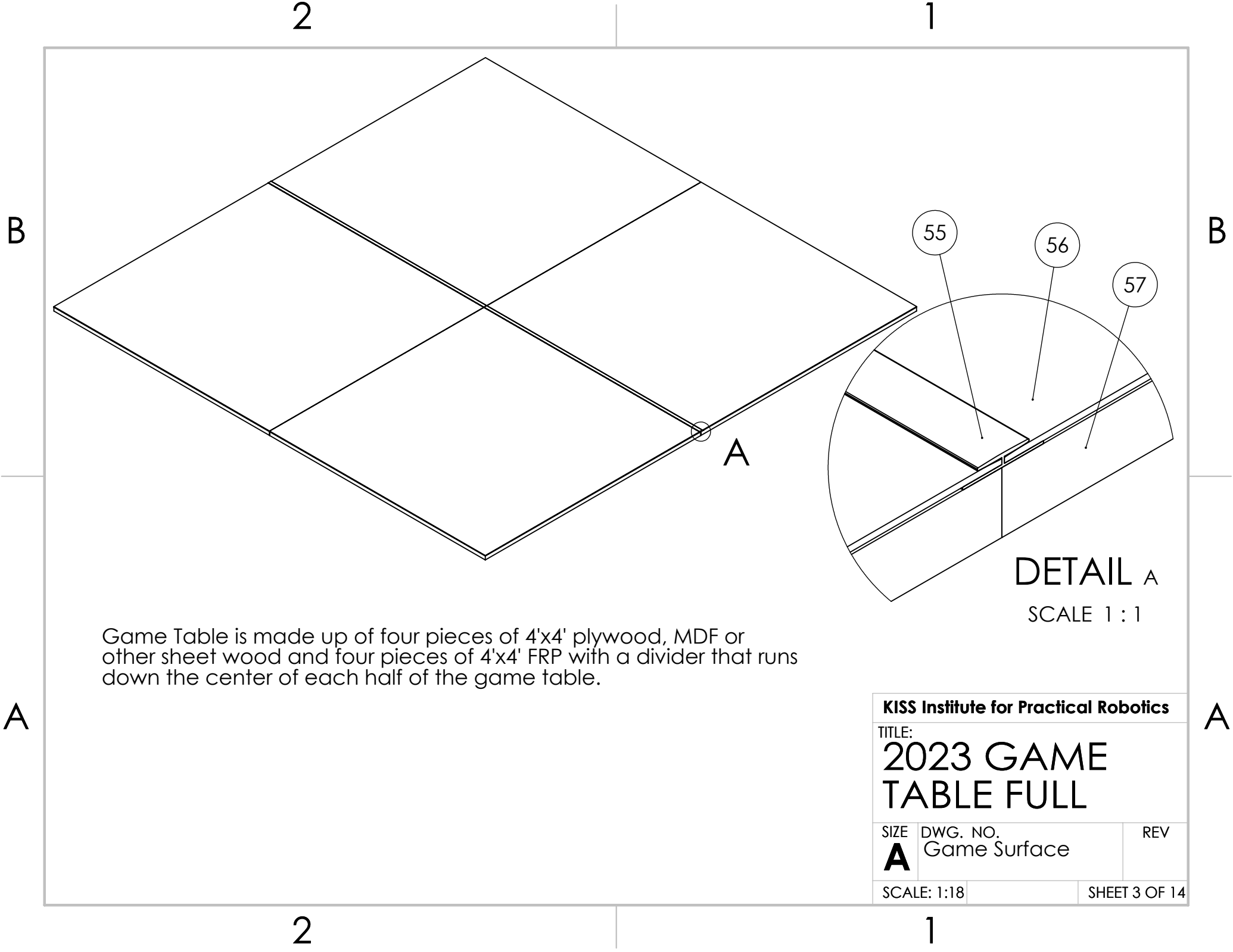


2023 Botball Game Table Build

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:

