along the Field Center width as shown. Begin affixing your first roll of carpet tape to the edge of one carpet with half the width of the tape beyond the edge of the carpet. Extend this by about 6". As you continue to apply the tape, gradually unfold the carpet, returning it to the floor. As you do so, unfold the other carpet to lie on top of the newly exposed edge of the carpet tape. Continue along making a straight, smooth center seam as you go the width of the carpet.



14. As you approach the end of the first roll of carpet tape (15'), lay another roll of carpet tape (end to end), peel back the paper, and continue to tape the length of the center seam using this technique. Ensure no overlapping of carpet occurs along the seam.

15. Repeat steps 13 and 14 for the entire length of the Field Centerline. Be sure to work from the center of the Field to the end of the Field, across the entire length of the Field.

16. When the Center seam has been fully joined (photo to the right), walk the seam to make sure the carpet is firmly bonded to the tape. Cut away any stray threads of carpet. Apply a layer of 2" Alliance Color Gaffer's tape (Navy for blue carpet, Burgundy for Red Carpet), centered over the entire length of the seam. Check by hand to verify the tape is fully bonded and wrinkle free.



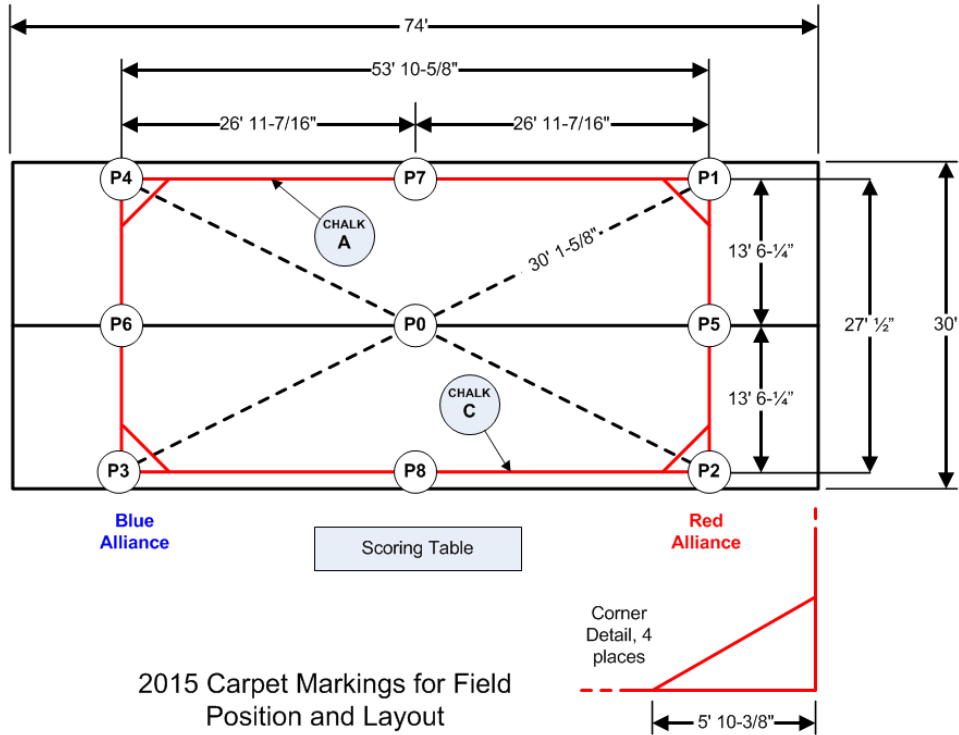
17. Check that the carpet is lying flat without any ridges or puckers in the carpet. Stretch by walking out the carpet sides if necessary. Secure each outside edge of the carpet perimeter to the floor with 2" Alliance Color Gaffer's tape, keeping it straight and wrinkle-free.

Locate and enlarge your previous carpet Center Mark onto the 2" Gaffer's tape to serve as a guide for future markings and measurements. You may find it useful to actually write the "Pn" designations on the carpet (as shown in Section 2.3.2), particularly if you want to use them to aid in telling your crew to do things at specific locations. If so, add a "PO" notation here.

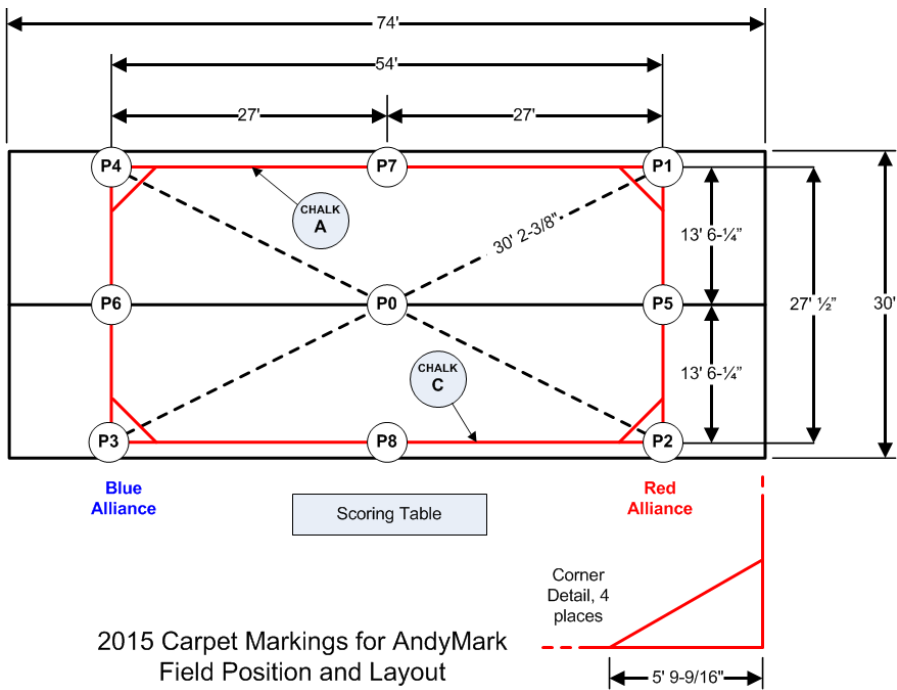
2.3.2 Initial Carpet Marking

2.3.2.1 Tools Required

- 100' Measuring Tape – 1
- 25' Measuring Tape – 1
- Sharpie or White Paint Pen – 1
- 100'+ Chalk Line – 1
- Roll of 2" White Gaffer's Tape – 1

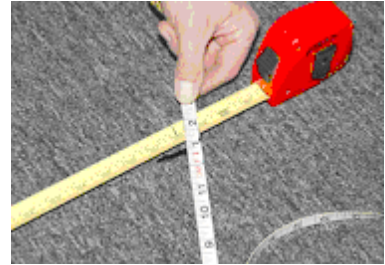


NEW IN 2015! There are two field designs, the original welded aluminum field and the new field sold by AndyMark. If you are using the AndyMark field for your off-season event, the field measurements shown above will be slightly different. Please use the diagram below:



The “P” used on the Carpet Markings diagram above and the accompanying text means Point. The compass notations (“North”, etc.) are provided to assist in locating items with the Field, and are not meant to imply any particular orientation of the Field reference to geographic North.

