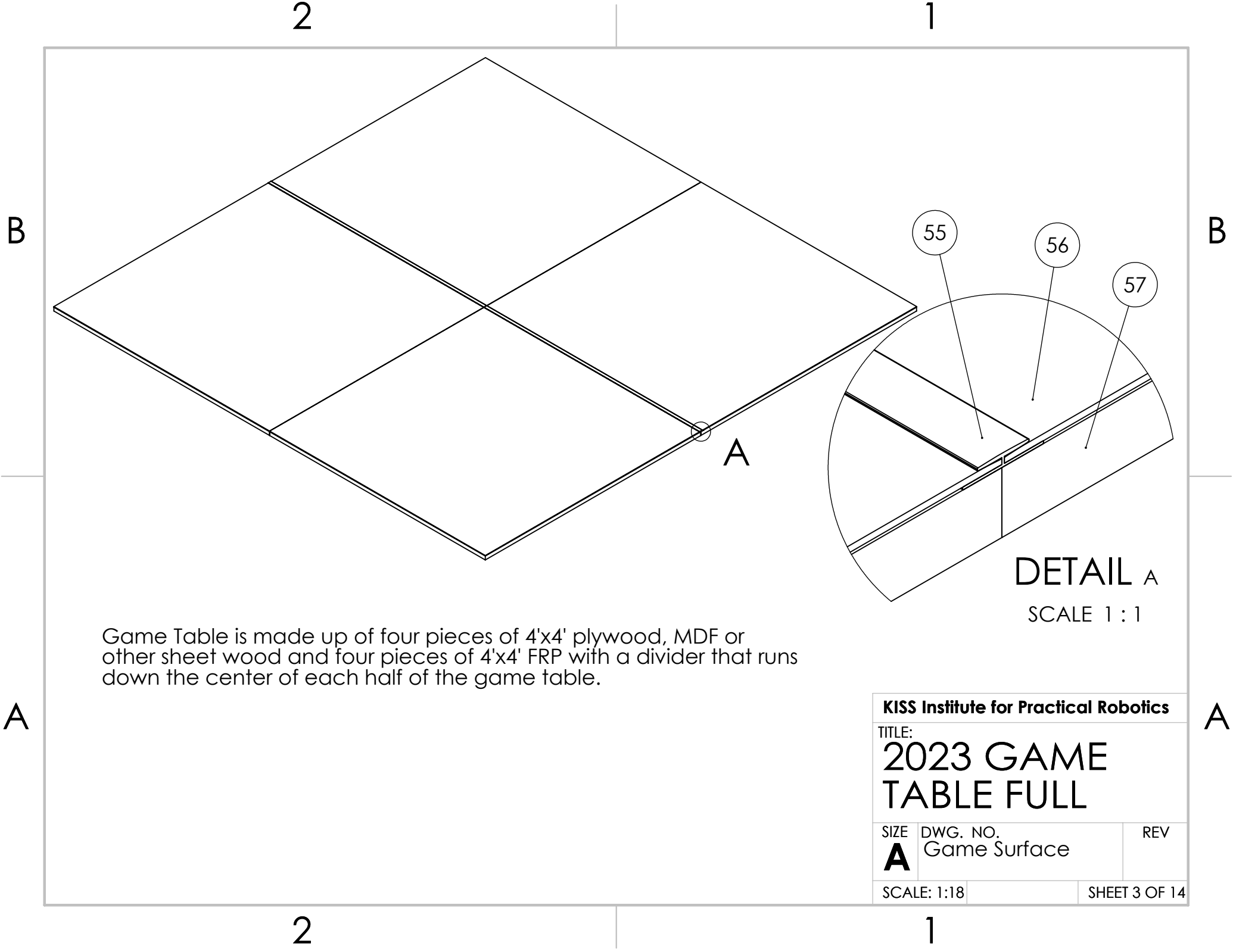


2023 Botball Game Table Build

Notes for teams:

- Exlcuding the 3" coupler (which is Charlotte brand), all PVC connectors are LASCO brand. This is necessary to building the table correctly without making any adjustments since most brands have different internal dimensions for their connectors.
- There are some optional builds in the game this year so be sure to read through entire document before buying
- If you are looking for specific parts, you can use the link to this Lowe's list to find the correct parts: [Link to List](#)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	LED Light Strip	Optional part - width: <1cm	2
2	3 inch - 1/2" PVC	0.5" ID SCH 40	22
3	4 inch - 1/2" PVC	0.5" ID SCH 40	6
4	4.25 inch - 1/2" PVC	0.5" ID SCH 40	4
5	4.5 inch - 1/2" PVC	0.5" ID SCH 40	2
6	6.5 inch - 1/2" PVC	0.5" ID SCH 40	10
7	10 inch - 1/2" PVC	0.5" ID SCH 40	4
8	15 inch - 1/2" PVC	0.5" ID SCH 40	2
9	1.75 inch pvc	1" ID SCH 40	2
10	2.25 inch pvc	1" ID SCH 40	2
11	4.000 inch PVC	1" ID SCH 40	2
12	6.000 inch PVC	1" ID SCH 40	4
13	6.125 inch pvc	1" ID SCH 40	2
14	6.375 inch pvc	1" ID SCH 40	2
15	7.75 inch pvc	1" ID SCH 40	2
16	10.75 inch pvc	1" ID SCH 40	2
17	12.500 inch PVC	1" ID SCH 40	2
18	15 inch pvc	1" ID SCH 40	10
19	16.25 inch pvc	1" ID SCH 40	2
20	18.25 inch pvc	1" ID SCH 40	2
21	22.375 inch pvc	1" ID SCH 40	4
22	32.375 inch pvc	1" ID SCH 40	2
23	33.125 inch pvc	1" ID SCH 40	2
24	PVC Coupler	1.5" ID SCH 40	6
25	16 inch Clear Tube	1.65" Diam. Fluorescent Light Tube	2
26	6" Board	2 x 6 Lumber	4
27	6" Board - Notched	2 x 6 Lumber	1
28	1.000 inch - 3" ID PVC	3" ID SCH 40 Cellular Core PVC-DWV Non-Pressure	2
29	6.500 inch - 3" ID PVC	3" ID SCH 40 Cellular Core PVC-DWV Non-Pressure	3
30	Black duct tape	3M Black Duct Tape - Model #3920-BK	10
31	Gray duct tape	3M Gray Duct Tape - Model #2960	8
32	Black Servo Horn Screw	Black screw that comes in servo horn bag	2
33	SCREW-832-0500	Botball Kit - Medium Screw	4
34	Servo	Botball Servo	2
35	Light Switch Box	CANTEX 1-Gang Gray PVC Shallow Electrical Box	2
36	0.5" Elbow Connector	Connector SCH 40	28
37	1" Elbow Connector	Connector SCH 40	6
38	1" T Connector	Connector SCH 40	12
39	1" x 0.5" T Connector	Connector SCH 40	18
40	1/2" T Connector	Connector SCH 40	6
41	1.25" x 1" T Connector	Connector SCH 40	2
42	3" PVC Coupler	Connector SCH 40 Diam: 4", Height: 3.2"	2
43	6" x 5.625" Sheet	Corrugated Plastic	5
44	6" x 9" Sheet	Corrugated Plastic	8
45	18"x6" Sheet	Corrugated Plastic	6
46	18"x6" Sheet with Hole	Corrugated Plastic	4
47	18"x6" w/ Hole - Notched	Corrugated Plastic	2
48	Light Switch Cover	Eaton 1-Gang Standard Wall Plate - Ivory	2
49	Light Switch	Eaton 15-Amp Single-Pole Toggle - Ivory	2
50	Flat Head 0.5 in	Flat Head 0.5 in - Comes with cover	4
51	Light Switch Screw	Flat Head Screw M5-020 - Comes with switch	4
52	Large Narrow Servo Horn	Large narrow servo horn with one end cut off	2
53	NUT-832-KEPS	Standard Botball black KEPS nut	4
54	Servo Bracket	Standard size servo bracket	2
55	FRP Divider 48" long	White - cut from one 8' long part	2
56	FRP 4' x 4'	White - cut from two 4' x 8' sheets	4
57	Particle Board 4' x 4' x 3/8" thick	or similar - can be cut from two 4' x 8' sheets	4



Game Table is made up of four pieces of 4'x4' plywood, MDF or other sheet wood and four pieces of 4'x4' FRP with a divider that runs down the center of each half of the game table.