ITEM NO.	PART NUMBER		DESCRIPTION	QTY.
1	LED Light Strip	Länge in cm	Optional part - width: <1cm	2
2	3 inch - 1/2" PVC	7,62	0.5" ID SCH 40	22
3	4 inch - 1/2" PVC	10,16	0.5" ID SCH 40	6
4	4.25 inch - 1/2" PVC	10,80	0.5" ID SCH 40	4
5	4.5 inch - 1/2" PVC	11,43	0.5" ID SCH 40	2
6	6.5 inch - 1/2" PVC	16,51	0.5" ID SCH 40	10
7	10 inch - 1/2" PVC	25,40	0.5" ID SCH 40	4
8	15 inch - 1/2" PVC	38,10	0.5" ID SCH 40	2
9	1.75 inch pvc	4,45	1" ID SCH 40	2
10	2.25 inch pvc	5,72	1" ID SCH 40	2
11	3.25 inch pvc	8,26	1" ID SCH 40	2
12	6.000 inch PVC	15,24	1" ID SCH 40	4
13	6.125 inch pvc	15,56	1" ID SCH 40	2
14	6.375 inch pvc	16,19	1" ID SCH 40	2
15	7.75 inch pvc	19,69	1" ID SCH 40	2
16	10.75 inch pvc	27,31	1" ID SCH 40	2
17	12.500 inch PVC	31,75	1" ID SCH 40	2
18	15 inch pvc	38,10	1" ID SCH 40	10
19	16.25 inch pvc	41,28	1" ID SCH 40	2
20	18.25 inch pvc	46,36	1" ID SCH 40	2
21	22.375 inch pvc	56,83	1" ID SCH 40	4
22	32.375 inch pvc	82,23	1" ID SCH 40	2
23	33.125 inch pvc	84,14	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	2,54	3" ID SCH 40 Cellular Core PVC-DWV Non-Pressure	2
29	6.500 inch - 3" ID PVC	16,51	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



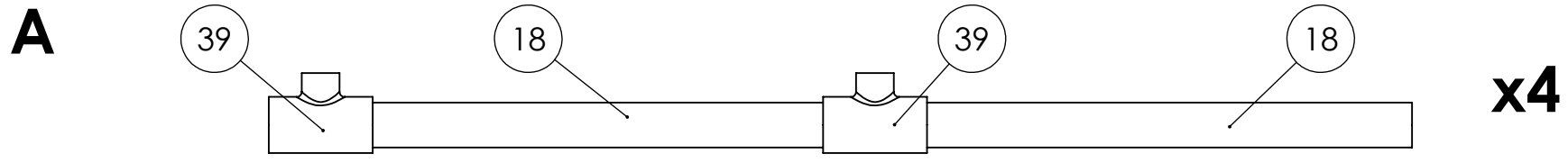
Game Table is made up of four pieces of 4'x4' plywood, MDF or other sheet wood and four pieces of 4'x4' FRP with a divider that runs down the center of each half of the game table.

DETAIL A
SCALE 1 : 1

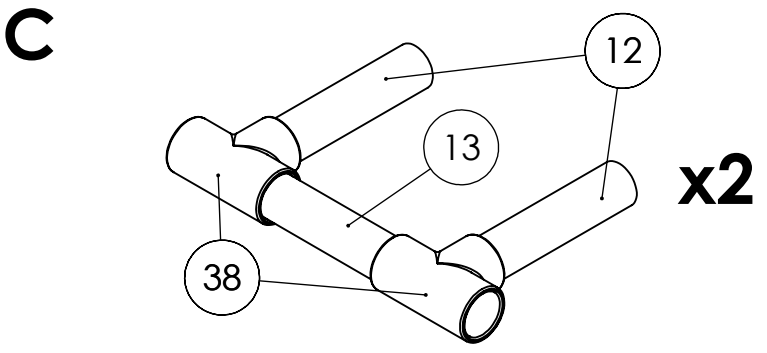
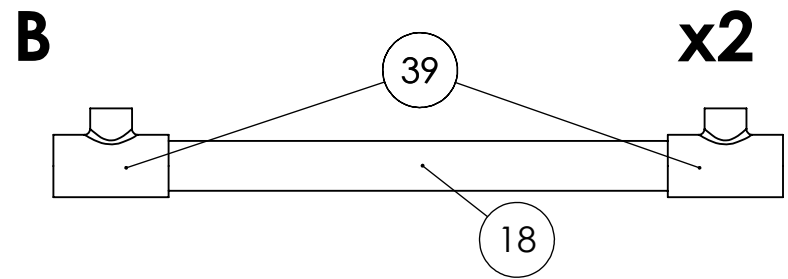
KISS Institute for Practical Robotics		
TITLE: 2023 GAME TABLE FULL		
SIZE A	DWG. NO. Game Surface	REV
SCALE: 1:18	SHEET 3 OF 14	