1. Locate the P1 Field Corner. Starting from P0, measure east along the center of the seam tape $26' 11\frac{7}{16}"$, and mark P5. Starting again from P0, measure northeast $30' 1\frac{8}{8}"$. At the same time, starting from P5, measure north $13' 6\frac{1}{4}"$. Place a small piece of Gaffer's tape at the intersecting point to temporarily mark the intersection as the P1 Field Corner. After you remove the tape measures, make a bold “+” at this point with the Sharpie.



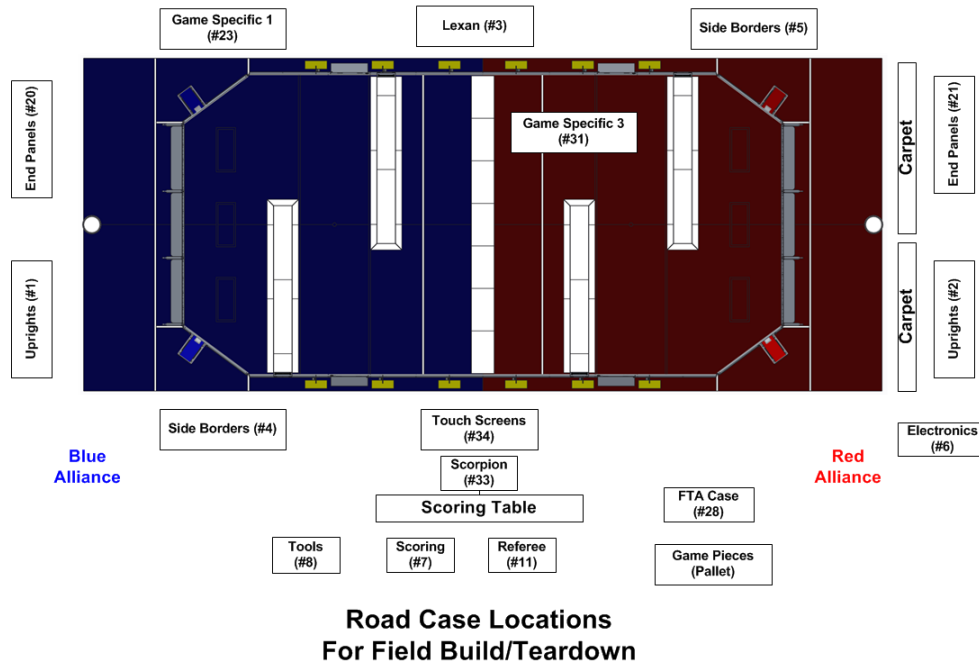
2. Using the same technique as above, locate and mark the P2 Field Corner. Verify $27' 1\frac{1}{2}"$ between P1 and P2.
3. Using the same technique as above, locate and mark the P3 and P4 Field Corners. Verify $27' 1\frac{1}{2}"$ between P3 and P4.
4. Verify that the distance from P1 to P4 and from P2 to P3 is $53' 10\frac{5}{8}"$.
5. Snap the chalk lines.

Suggestions for snapping chalk lines

1. Be sure there is a sufficient level of chalk in the chalk marker container. If you need to add chalk, do so away from the carpet.
2. Extend the chalk line while standing off the carpet to the necessary distance. Then move onto the carpet to lay the marks. This helps avoid dumping chalk onto the carpet. It is also a good idea to use a surplus cardboard box or trash can under the line spool while the line is pulled out to catch the spillage.
3. Prior to snapping the line, hold and stretch the line taut so the chalk line will move straight up and down. This helps to make a straight line.
4. When winding the chalk line up, stand off the carpet to prevent the chalk from spilling onto the carpet.
 - a. Snap the line from P4 to P1 (Chalk A)
 - b. Snap the line from P2 to P3 (Chalk C)
 - c. Snap the line from P1 to P2

2.4 Road Case Layout

The first step in building the Field is proper case location. Properly locating the cases saves time and unnecessary carrying and lifting. The diagram below provides a suggested initial position of the road cases. Space may be limited at some venues, requiring road cases to be brought into the Field area in stages.



Building the Field in the correct order can save considerable time.

2.5 Build the Side Borders and Gates

2.5.1 Equipment Required

Side Border Cases (Cases 04 and 05)

2.5.2 Tools Required

None

In this step you will build two complete Side Borders with their respective Gates. The two sides can be built simultaneously.

Note: When unloading and handling border segments containing Gates, make sure they are in the closed and locked position.

2.5.3 Order of Assembly

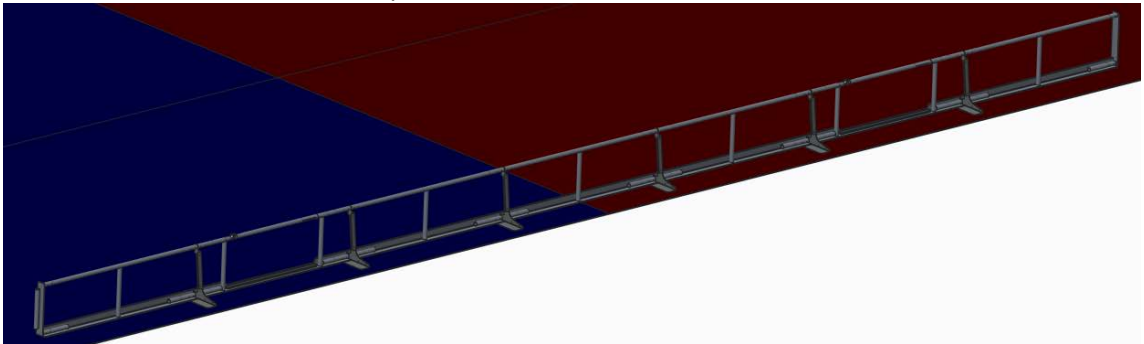
1. Lay out all Guardrail and Outrigger components. Note that one side of the Field has 1-1 on the Red Alliance end of the Field, and the other side has 8-8 on the same end. This is normal and expected. Do not trade parts between the two sides.



2. Walk around once to ensure that the numbering is correct and that all of the segments are in the right location. The Guardrail segments should be lying face down with the rail toward the Field Center, the bottom of the angle facing the outside of the Field.
3. Connect the segments by inserting the smaller tubes into the larger on the top and bottom rail. Be sure to slide the Outriggers on at this time as shown in the photo below.



4. Align the edge of the bottom angle with the snapped line (Chalk A or C), and shift the entire assembly to match up with the marks from the Corner Detail laid out in the Carpet Marking steps – 5' 10-3/8" from the End Panel chalk line.
5. Adjusting the position can cause gaps to open up. Hold one end while sliding each piece toward the Red Alliance Station side to close the gaps.
6. Use four (4) or more people to flip the entire Side Border assembly simultaneously into the upright position. The crew should be positioned on the inside of the Field. Make sure the inside bottom line is located on the respective chalk line.