DETAIL A
SCALE 1 : 1

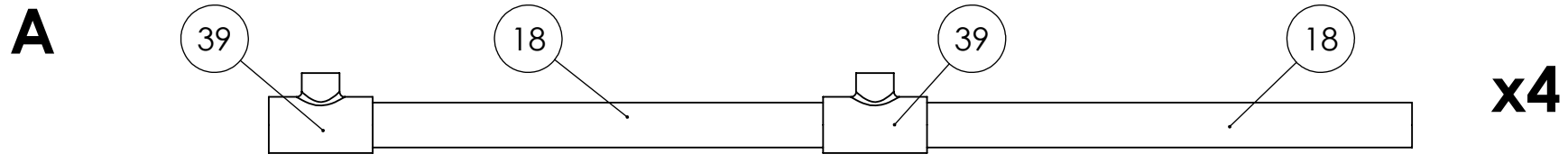
KISS Institute for Practical Robotics

TITLE:
2023 GAME TABLE FULL

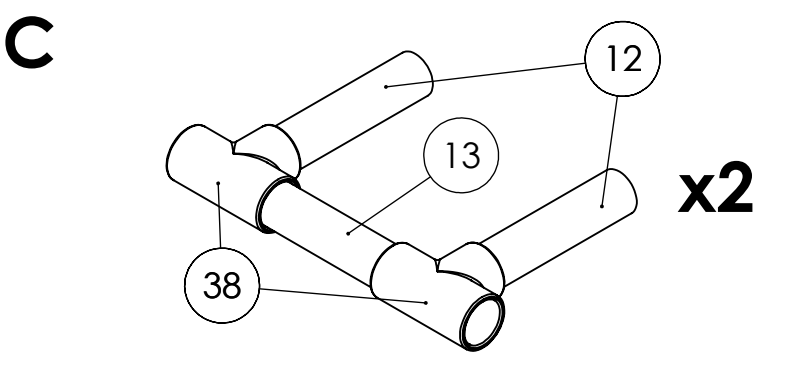
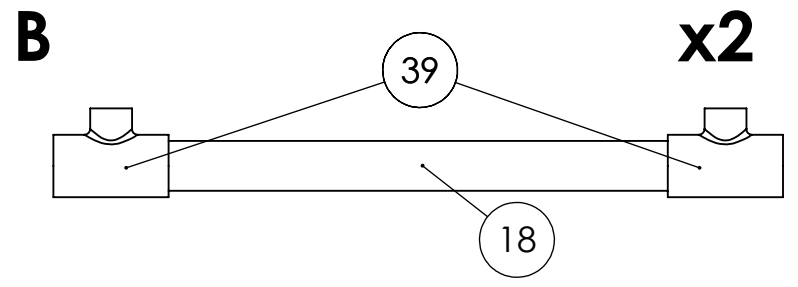
SIZE	DWG. NO.	REV
A	Game Surface	

2

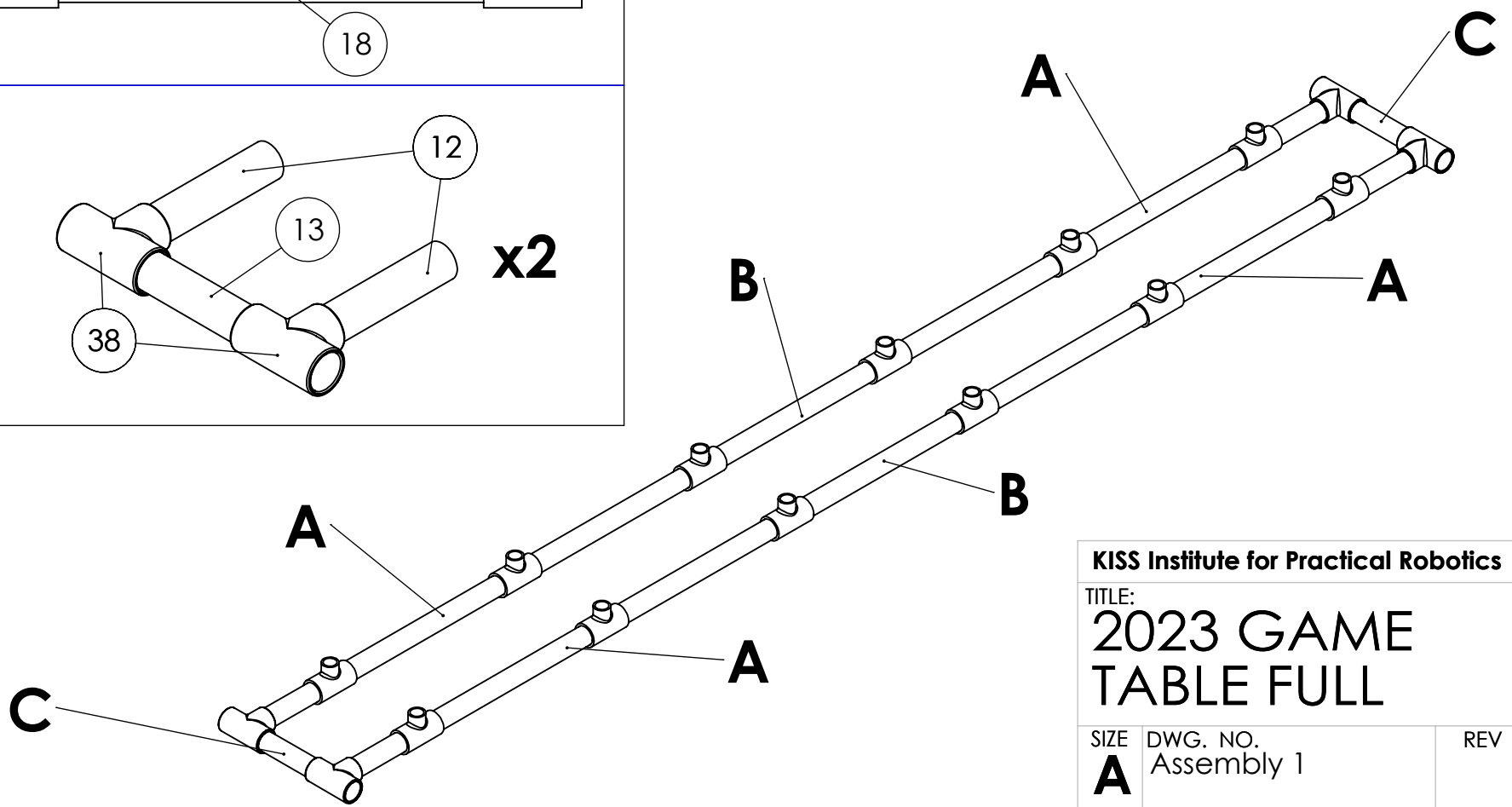
1



B



Assembly 1



A

A

KISS Institute for Practical Robotics		
TITLE: 2023 GAME TABLE FULL		
SIZE A	DWG. NO. Assembly 1	REV
SCALE: 1:5		SHEET 4 OF 14

