

2015-2016 *FIRST*[®] Tech Challenge Low Cost Field Perimeter Guide

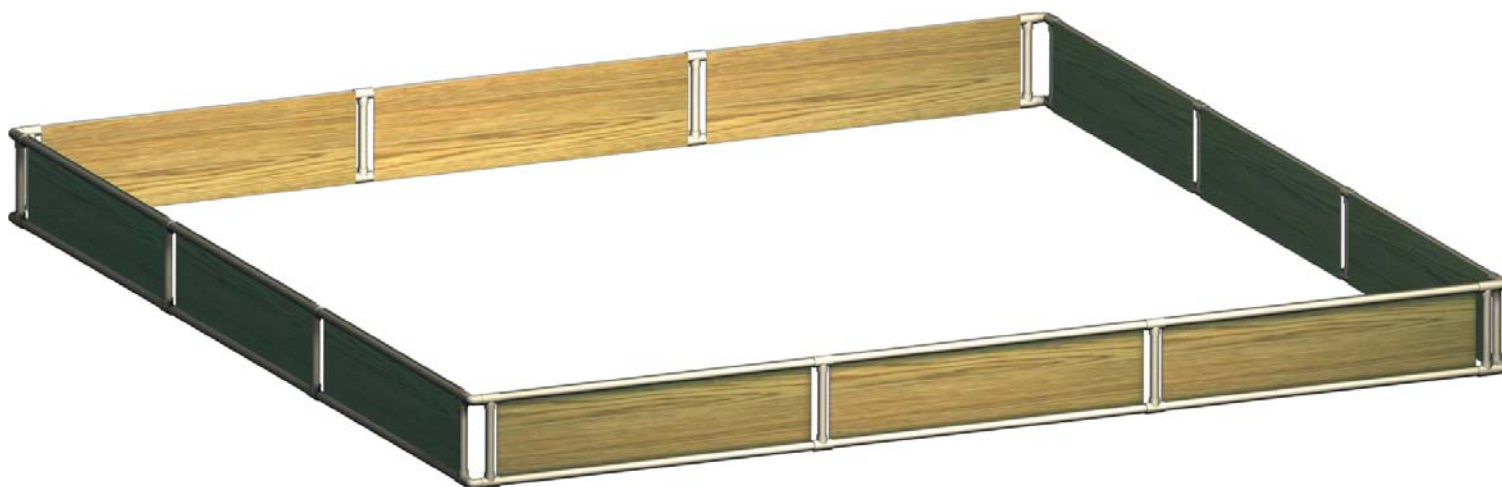


FIRST[®] Tech Challenge



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