7. After setting up the Side Borders, measure 5' 10-3/8" from the End of the Side Borders toward P3 and P4 along the Side Border chalk Line, and make a mark.
8. Snap a line from P3 to P4 to locate the second End Panel.

2.6 Build the Driver's Station

2.6.1 Equipment Required

Case 20 or 21
Case 1 or 2
Plastic (HDPE) sheets

2.6.2 Tools Required

Tape Measure - 1
Sharpie - 1
Rubber Mallet - 1

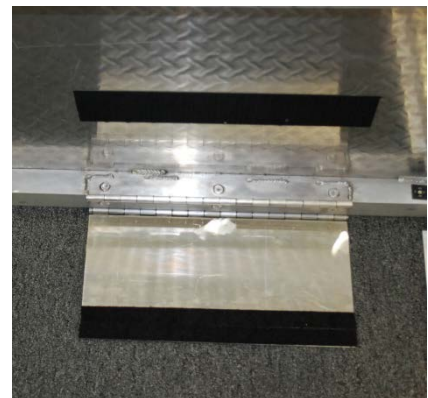
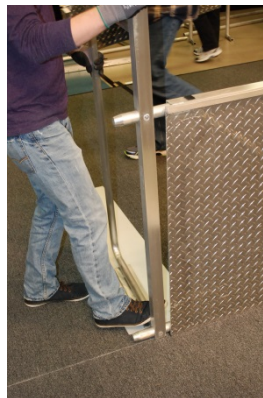
Two pieces of plastic panel are packed in the Uprights Case. They can be slid underneath Field Components to break the Velcro bond with the carpet. They help with maneuverability of Field Components.

2.6.3 Order of Assembly

1. Measure 36" from the Center Line on Chalk Line B, and make a mark with a Sharpie.
2. Line up one End Panel with the Sharpie line, keeping the diamond plate side of the panel facing the Field. Set the stabilizer foot to secure the End Panel.

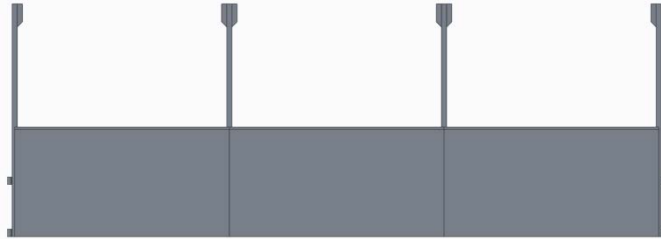


3. Insert a Middle Upright into the mating holes on one side of this End Panel. Use the plastic sheet to slide the upright on the floor, and remove the sheet once the Upright is in place. If the Upright needs some encouragement to properly engage with the Upright, use the rubber mallet to coax it into position.

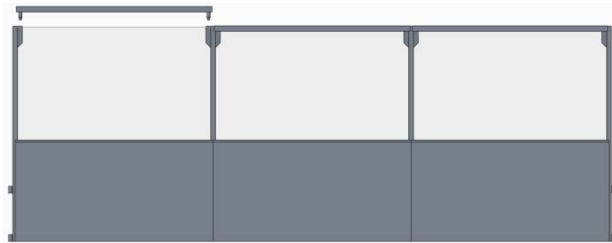


4. Position another End Panel, sliding it into place to engage with the pins that stick out from the Upright. Be sure to push the panel completely into the pins. Make sure that the End Panel is aligned with the chalk line. Set the stabilizer foot to secure the End Panel.

5. Insert a Corner Upright into the mating holes of the End Panel. Use the plastic sheet to slide the upright on the floor, and remove the sheet once the Upright is in place.
6. Repeat Steps 3 – 5 for the other side of the Middle End Panel.



7. Place the Drivers Station Acrylic in End Panels, working outward from the Center End Panel.
8. Place the Field Top Rail into the Middle and Corner Uprights on either end of each End Panel.



At this time, it would be okay for another team of volunteers to put together the other End Panel.

2.7 Install the Gate Ramps

2.7.1 Equipment Required

Case 1 or 2

2.7.2 Tools Required

None

Field Border sections 1-2 and 7-8 are the four gate sections on the Field. Each gate receives a diamond plate ramp assembly. There are two Gate Ramps packed in each Upright Case.

2.7.3 Order of Assembly

1. Orient the ramps in the gate with the vertical, metal tab on the inside of the Field.
2. The base of the ramp hinge fits into the slot formed by the angle bracket and the vertical edge of the gate section.



2.8 Install the Outrigger Trip Guards

2.8.1 Equipment Required

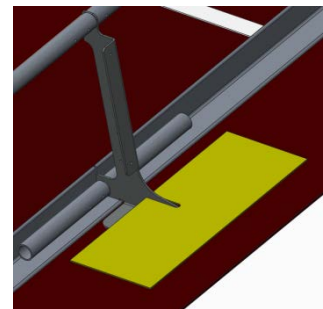
Case 4 or 5

2.8.2 Tools Required

None

2.8.3 Assembly

Each Outrigger needs a trip guard to protect pedestrians from trip injuries. Step on the trip guards on both side to engage the Velcro with the carpet.



2.9 Plastic Side Border Shield Installation

2.9.1 Equipment Required

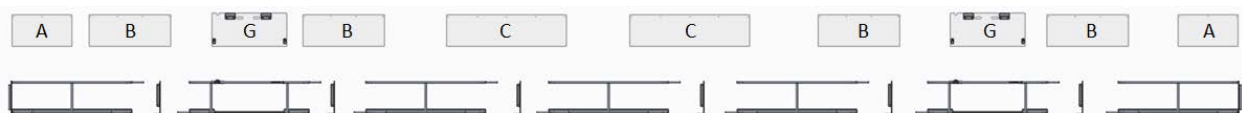
Case 3

2.9.2 Tools Required

None

2.9.3 Assembly

After the Field Perimeter has been assembled, polycarbonate plastic shields need to be cable tied into position to cover open spaces in the Field Border. In addition, the four Gate Shields are seated into the Side Border when the gates are down and locked.



All polycarbonate shields must be installed on the inside of the Field Border (towards the playing Field). Holes in the polycarbonate shields go towards the top of the Field Border.

2.9.4 Placement

The Clear Plastic panels are labeled to match up with letters applied to the interior wall of the Field Border. Black Velcro patches also identify where the corners of the adjacent panels should match up.

2.9.5 Shield cable tie Instructions

Feed the point of the cable tie from outside the Field towards the playing Field through the holes near the top of the polycarbonate. The cable tie connection point must be on the top outside of the Field Border. Pull the cable tie as tight as possible. Trim the excess ends flush, and rotate the connection point under the railing out of view.