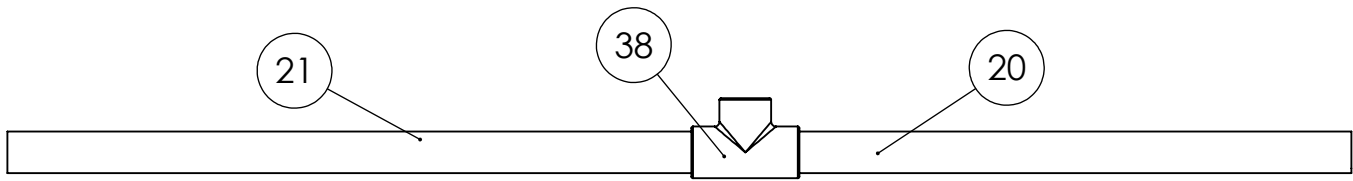
2

1

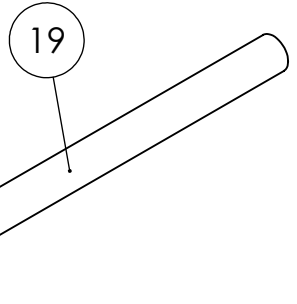
2

1

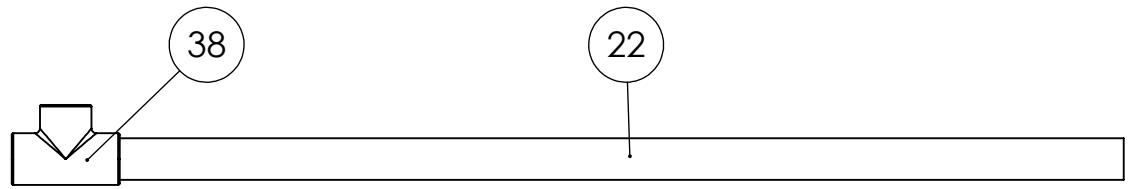
A



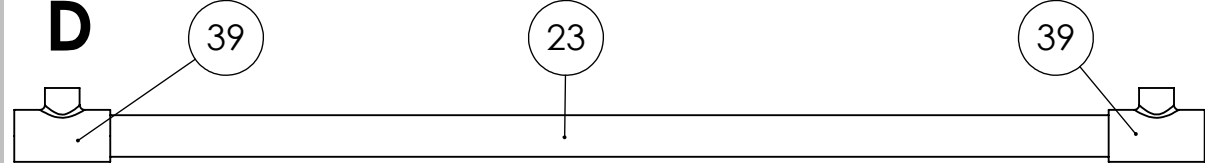
B



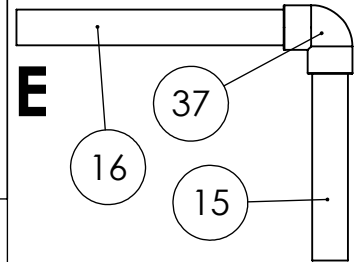
C



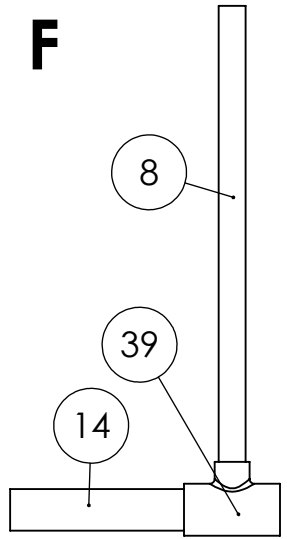
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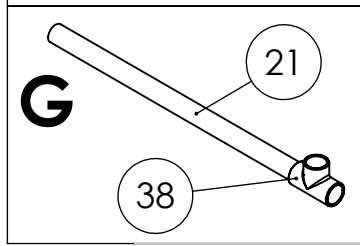
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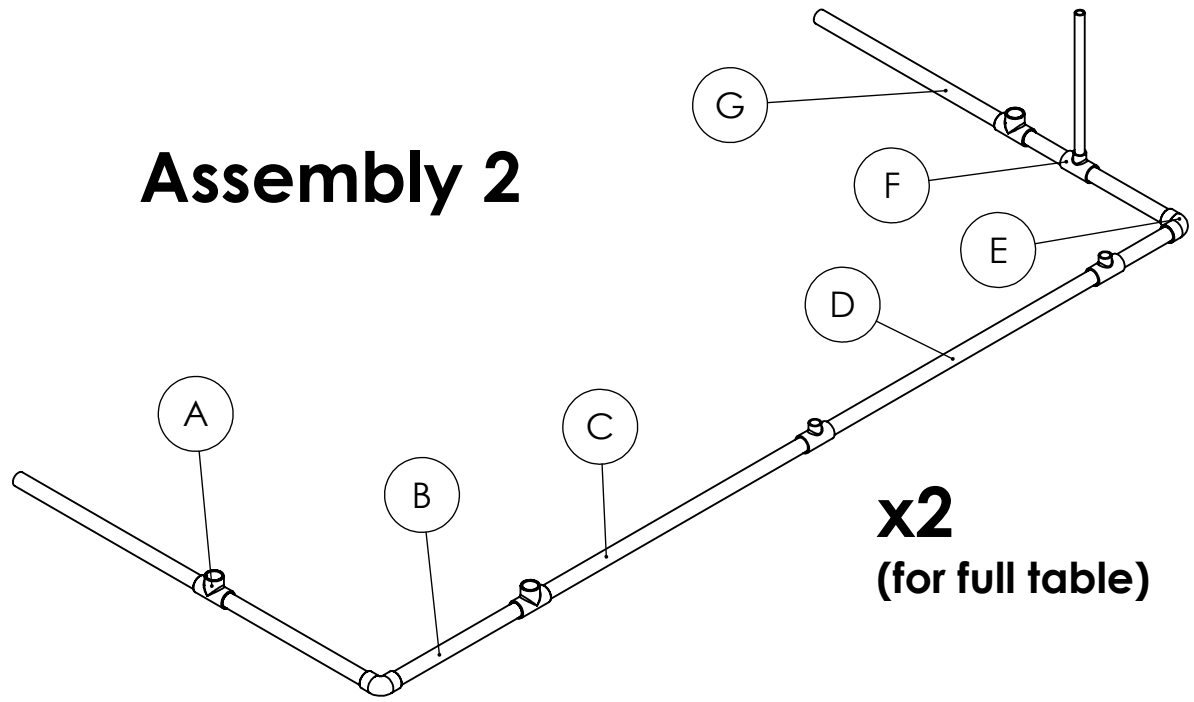
F



G



Assembly 2



x2
(for full table)

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TITLE:
**2023 GAME
TABLE FULL**