2

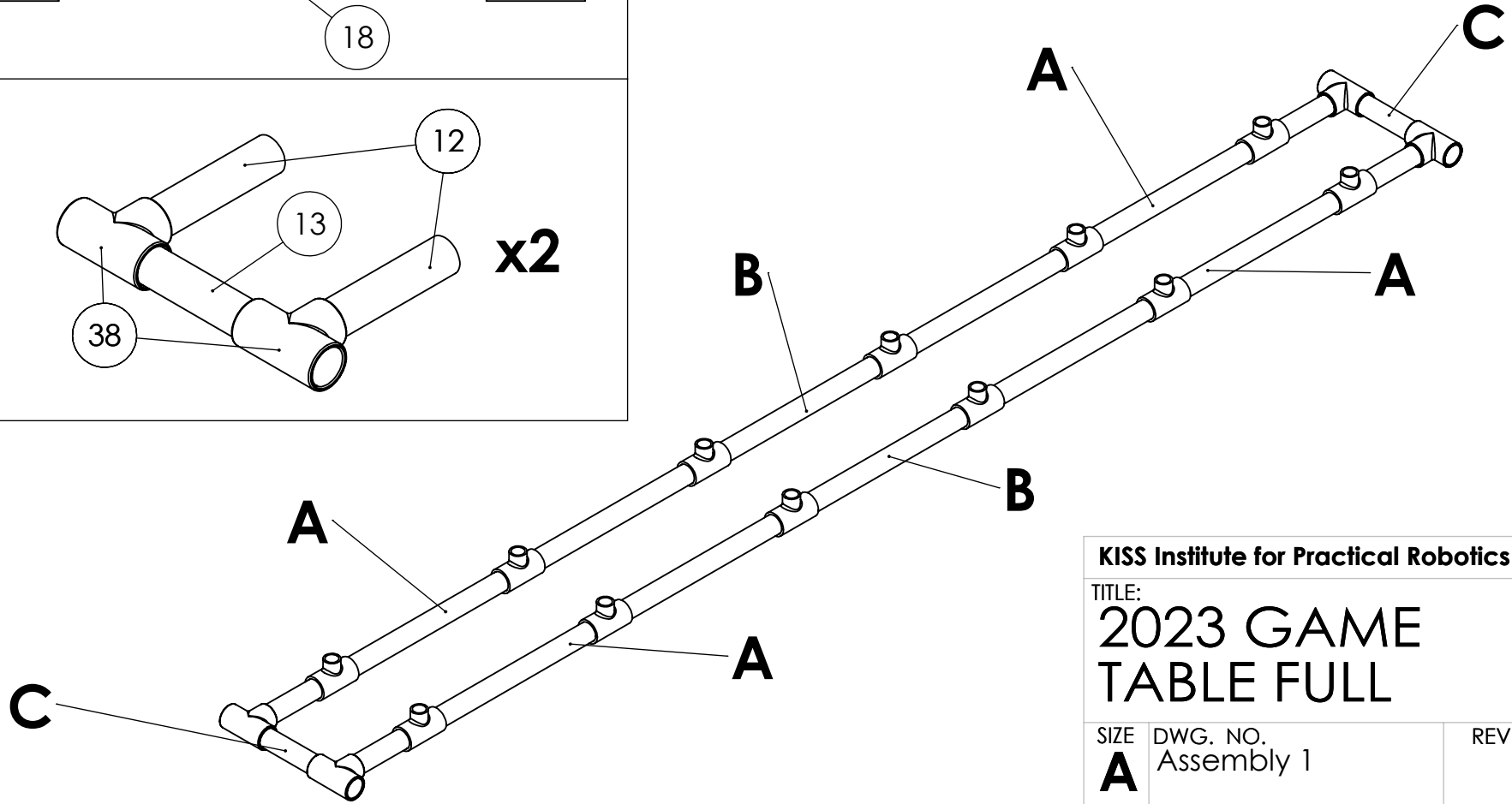
1



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

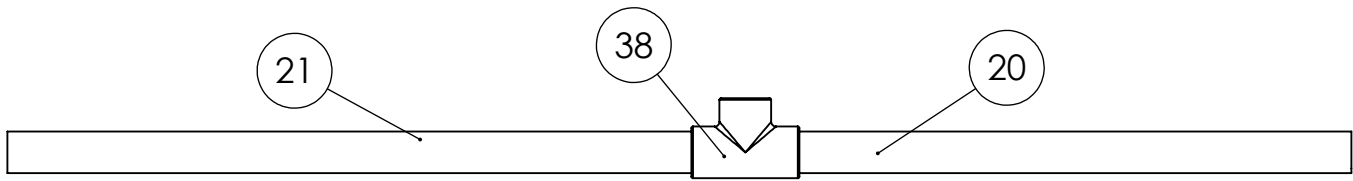
2

1

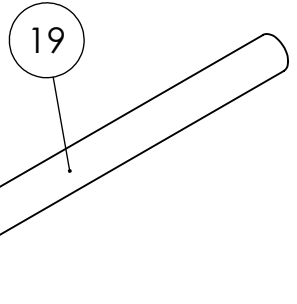
2

1

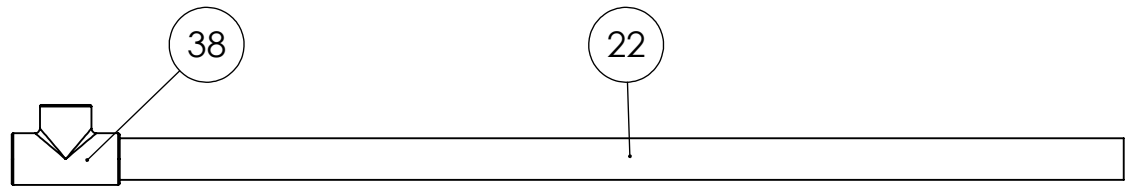
A