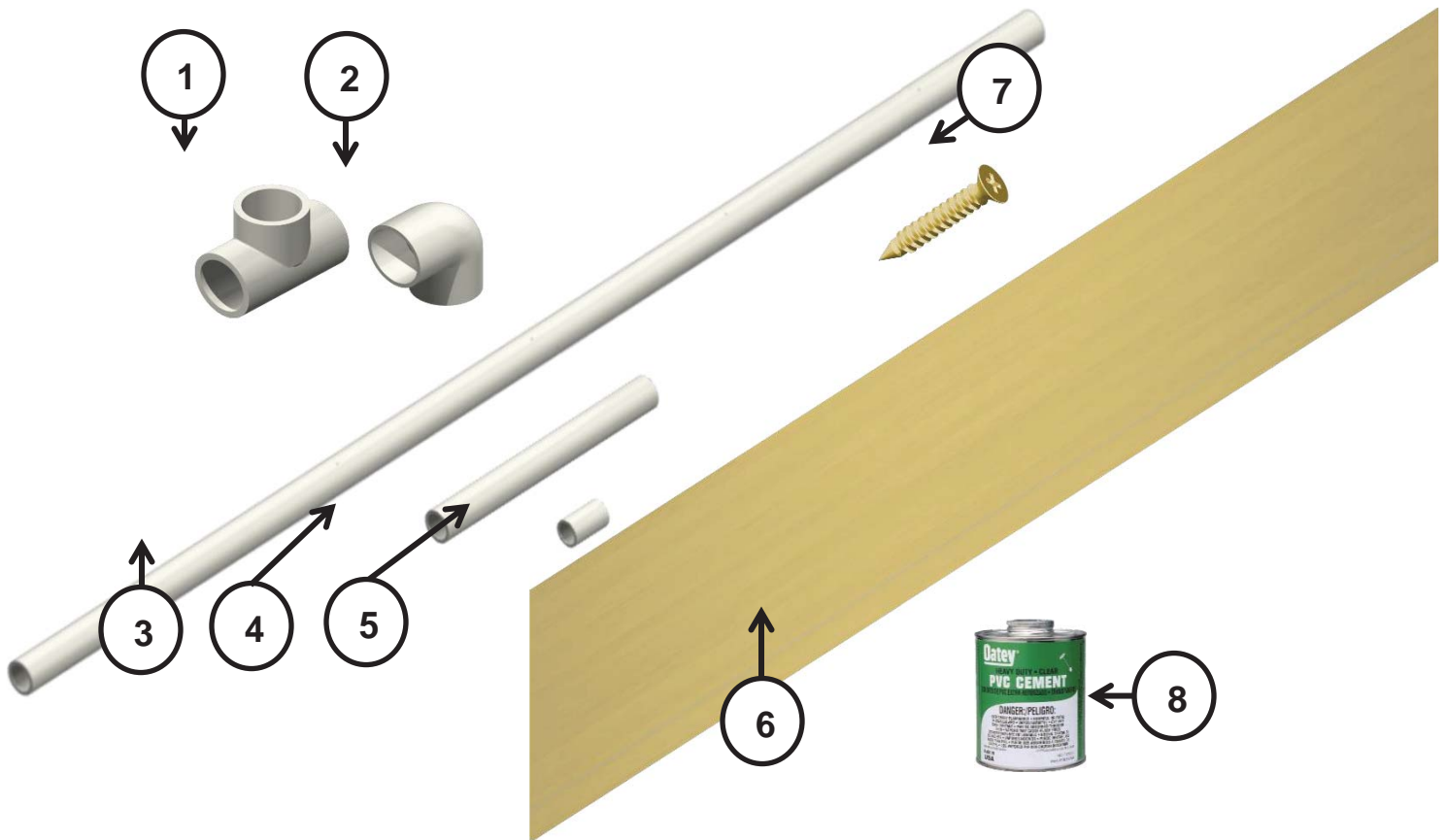
Revision History

Revision	Date	Description
1	July 1, 2015	Initial Release
1.1	September 24, 2015	Updated measurement in cut sheet template