SIZE	DWG. NO.	REV
A	Assembly 2	

SCALE: 1:6	SHEET 5 OF 14
------------	---------------

2

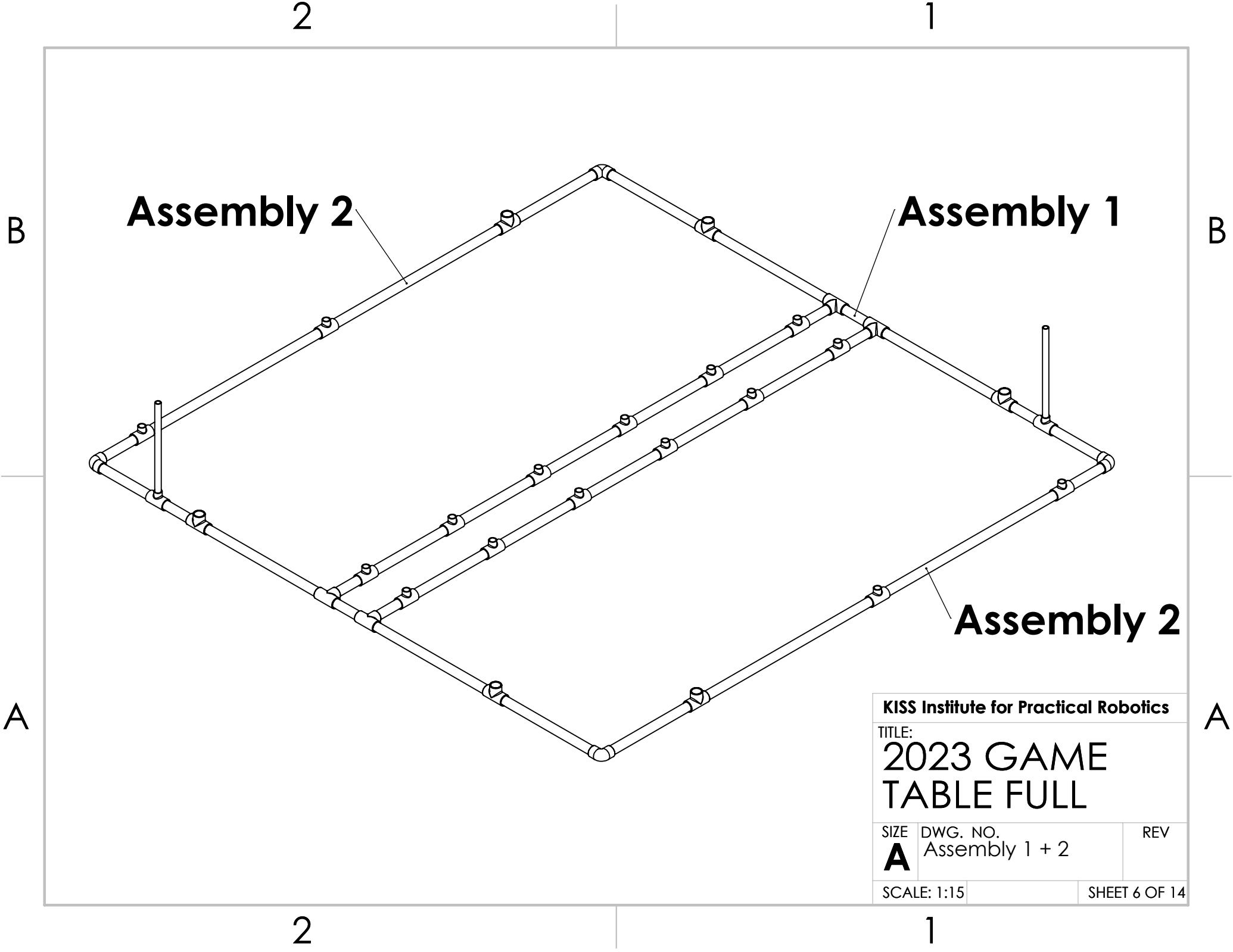
1

B

B

A

A



Assembly 2

Assembly 1

Assembly 2

KISS Institute for Practical Robotics

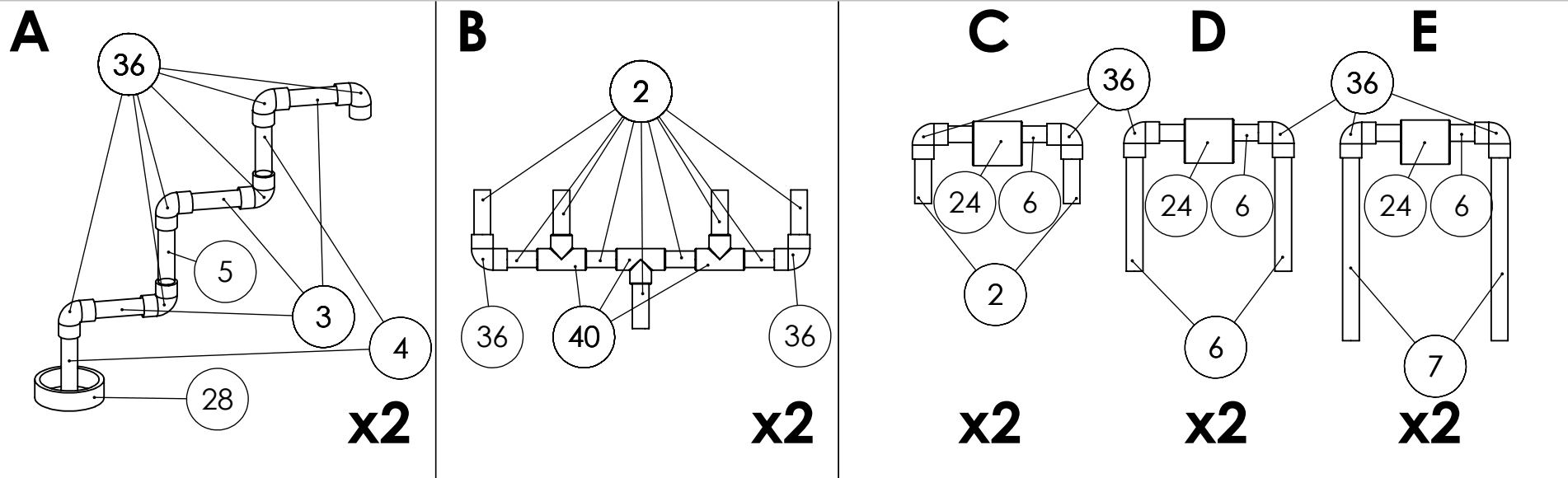
TITLE:
**2023 GAME
TABLE FULL**

SIZE	DWG. NO.	REV
A	Assembly 1 + 2	

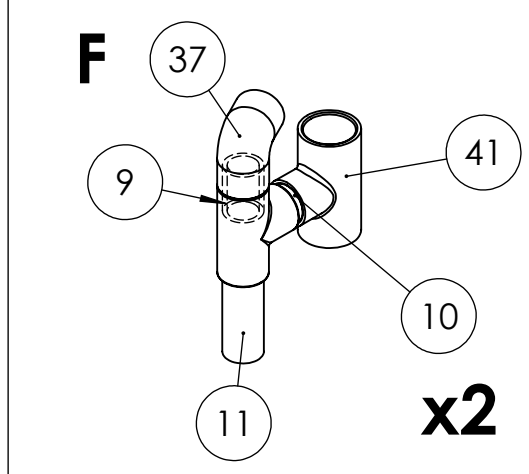
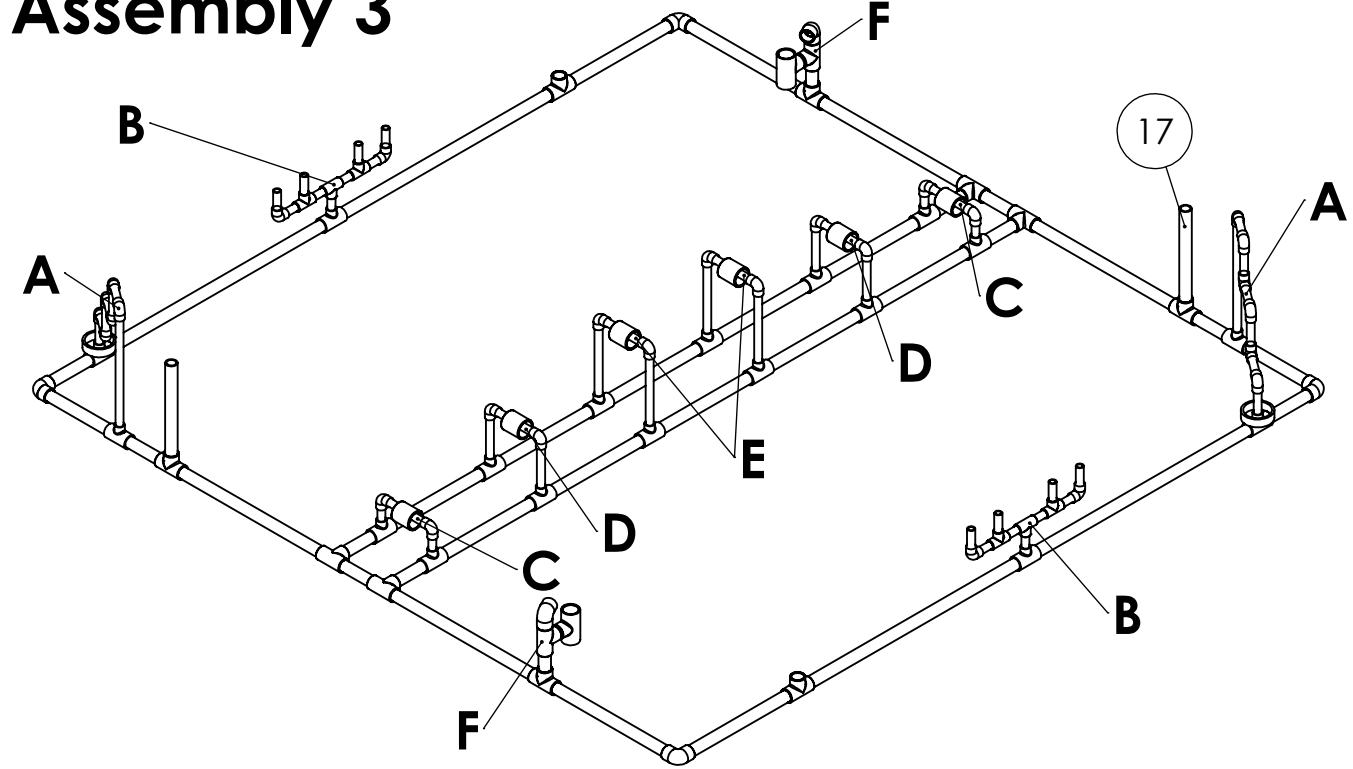
SCALE: 1:15	SHEET 6 OF 14
-------------	---------------