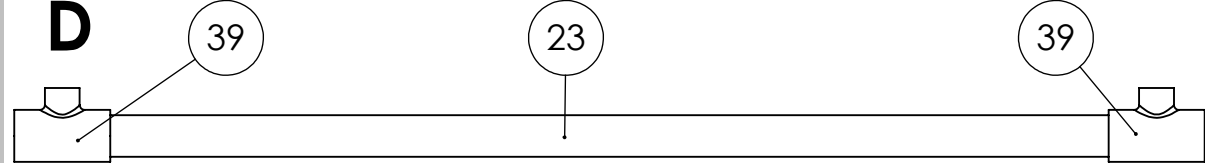
B



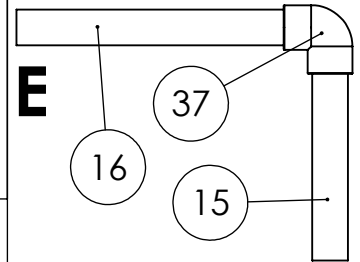
C



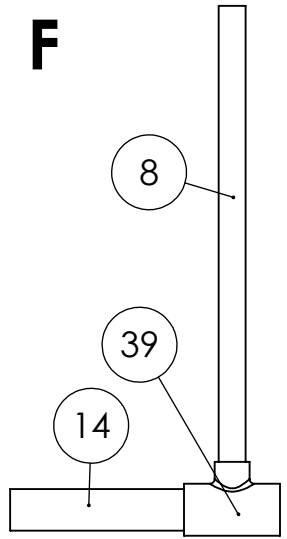
D



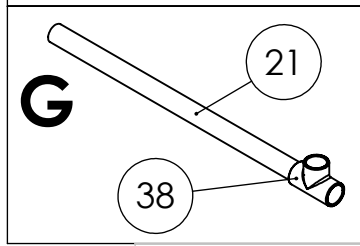
E



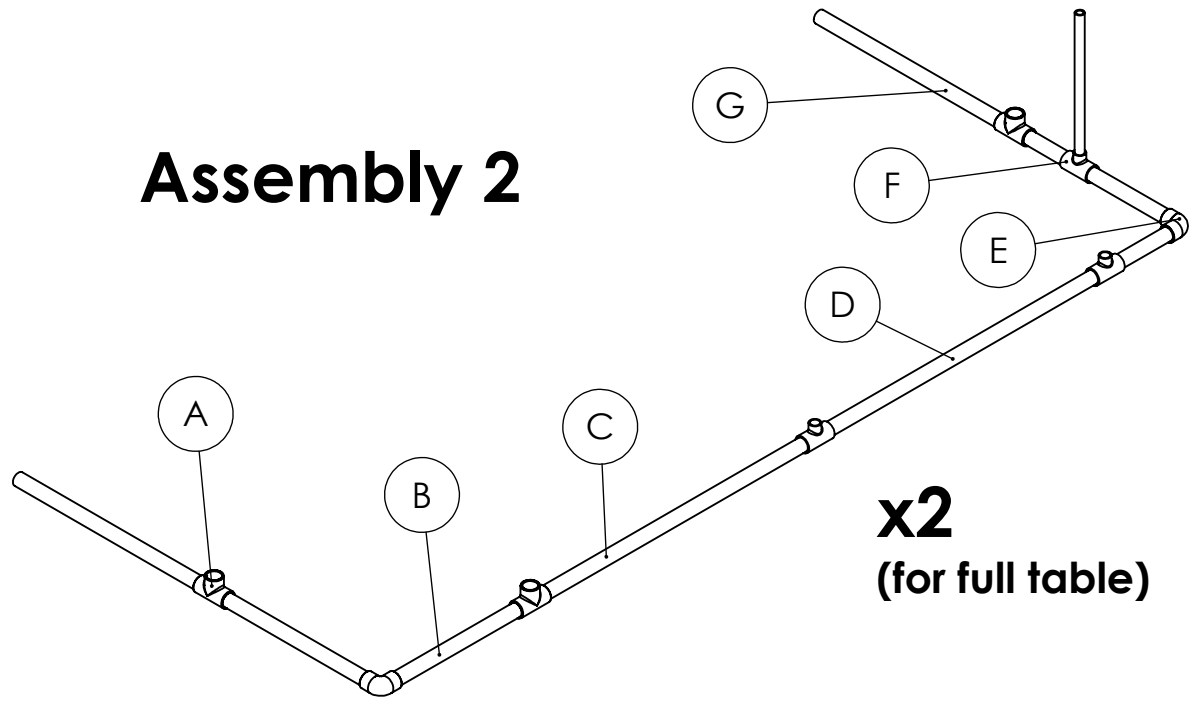
F



G



Assembly 2



x2
(for full table)