Shopping and Parts Guide

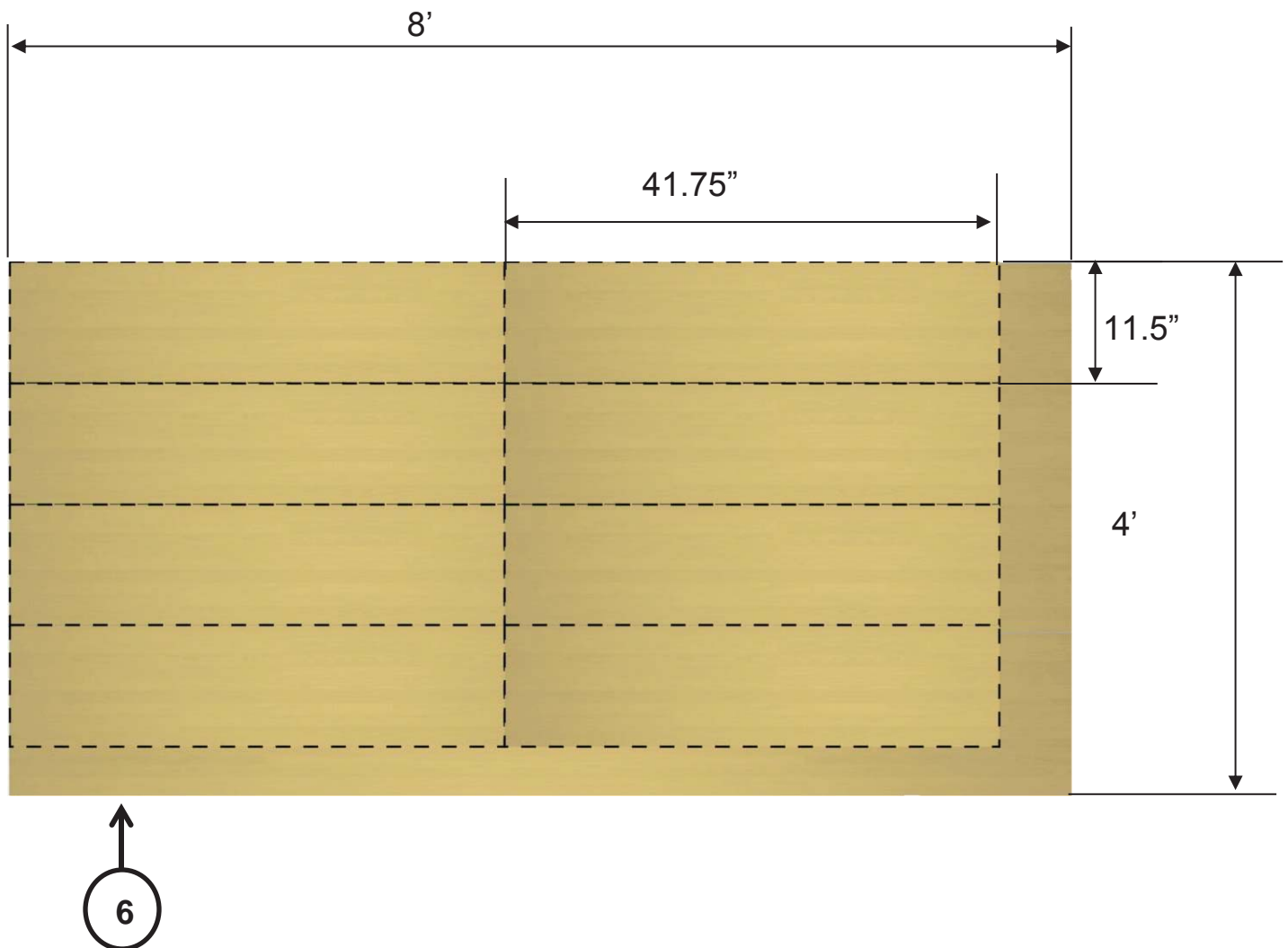
Item	Description	Assembly Quantity Required	QTY to buy	Home Depot Sku*	Quantity to Buy	Est. Unit Price	Total Price
1	Tee-Joint	32	Tee-Joints	187917	32	\$0.50	\$16.00
2	90° Elbow Joint	8	Elbow Joints	187976	8	\$0.53	\$4.24
3	43.5" Long PVC Pipe	24	10" Lengths of pipe	193712	12	\$2.68	\$32.16
4	9.3" Long PVC Pipe	16					
5	1.75" Long PVC Pipe	16					
6	41.75" x 11.5" x .125 Hardboard Panels	12	4' x 8' x .125 sheets	8327777	2	\$10.27	\$20.54
7	#8 x 3/4" wood screws	120	100 Per/Package	23252	2	\$7.98	\$15.96
8	PVC Cement	As Needed	Can	187100	1 Can	\$4.94	\$4.94
Estimated Cost							\$93.84