2.10 Field Markings and Chalk lines

2.10.1 Equipment Required

None

2.10.2 Tools Required

Tape Measure - 1

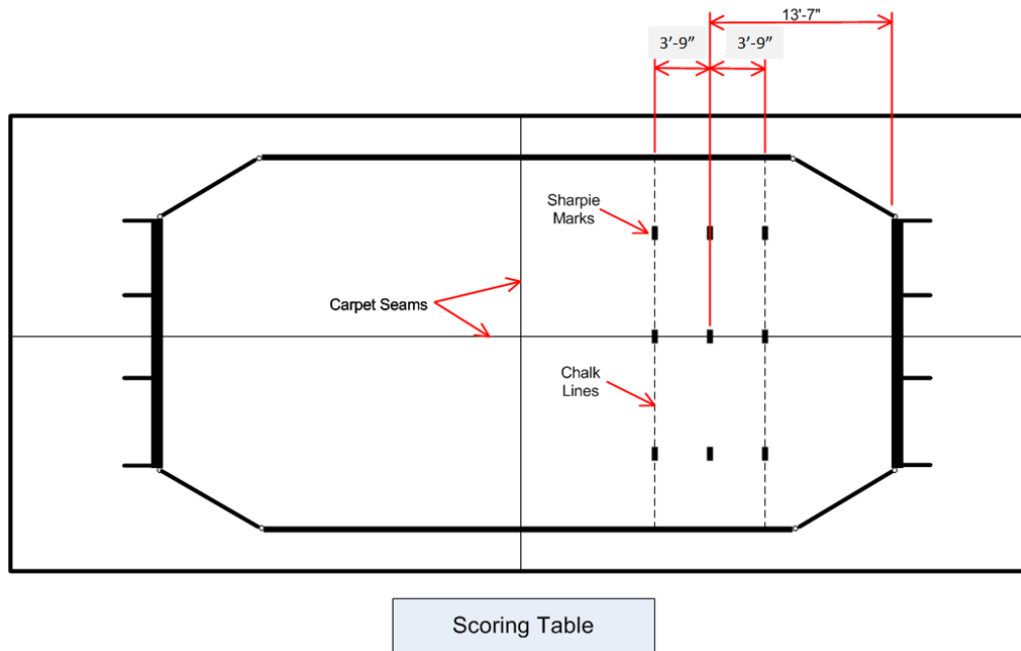
Sharpie – 1

Chalk line - 1

2.10.3 Landmark

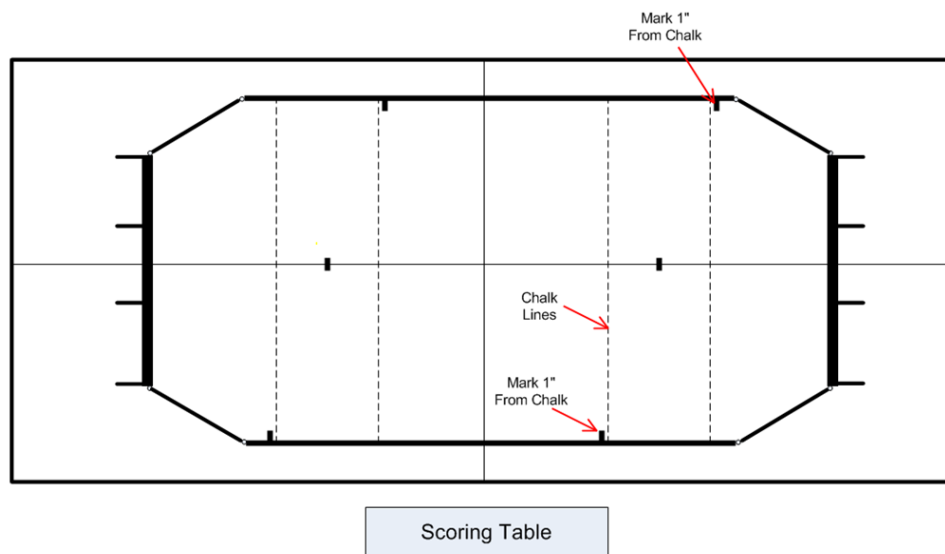
1. Measure 13'7" from the End Panel along the Field Center, toward the center of the Field, and make a "+" mark.
2. Center a 4" long piece of Gaffers tape over the "+" so that it bisects the Field Center Line.

2.10.4 Scoring Platform Chalk Lines



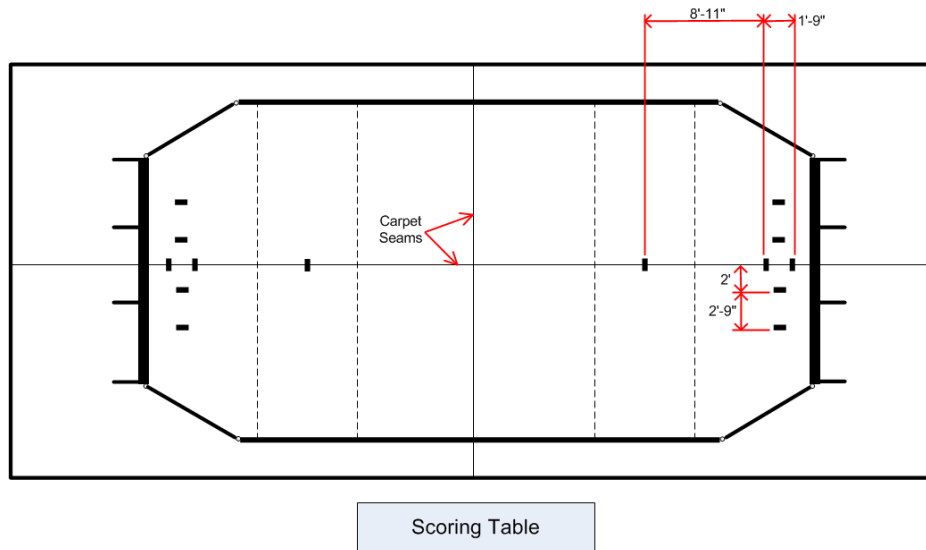
1. Measure 13' 7" from the End Panel in three (3) places, one on each edge of the Field, and one on the Field Center (this mark should line up with your Landmark)
2. Measure 3' 9" from the Landmark toward one End Panel, and make a mark. Measure 3' 9" toward the other End Panel from the Landmark, and make a mark. Repeat this step for all three (3) marks you made in Step 1.
3. Chalk from one Side Border to the other, using the marks made 3' 9" from the Landmark. These chalk lines help properly place the Scoring Platforms.