KISS Institute for Practical Robotics

TITLE:
2023 GAME TABLE FULL

SIZE	DWG. NO.	REV
A	Assembly 2	

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

2

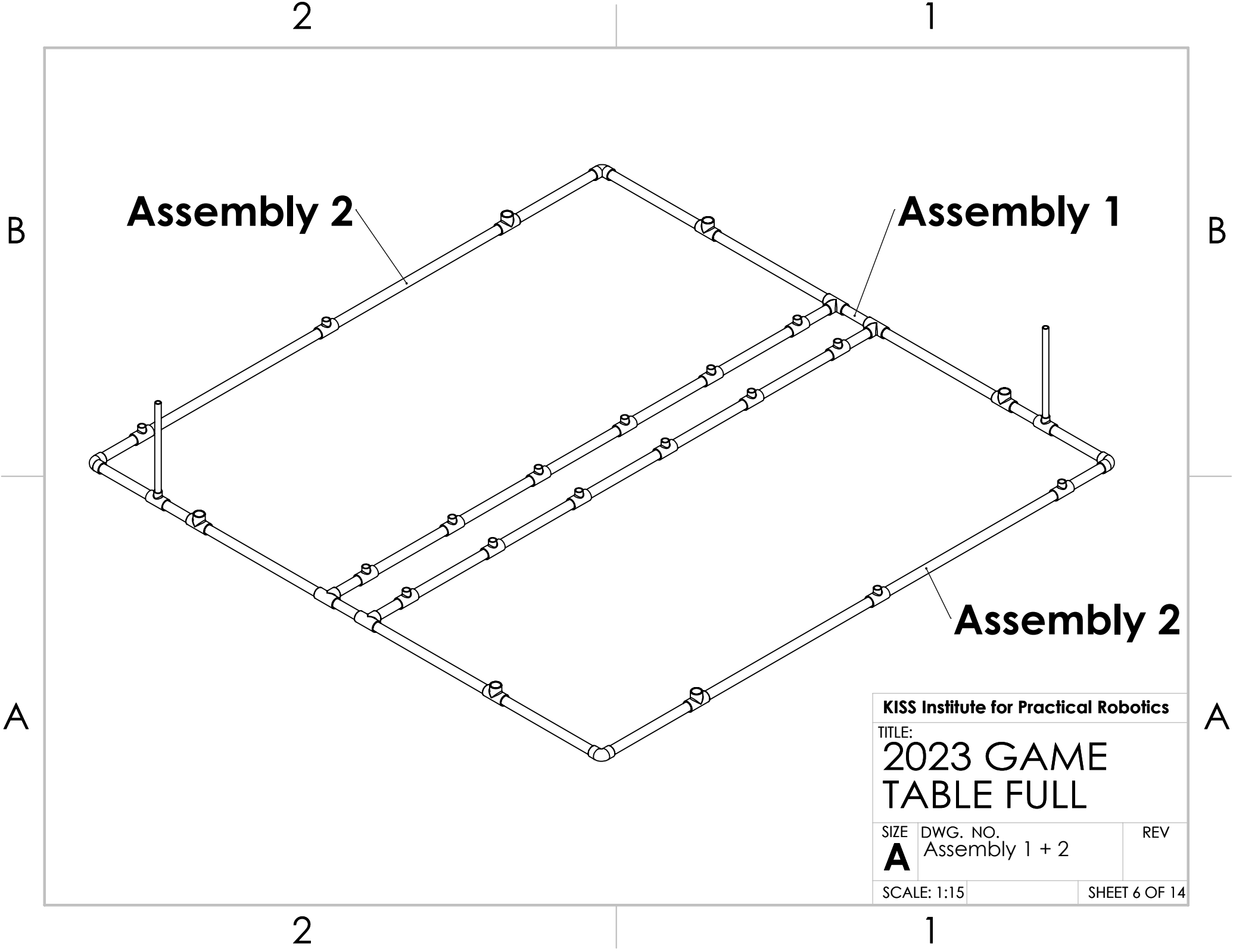
1

B

B

A

A



Assembly 2

Assembly 1

Assembly 2