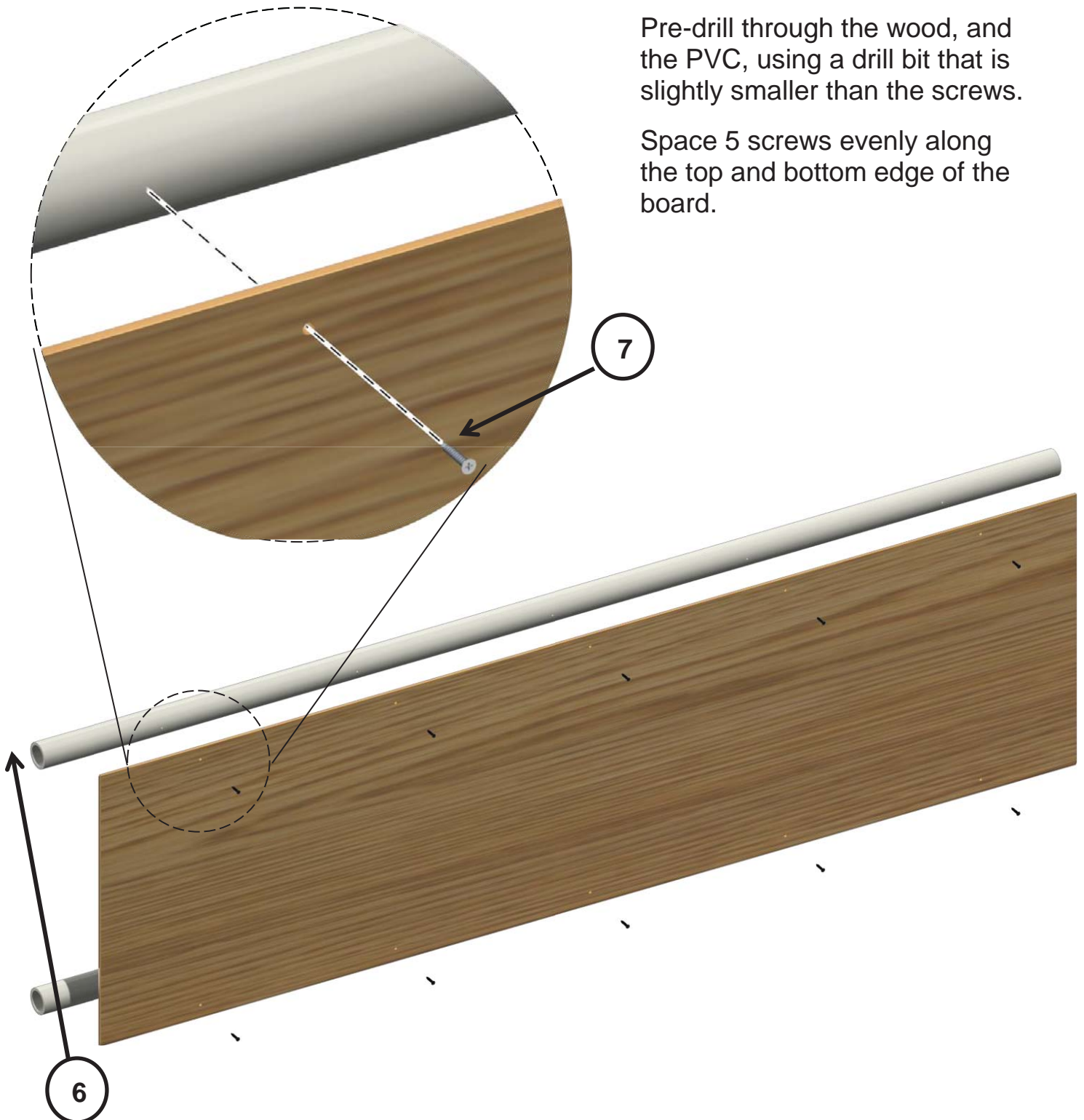
*Home Depot is given as a convenient reference. These materials are widely available at most hardware stores, and prices will vary.