2.10.5 Measuring for Backstop Placement

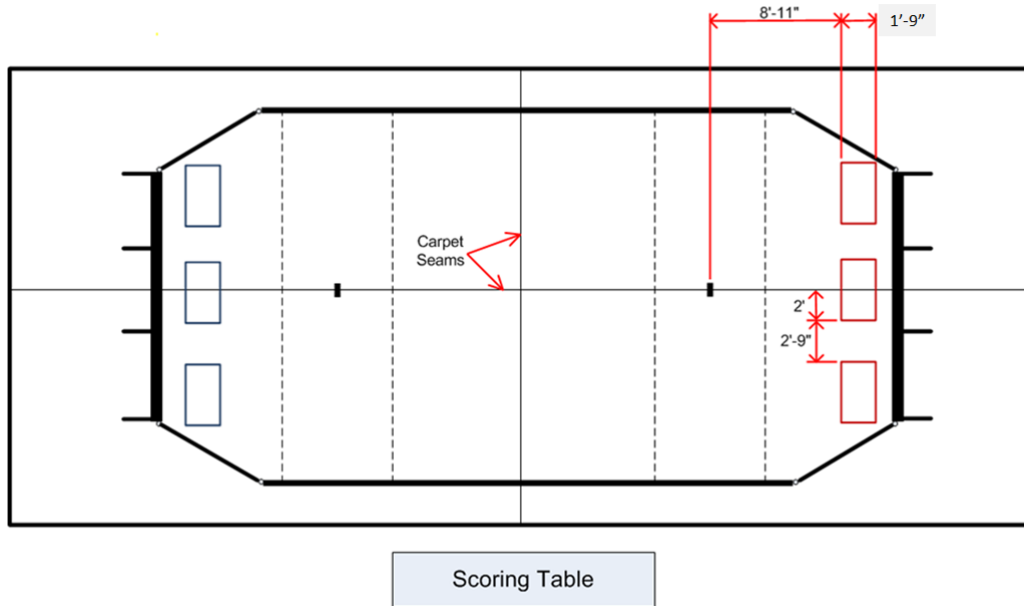


1. From the Red Alliance Scoring Platform chalk line closest to the End Panel, along the side border farthest from the Scoring Table, measure 1" toward the End Panel, and make a mark.
2. From the Red Alliance Scoring Platform chalk line closest to the Step, along the side border closest to the Scoring Table, measure 1" toward the Step, and make a mark.
3. From the Blue Alliance Scoring Platform chalk line closest to the End Panel, along the side border closest to the Scoring Table, measure 1" toward the End Panel, and make a mark.
4. From the Blue Alliance Scoring Platform chalk line closest to the Step, along the side border farthest from the Scoring Table, measure 1" toward the Step, and make a mark.

2.10.6 Measuring for Staging Zones



1. From the Landmark, measure 8' 11" toward the End Panel
2. From that mark, measure 2' toward both Side Borders and make marks.
3. From those two marks, measure 1' 9" toward the End Panel and make marks.
4. The marks made in Steps 1-3 are bounding marks for the center Staging Zone
5. Measure 2' 9" from the outside of the center Staging Zone toward both Side Borders, and make a mark.



- From the mark, make a rectangular box with outside dimensions of 4' by 1' 9", to be in line, and run parallel to the center Staging Zone.

2.11 Build the Human Player Station

2.11.1 Equipment Required

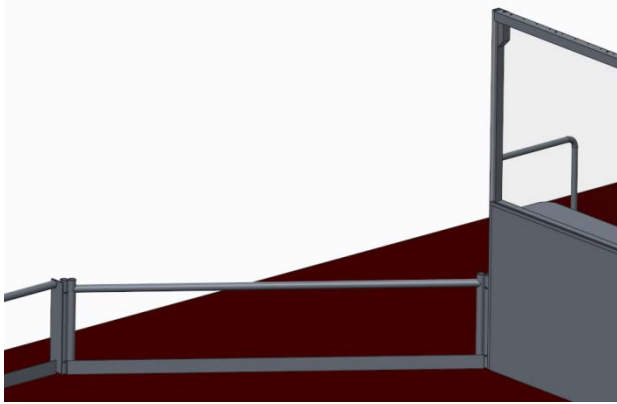
Case 23 or 31
Plastic (HDPE) sheets

2.11.2 Tools Required

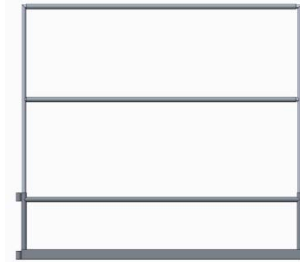
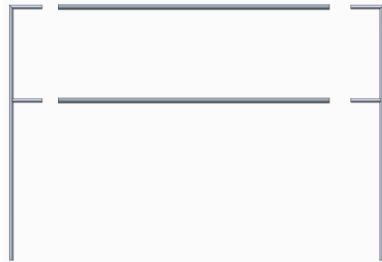
Tape Measure - 1
Sharpie - 1
Rubber Mallet - 1

2.11.3 Order of Assembly

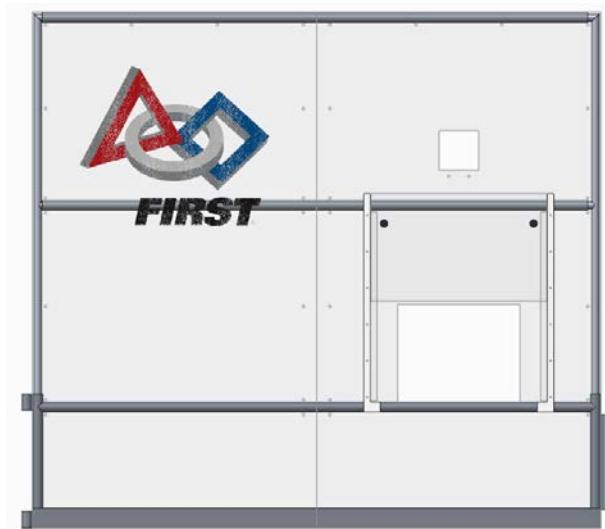
- Place the Corner Frame in place so that the connecting pipes line up with the connector pipes on the End Panel Upright and the Side Border. Note that there is a left Corner Frame and a Right Corner Frame. Make sure, like the Side Border, the front face of the aluminum angle at the base of the Corner Frame goes to the inside of the Field.
- Slide Pins into the Corner Frame / End Panel and the Corner Frame / Side Border to lock them together.



3. Assemble the "F" Frames by placing two larger pipes over the smaller pipes. Then place the Assembly into the accepting pipes in the Corner Frame.



4. Make sure the Chute Door is placed correctly in the Human Player Polycarbonate with the Chute Door Rails. The handles should be justified toward the top of the assembly, and the Chute Door should be able to move up and down freely.
5. Align both large pieces of Polycarbonate into place, with the Chute Door piece closest to the End Panel. Secure them both to the "F" frames and cross bars using cable ties.



2.12 Build the Tote Chute

2.12.1 Equipment Required

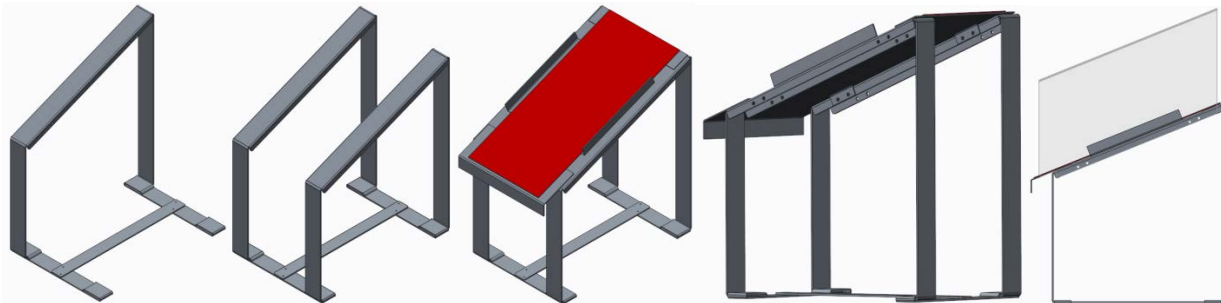
Case 1 or 2

Case 31

Plastic (HDPE) sheets

2.12.3 Order of Assembly

1. Insert Tote Slide Legs into the Tote Slide Base.
2. Place the Tote Slide onto the Tote Slide Legs making sure that the ramp is correctly positioned, with cable tie holes lined up, as shown. Secure using cable ties.
3. Place the Tote Slide Cover over the Tote Slide Legs. Line up the holes on the outside of the Tote Slide legs, and secure it with cable ties.