KISS Institute for Practical Robotics

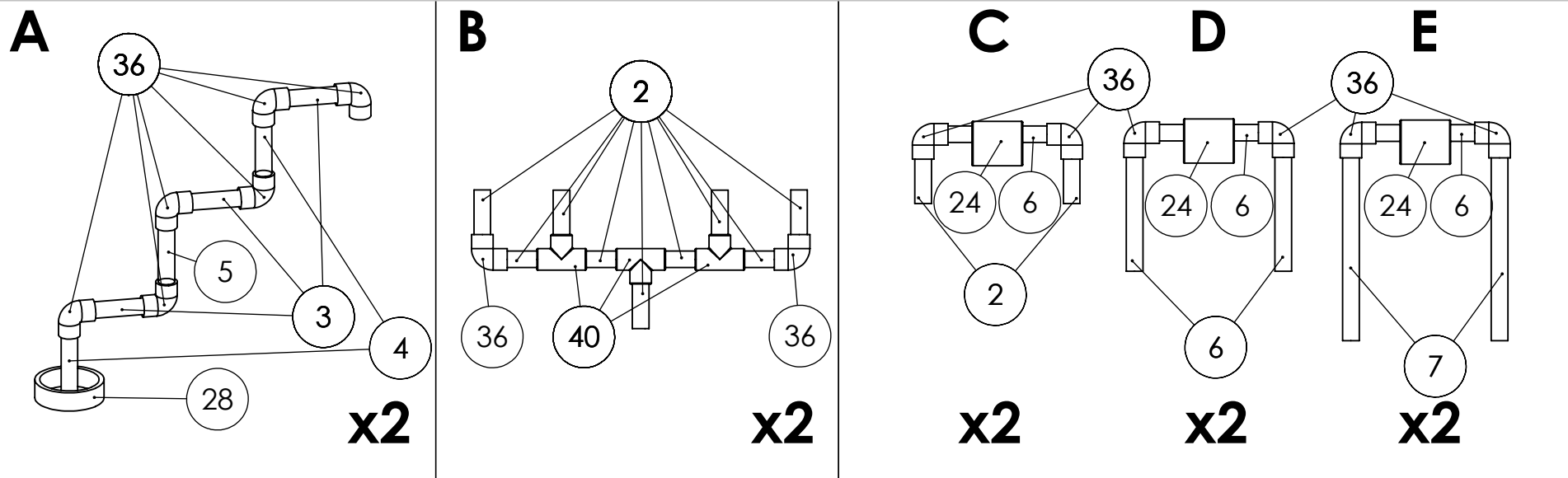
TITLE:
**2023 GAME
TABLE FULL**

SIZE	DWG. NO.	REV
A	Assembly 1 + 2	

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

2

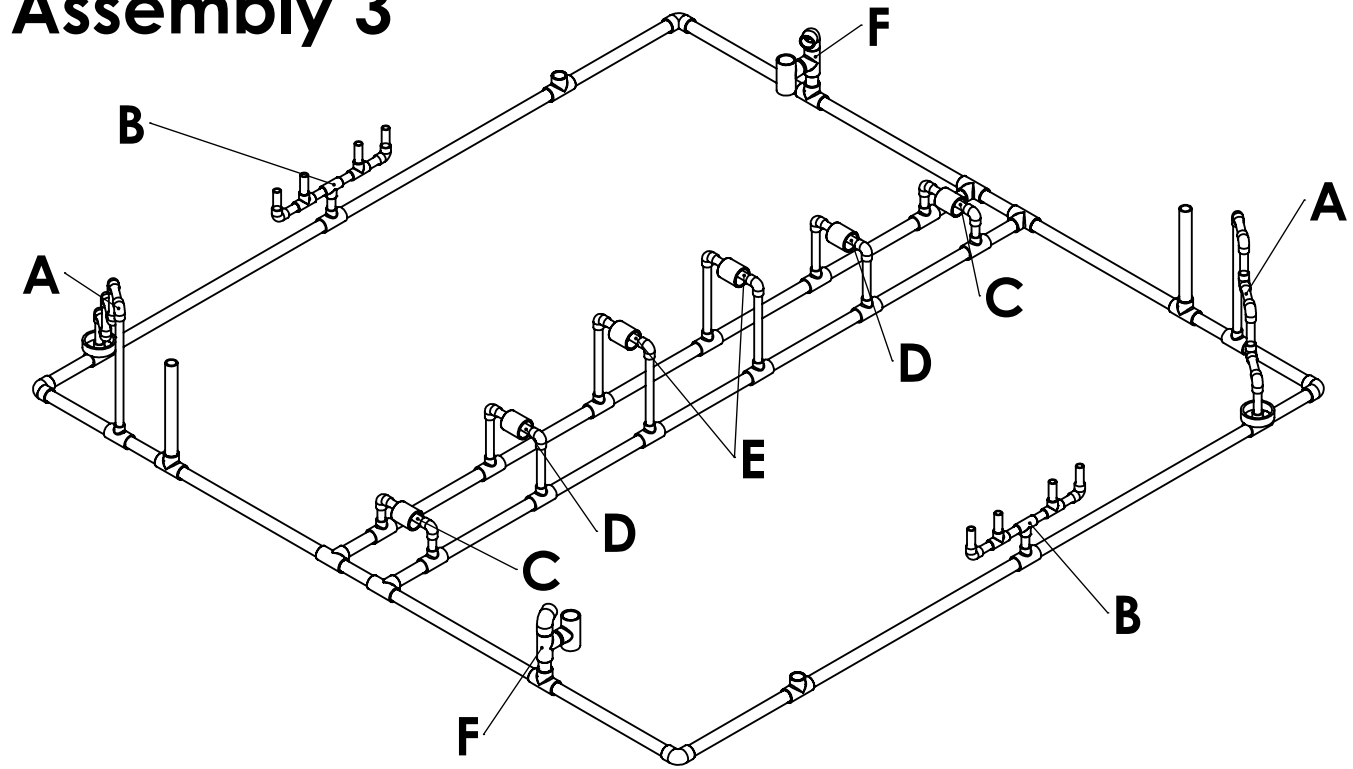
1



B

B

Assembly 3