Cut Sheet Template

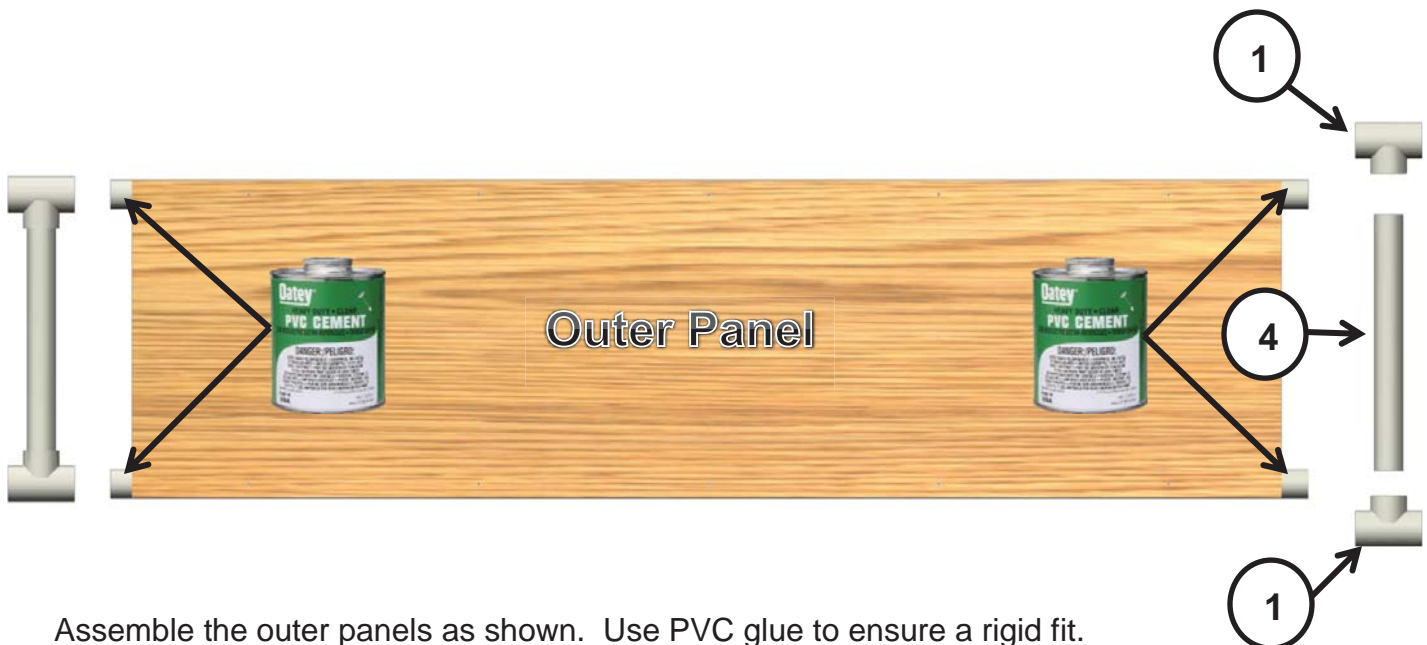
Use the template below to cut side panels from a 4' x 8' x .125" sheet of hard board. Each sheet should yield 8 panels.