2

1



Assembly 3



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TITLE:
2023 GAME TABLE FULL

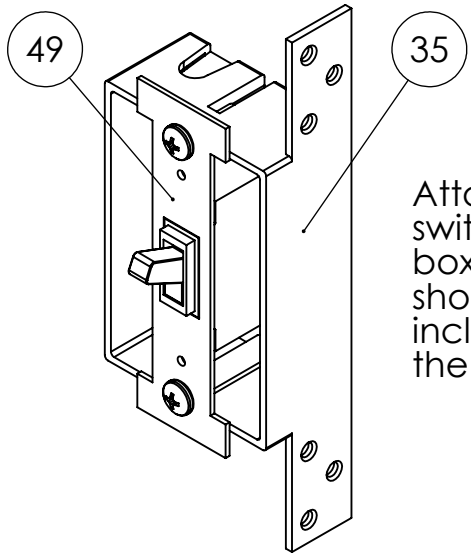
SIZE A	DWG. NO. Assembly 3	REV
SCALE: 1:8		SHEET 7 OF 14

2

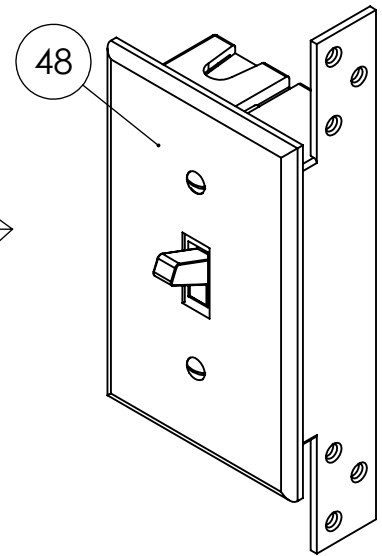
1

2

1



Attach the light switch to the box. The screws should be included with the switch.

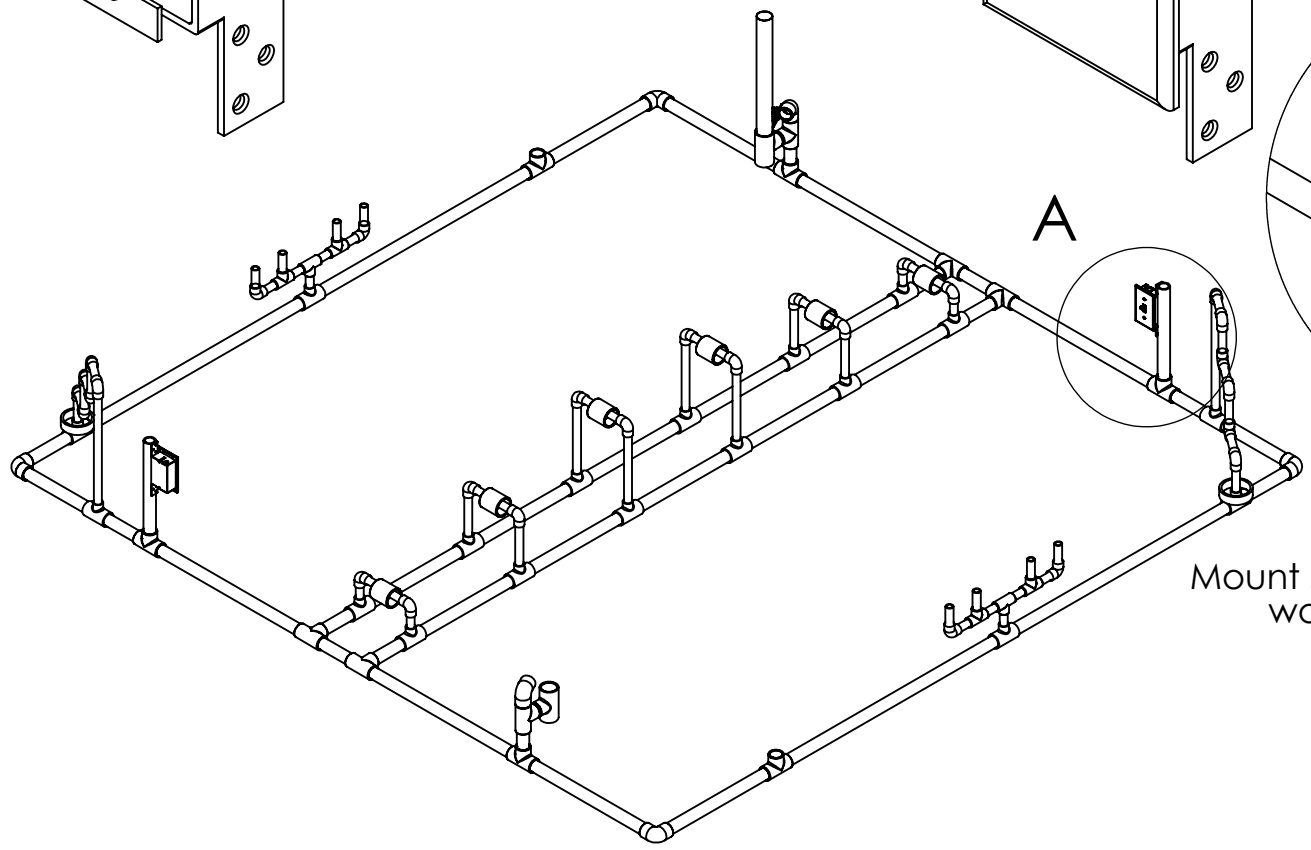


Attach the cover to the switch. The screws for this will usually be in the package.

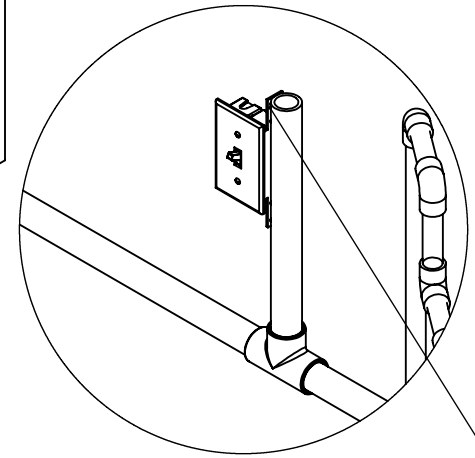
x2

B

B



A



DETAIL A

SCALE 1 : 8

Mount switch to PVC with screws that won't stick out through PVC.

A

A

*If you are planning to wire the light switch to the LEDs, make sure to do so before building the whole switch.

2

1

KISS Institute for Practical Robotics		
TITLE: 2023 GAME TABLE FULL		
SIZE A	DWG. NO. Light Switch	REV
SCALE: 1:2		SHEET 8 OF 14

2

1

B

B

Cut in tube should be approximately 1" wide and 0.25" thick.

Tube should fit snugly into 1.25" x1" Tee

If you cannot find a 1.25"x1" tee in your region, a 1.25" to 1" reducer will also work. However use a 1.75" pipe here instead of the 2.25" pipe.

2.75

Optional Servo Mount:
Mount servo bracket so that 3rd hole from left on top is just past edge of PVC Elbow's end.

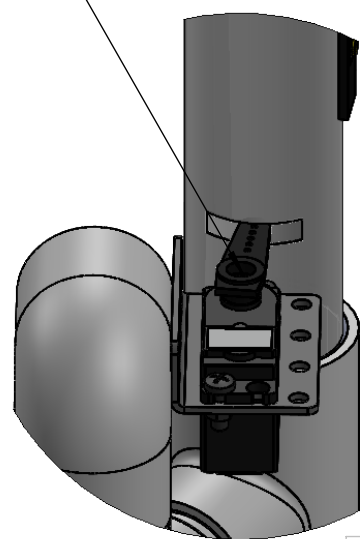
A

DETAIL A

SCALE 1 : 1

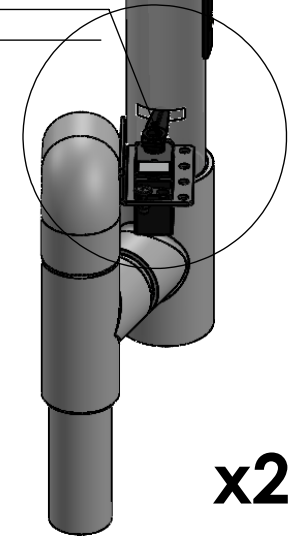
Optional: If you use an LED strip on your table, mount it on the side closest to the start box to match tournament tables. It will connect to the light switch at the other end of the table.