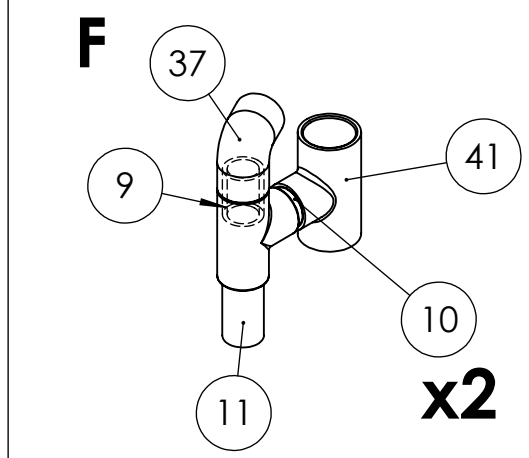


A

A

2

1



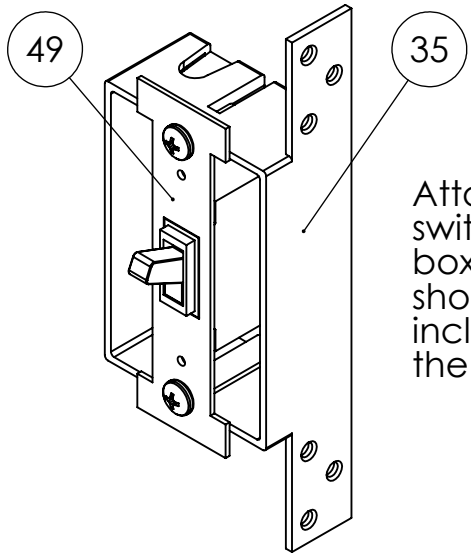
KISS Institute for Practical Robotics

TITLE:
2023 GAME TABLE FULL

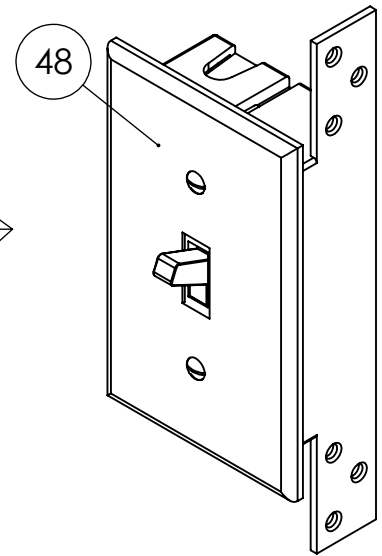
SIZE A	DWG. NO. Assembly 3	REV
SCALE: 1:8		SHEET 7 OF 14