Field Side Wall Sub-Assembly

Each wall assembly consists of 2 outer panels and 1 center panel

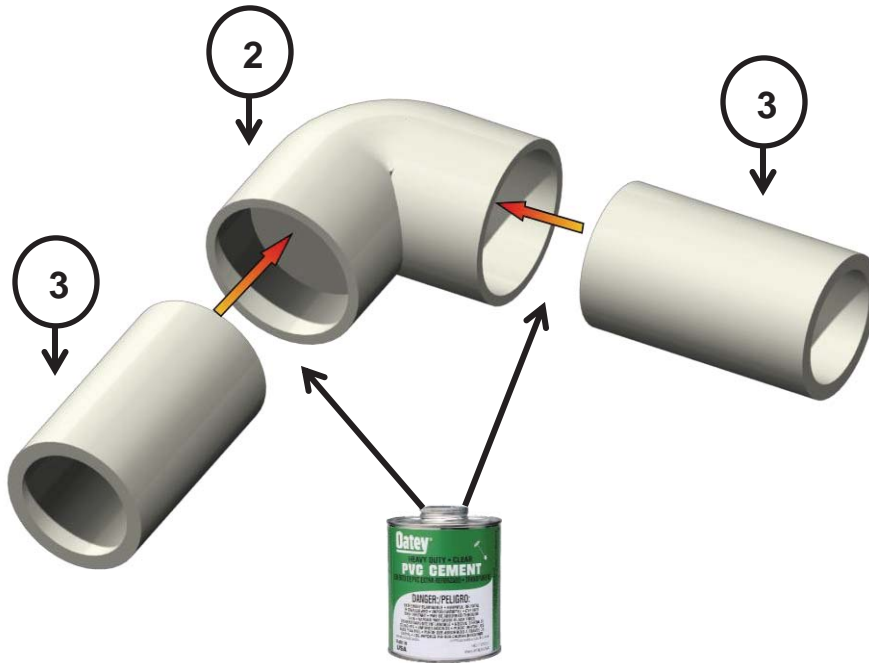


Assemble the outer panels as shown. Use PVC glue to ensure a rigid fit.

Leave the center panel un-glued to allow for easy assembly and dis-assembly of your field.

Prepare the Joint Corners

Assemble 8 corner pieces as shown. Use PVC cement to secure the pieces together.



Assemble the field walls at the corners as shown.

Gracious Professionalism - *"Doing your best work while treating others with respect and kindness - It's what makes FIRST, first."*

PVC Cleaning and Cementing Tips

Cleaning:

When you purchase PVC pipe, it is likely that it will be dirty and covered with manufacturer's markings. For best presentation at official competitions, it is best to clean the PVC as much as possible.

Here are a few suggestions on ways clean your PVC. If you have other techniques, please feel free to share them with us.



The Kitchen Sink Approach:

Wipe off any loose dust with a damp rag. Then dab a little household powdered cleanser onto a green nylon scouring pad, dampen and simply rub off the markings. Rinse with a damp rag. This method also removes most other marks and dirt without scratching the surface of the PVC.

Caution: Wear rubber gloves and safety glasses. Be sure to follow the directions on the cleanser.

For more difficult imprints:

- Soak a small chunk of fine steel wool (grade #0000 or #00) in acetone.
- Because the acetone dries quickly, work in short sections of 1 or 2 feet.
- Wipe smears quickly with a shop rag before the acetone dries.

Caution: Wear rubber gloves and safety glasses. Be sure to follow the directions on the acetone container. *Work in a well-ventilated area.*



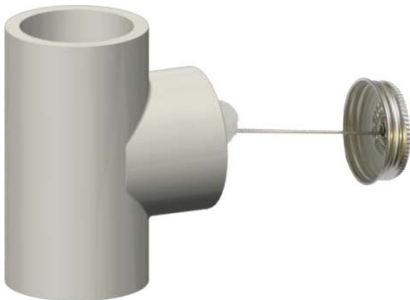
on the acetone



A non-chemical alternative to cleaning the PVC:

Lightly sand blemishes and imprints with a low-cost 3M sanding pad. Use medium-grade for tougher inks, fine-grade for lighter inks. You'll find them at most hardware stores.

The sanding pads conform to the pipe's contour and will quickly remove markings with just a *light* pressure. Use a damp cloth to clean away dust left behind from the sanding.



Cementing:

Swab a *light* amount of glue to inside of the fitting, insert the pipe into the fitting. PVC cement dries fast, so you'll have to be quick. Hold the fitting and pipe together for a few seconds, then wipe off any excess glue *immediately* with a rag.

Caution: Wear rubber gloves and safety glasses. Be sure to follow the directions on the cement container. *Work in a well-ventilated area.*