Full Tube Mechanism:
Mount servo cap with medium bracket with two medium screws. Angle elbow inside servo slightly so that it fits inside tube slightly and can rotate out.



DETAIL B

SCALE 1 : 2



x2

A

A

Note: A popsicle stick will also work as well instead of servo mount. Especially if you only have this year's kit.

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TITLE:
2023 GAME TABLE FULL

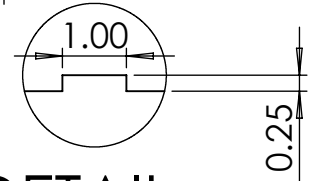
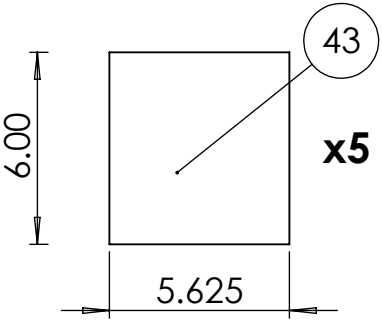
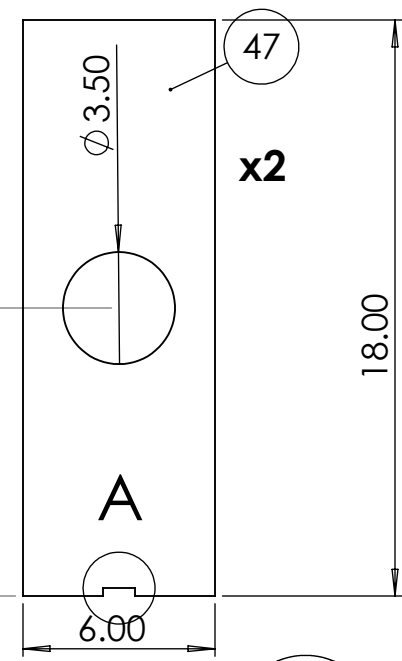
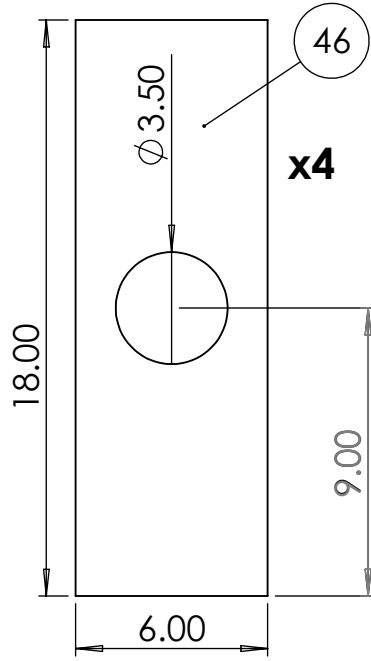
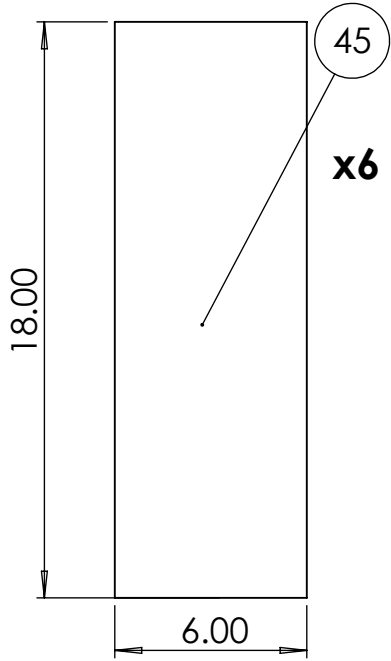
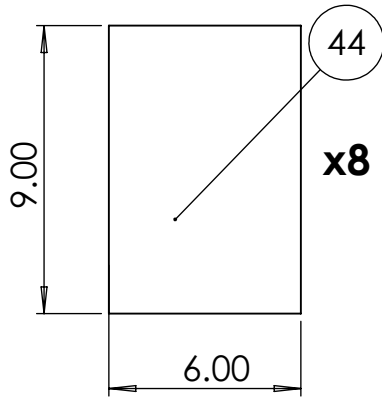
SIZE	DWG. NO.	REV
A	Tube Mechanism	

SCALE: 1:4 SHEET 9 OF 14

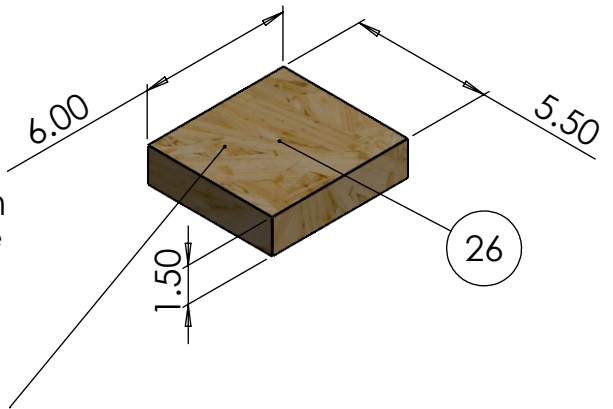
2

1

**Corrugated Plastic
and Wood Cuts**



DETAIL A
SCALE 1 : 3



Note: Notch may not be necessary on wood. It can be screwed directly to the table over the FRP divider and just needs to be balanced on it by screwing in both screws a little at a time.

KISS Institute for Practical Robotics		
TITLE: 2023 GAME TABLE FULL		
SIZE A	DWG. NO. Plastic & Wood Cuts	REV
SCALE: 1:6	SHEET 10 OF 14	