4. Using the plastic sheet to help place the chute, place the front lip of the Tote Slide over the top rail of the Corner Frame of the Human Player Station. Make sure that the Tote Slide is centered between the two edges of the Tote Chute Hole in the Polycarbonate wall.



2.13 Build the Litter Chute

2.13.1 Equipment Required

Case 23

2.13.3 Order of Assembly

1. Place the Litter Slide over the Litter Chute hole in the Polycarbonate wall, and secure with one cable tie.
2. Place the Litter Slide Cover onto the Litter Chute, and secure it with cable ties.
3. Place the Litter Guard onto the Velcro on the Litter Slide Cover.



2.14 Install the Step

2.14.1 Equipment Required

Case 31

2.14.2 Tools Required

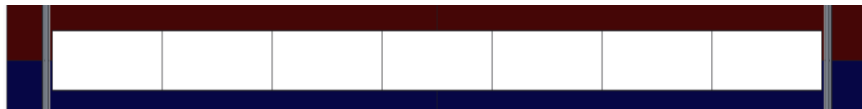
Step Hardware
Tape Measure – 1
Sharpie – 1
Chalk Line – 1

2.14.3 Order of Assembly

1. On the Red Carpet, close to both Side Borders, measure 12.5 in. from the Field, and make a mark.
2. Chalk a line across the width of the Field using the previous marks.
3. Arrange 7 sections of the Step along the width of the Field along the chalk line, making sure that the color of the HDPE on the ground matches the carpet color (Red in this case).
4. Using the provided hardware, secure the seven (7) sections of the Step together and tighten the wing nuts.



5. Center the Step along the width of the Field. It's normal to have a small gap between the side border and the side of the Step.



6. Using four (4) or more Volunteers, and making sure the edge of the Step stays along the chalk line, rotate the Step down to the floor. Confirm that the Velcro connects well with the carpet.

2.15 Build the Scoring Platforms and Backstops

2.15.1 Equipment Required

Case 1 or 2
Case 4 or 5
Case 23

2.15.2 Tools Required

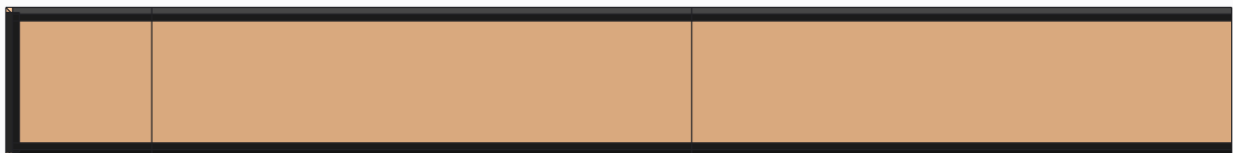
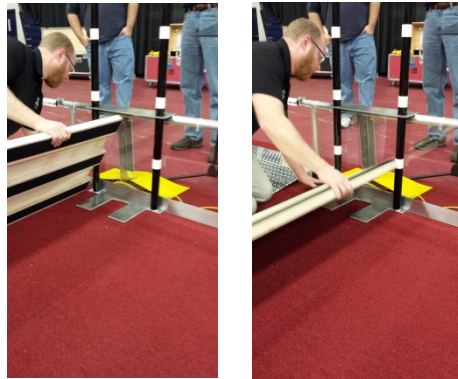
Tape Measure - 1
Sharpie - 1

2.15.3 Order of Assembly

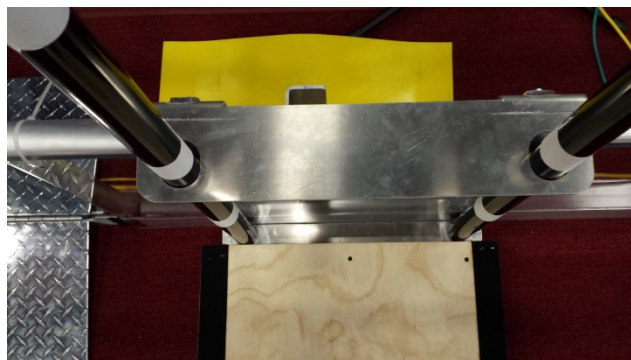
1. Using the marks made in "Measuring for Backstop Placement," place the back of the Backstop Base touching the Side Border Plastic, and line up the edge of the Backstop Base with the marks.
2. The two (2) Backstop Bases closest to the Step are placed toward the Step from the mark, and the two (2) Backstop Bases that are closest to the End Panels are placed toward the End Panels.



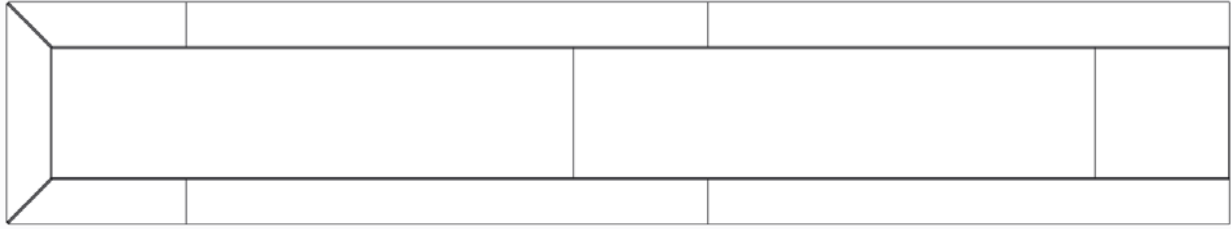
- Using the Chalk lines as a guide, place two (2) Scoring Platforms and one (1) Small Scoring Platform so that they sit with the edge on the chalk line, and over top of the Backstop Base. The Small Scoring Platform always goes toward the center of the Field.
- Repeat Step 3 for all four (4) Scoring Platforms.