2

1

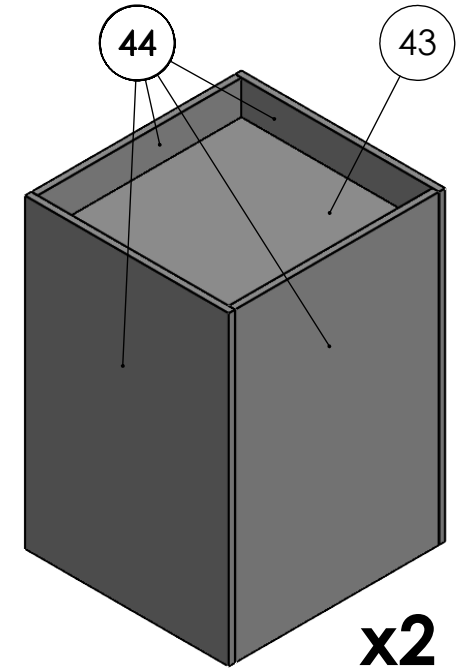
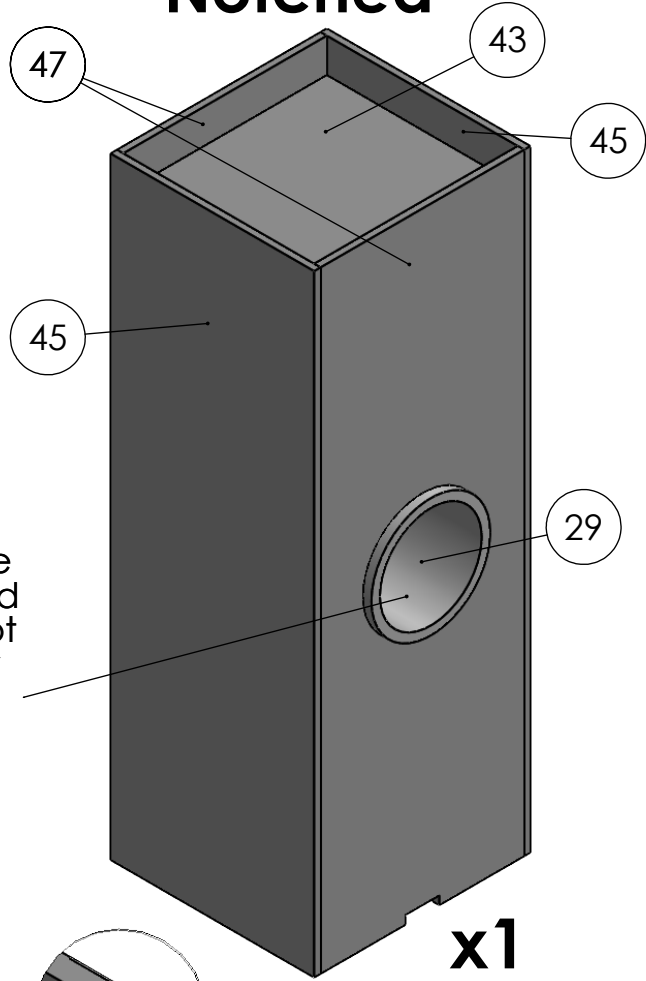
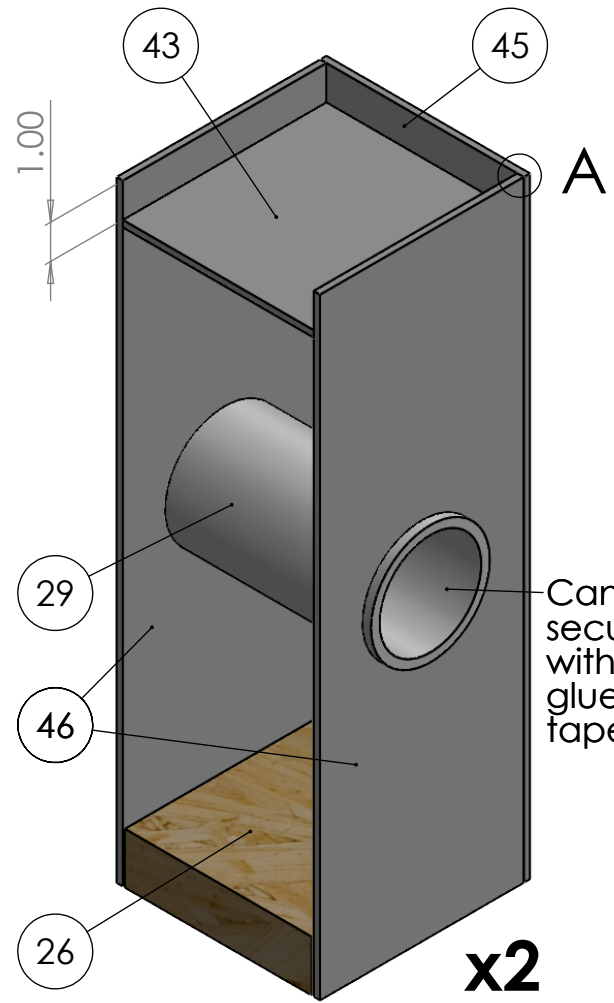
18" Building

18" Building Notched

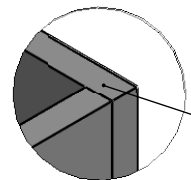
9" Building

B

B



Can be secured with hot glue or tape.



DETAIL A

SCALE 1 : 1

All buildings have a 2x6 at their base that can be screwed into the table first and the corrugated plastic placed around it. This view shows the inside of the building with one face hidden.

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TITLE:
2023 GAME TABLE FULL

SIZE	DWG. NO.	REV
A	Buildings	

SCALE: 1:4 SHEET 11 OF 14

2

1

A

A

2

1

B

B

18" Building

18" Building Notched

9" Building

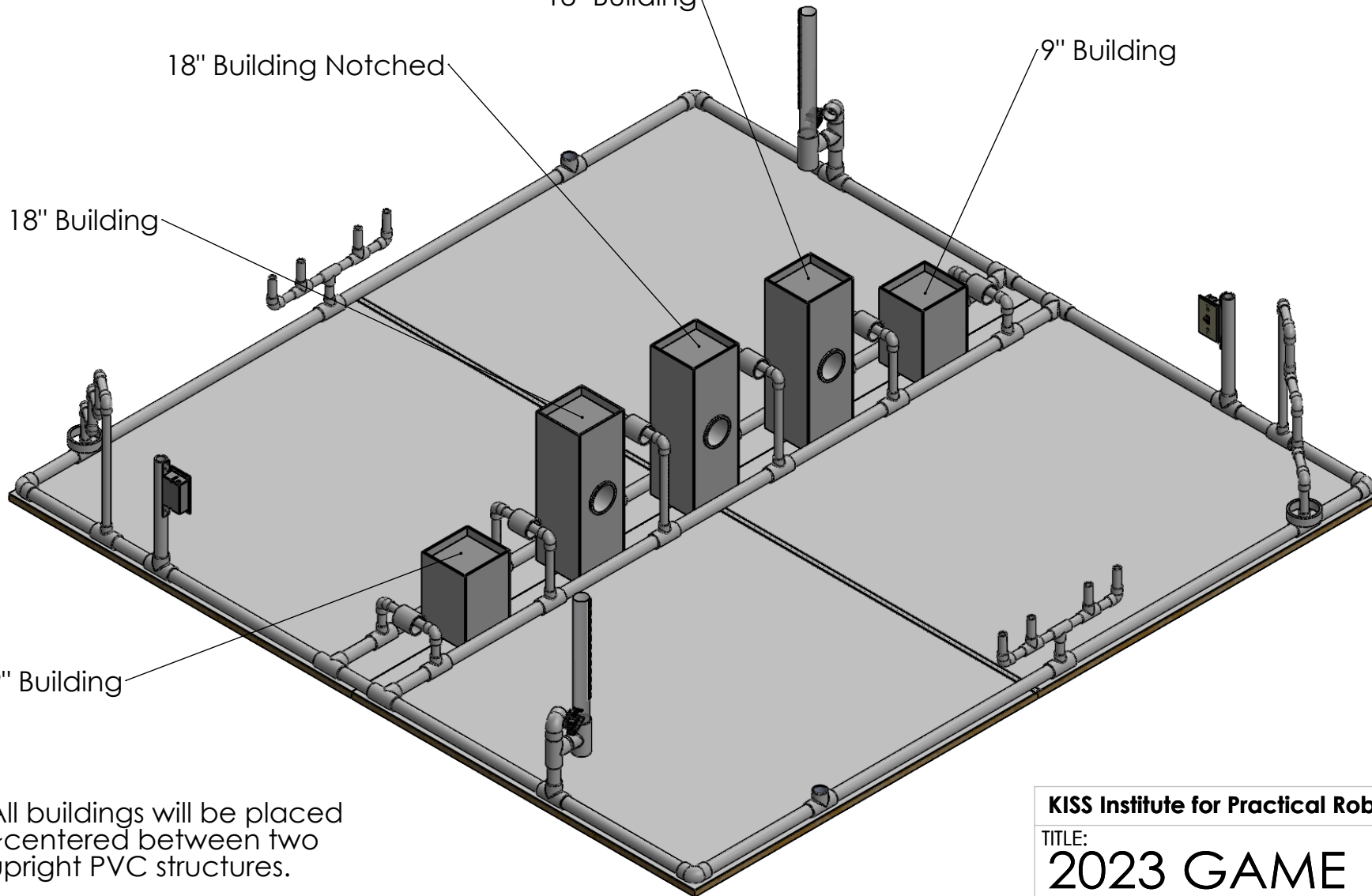
18" Building

9" Building

A

A

All buildings will be placed ~centered between two upright PVC structures.



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TITLE:

**2023 GAME
TABLE FULL**

SIZE

DWG. NO.