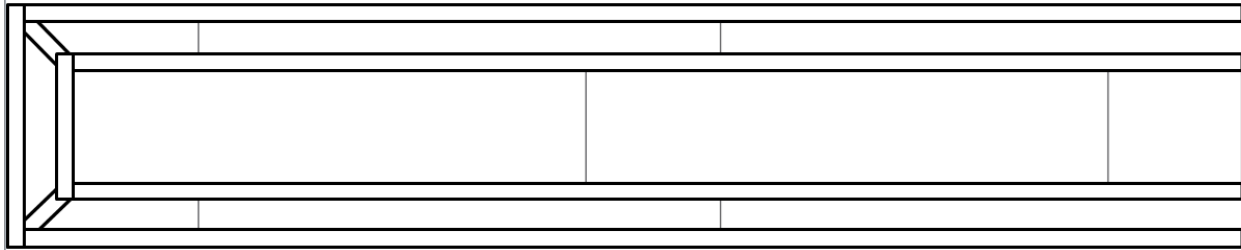
- Slide the Backstop Bracket onto the Side Border, making sure that the adjustment knobs are all the way out to give the most amount of play for assembly.
- Slide the Backstop through the holes in the Backstop Bracket, and slide the Backstop onto the Backstop Base, making sure it sits as far down onto the base as possible.
- Tighten the knobs in the Backstop Bracket until the Backstop doesn't sway.



- Place the appropriate white HDPE in places as shown below:

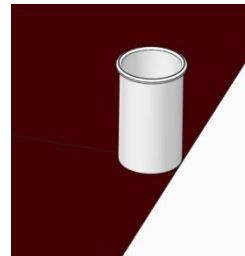


9. After all HDPE parts are placed, be sure there are no large gaps between pieces. Then, using White Gaffer's tape, tape the seams as shown below:



2.16 Litter Bin Placement

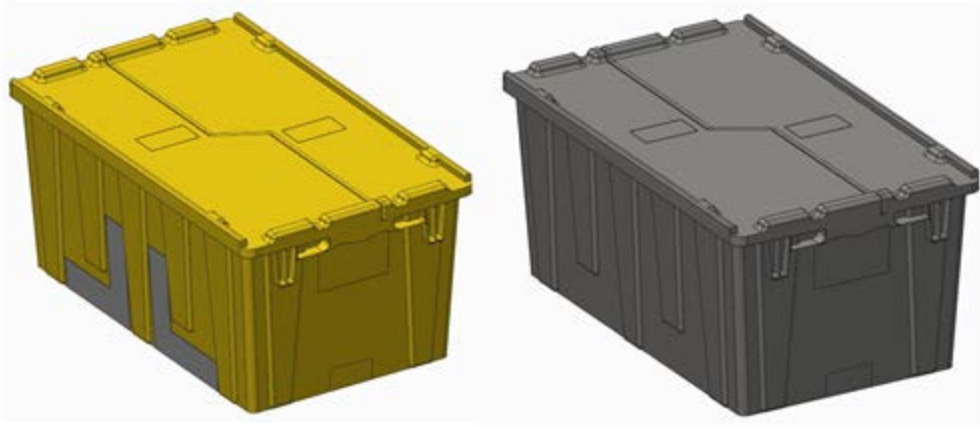
1. The Litter Bins are located tangent to the back edge of the carpet behind the Driver's Stations. They are also centered on the Field.
2. Secure the Litter Bin to the Carpet by making sure the Velcro on the bottom of the Litter Bin is adhered to the Carpet.



2.17 Game Pieces

2.17.1 TOTES

There are two types of Totes used in Recycle Rush. Each Yellow TOTE is marked with eight (8) strips of 2 in. retro-reflective material (3M 8830 Silver Marking Film) adhered to the long sides of the TOTE and assembled such that two (2) mirrored "L" shapes are formed as demonstrated below.



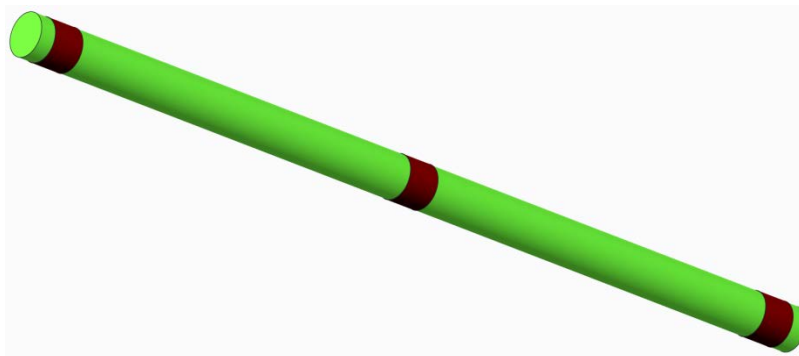
There are also Gray TOTES used in Recycle Rush, pictured above.

2.17.2 RECYCLING CONTAINERS

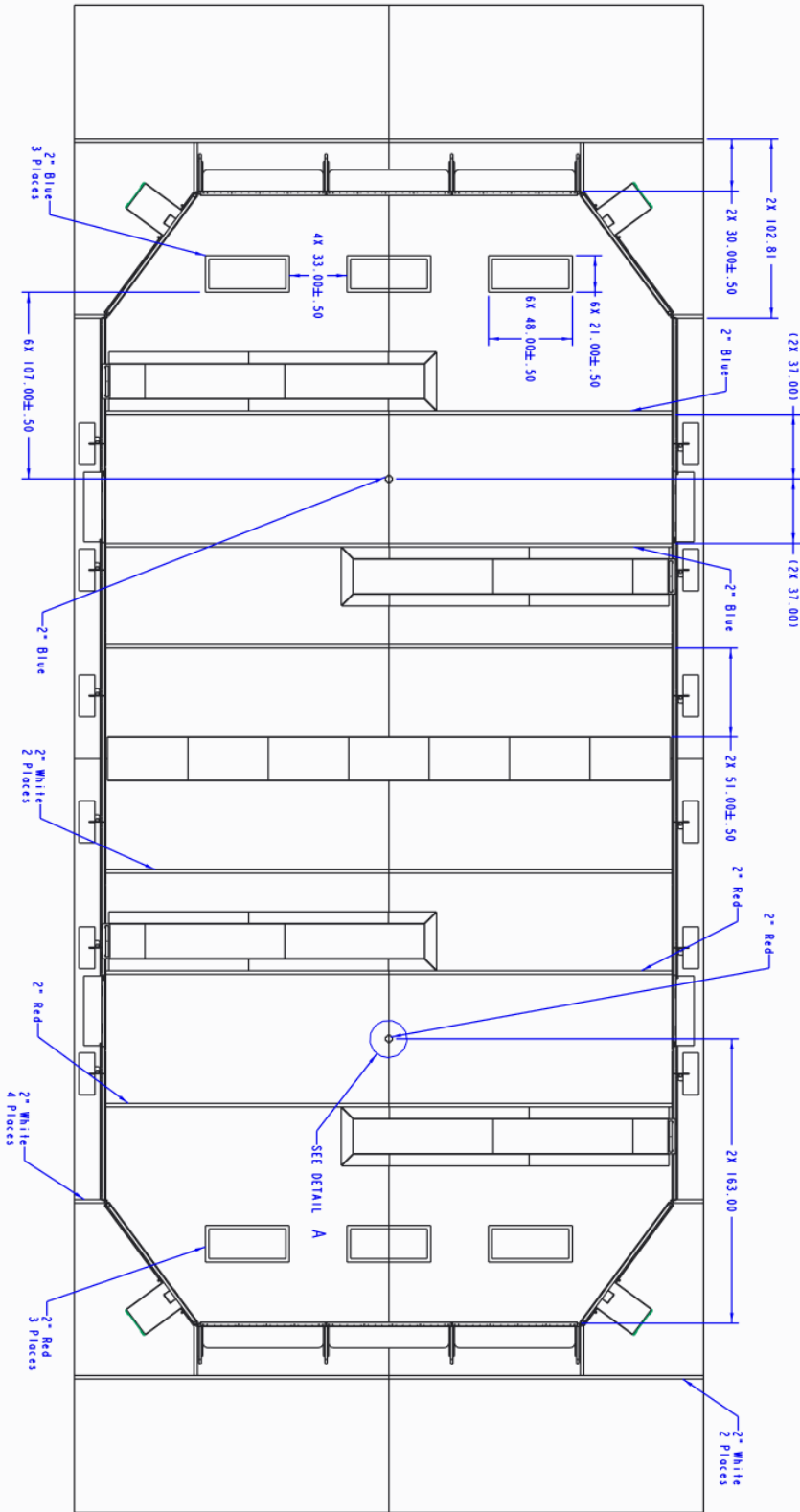
RECYCLING CONTAINERS are 32 gallon green Rubbermaid™ Recycling Containers with “single stream recycling” style lids.