REV

A

Full Construction

SCALE: 1:50

SHEET 12 OF 14

2

1

B

B

A

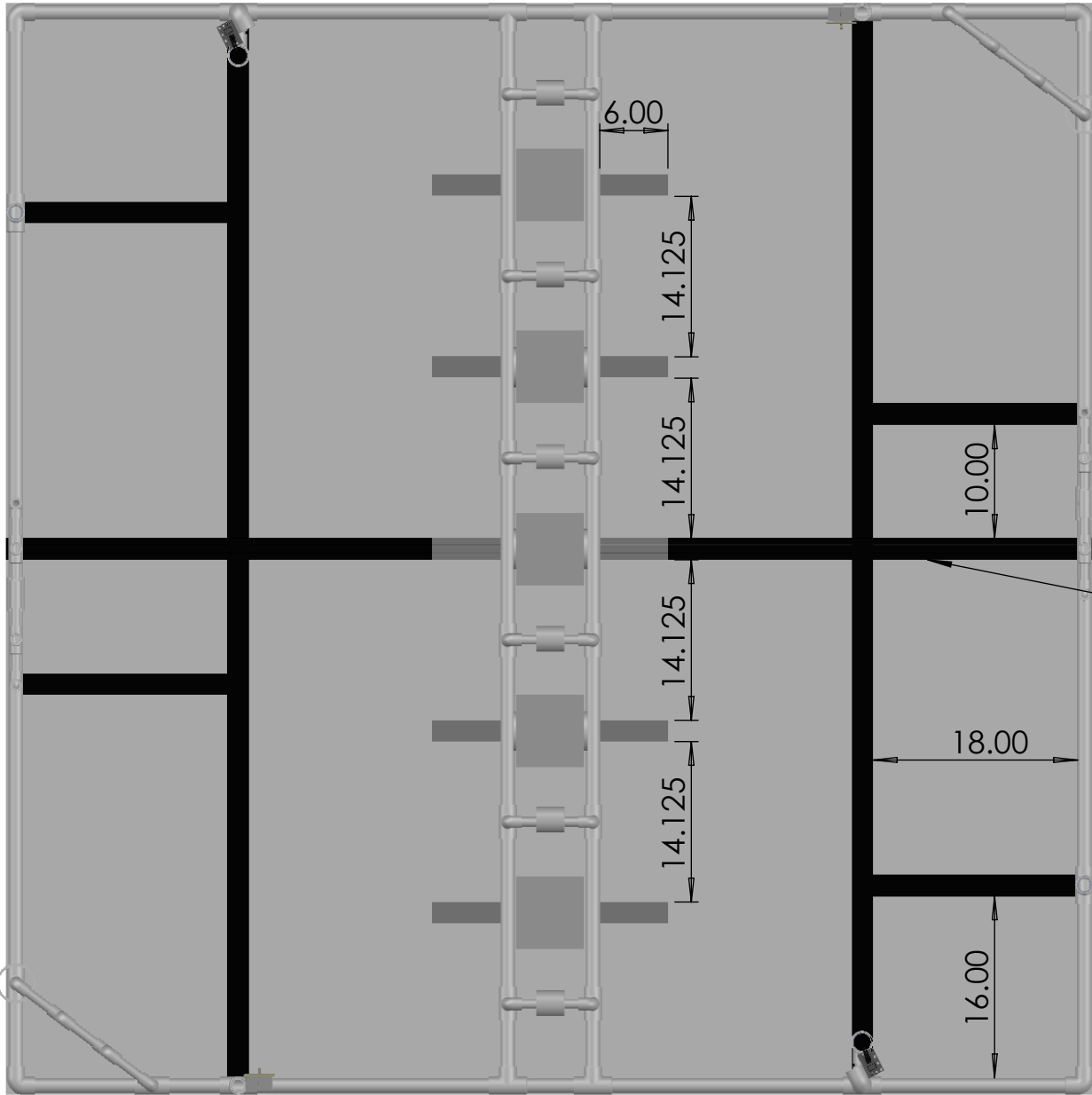
A

2

1

2

1



Black and grey center line will be approximately centered on FRP divider. Areas like the small start box and other grey tape lines will be based off of this.

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TITLE:
2023 GAME TABLE FULL

SIZE	DWG. NO.	REV
A	Tape	

SCALE: 1:15	SHEET 13 OF 14
-------------	----------------

2

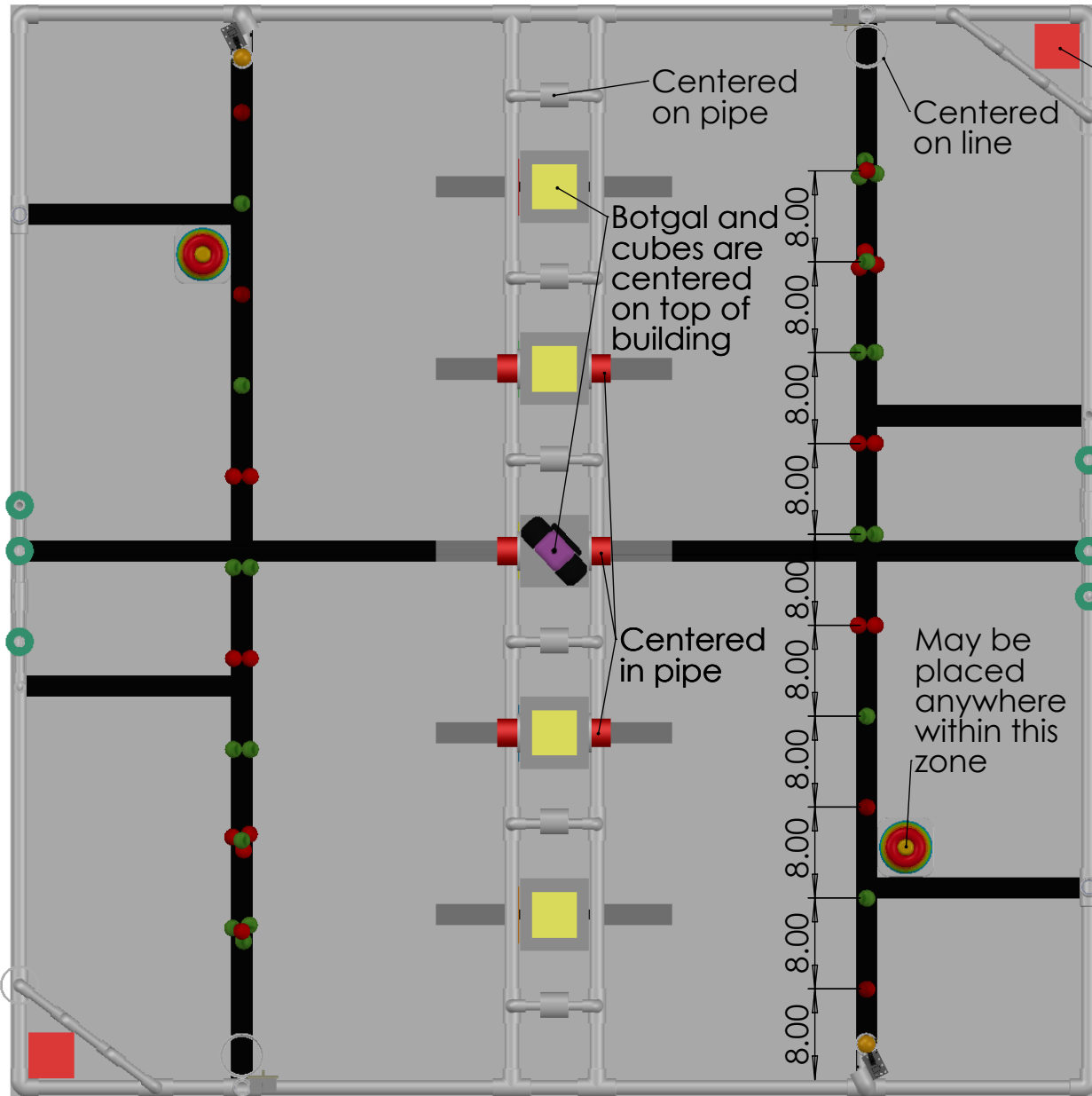
1

B

B

A

A



Starts as flush as possible with corner

Centered on pipe

Centered on line

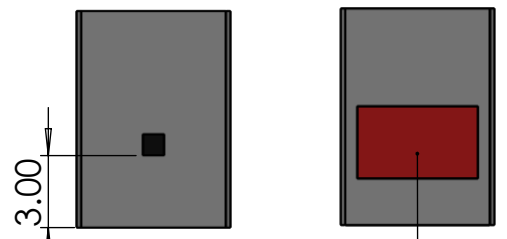
Botgal and cubes are centered on top of building

Centered in pipe

May be placed anywhere within this zone

Green noodles may start on any of the four posts here.

Card Positions



The bottom of a card should be approximately two inches from the surface

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TITLE:
2023 GAME TABLE FULL

SIZE	DWG. NO.	REV
A	Game Pieces	

2

1