2.17.3 LITTER

Each LITTER is a solid core, green Pool Noodle, with Alliance colored gaffer’s tape in the middle and 1” from each end. They are 4 ft. 10 in. in length and have an outside diameter of 2.6 in.



2.18 Tape Layout





Chapter 3 – Game Specific Cases

3.1 Case 23 – Steps and Scoring Platforms

3.1.1 Contents

Step Assemblies (7)

Practice Step Assembly (1)

Scoring Platforms (8)



3.1.2 Packing Instructions

1. Place six step assemblies into the case as shown. Velcro should be facing to the outside of the case on both sides.



2. Place four Scoring Platforms in between the Steps. When loading the case, be sure to only have hook Velcro touch hook Velcro, and loop touching loop.



3. In the same technique as above, place four more scoring platforms on top of the first four.



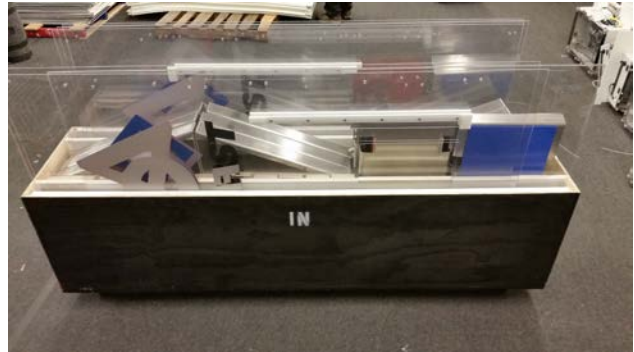
4. Place two more steps, plastic side down, Velcro side facing out on top of the other steps. Use the Velcro attached to the case upright to hold one of the steps in place as you load. Secure with attached strap.



3.2 Case 31 – Field Corner Components

3.2.1 Contents

Angle Wall Plastic 1 w/logo (4)
Tote Chute Door Assembly w/o Door (4)
Tote Slide Leg (8)
Litter Slides w/Cover and Litter Guard attached (4)
Tote Slide (4)
Chute Plastic (4)
Small Scoring Platforms (4)



3.2.2 Packing Instructions

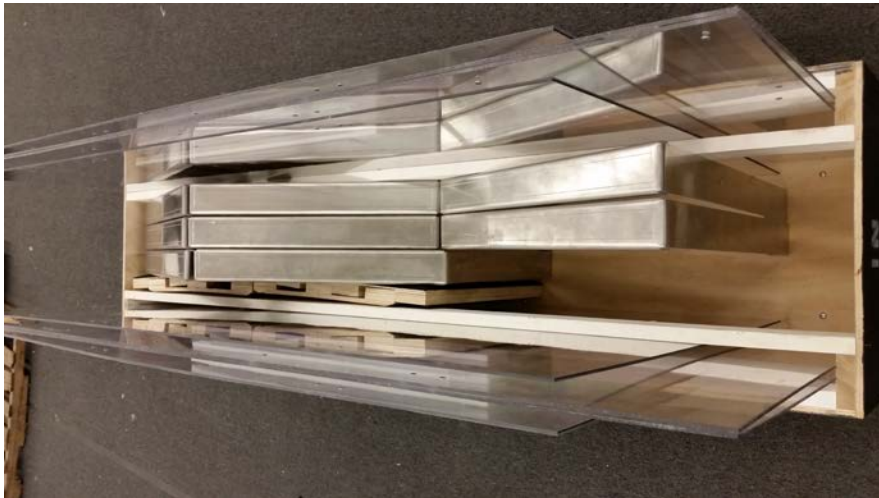
1. Place two Angle Wall Plastic 1 (w/logo) and two Tote Chute Door Assemblies into each side of the case as shown.



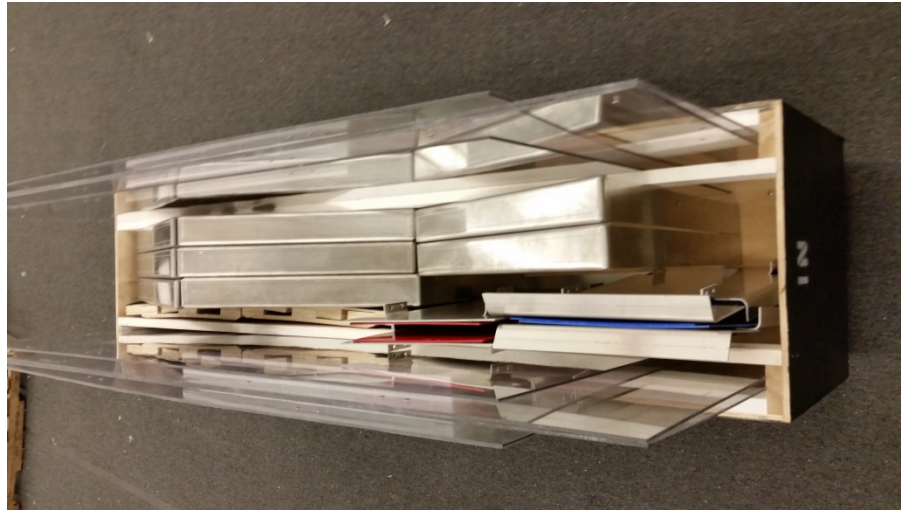
2. Place eight Tote Slide Legs in between the plastic.



3. Nest two Small Scoring Platforms together and wedge them in between the Tote Slide Legs and Plastic from Step 1. Repeat with remaining two Small Scoring Platforms.



4. Make sure the Chute Plastic is still attached to the Tote Slide. Nest two of them together and insert in between the Tote Slide Legs and Plastic from Step 1. Repeat with second set of Slides.



5. Make sure the Litter Slides Still have the Covers and Litter Guards attached. Place them in the case as shown. One will likely have to sit in the “trough” formed by the Tote Slide Legs.