2

1



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

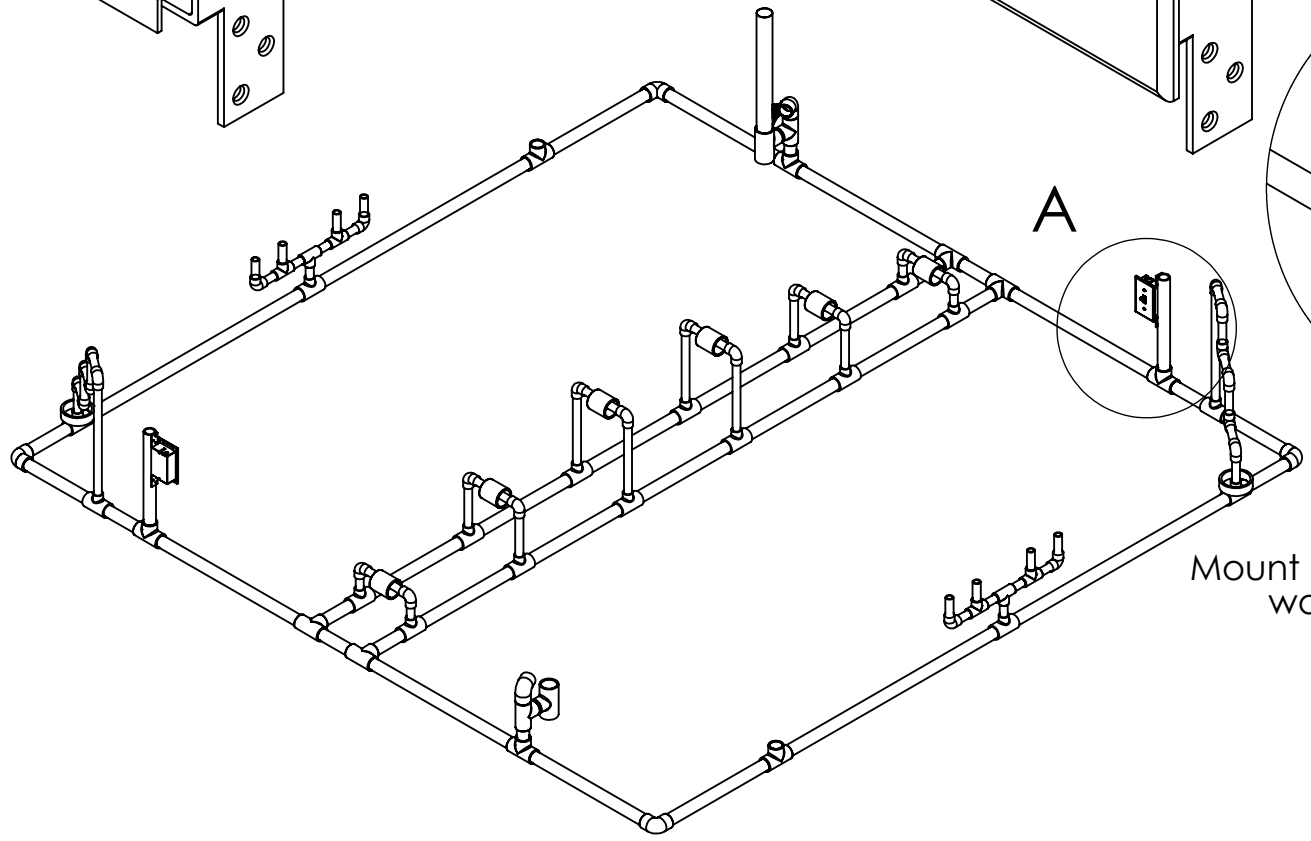


Attach the cover to the switch. The screws for this will usually be in the package.

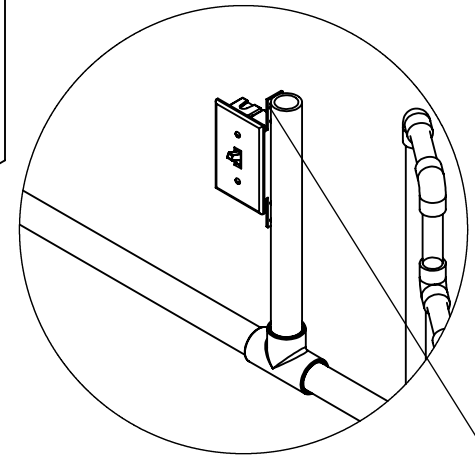
x2

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

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TITLE:
2023 GAME TABLE FULL

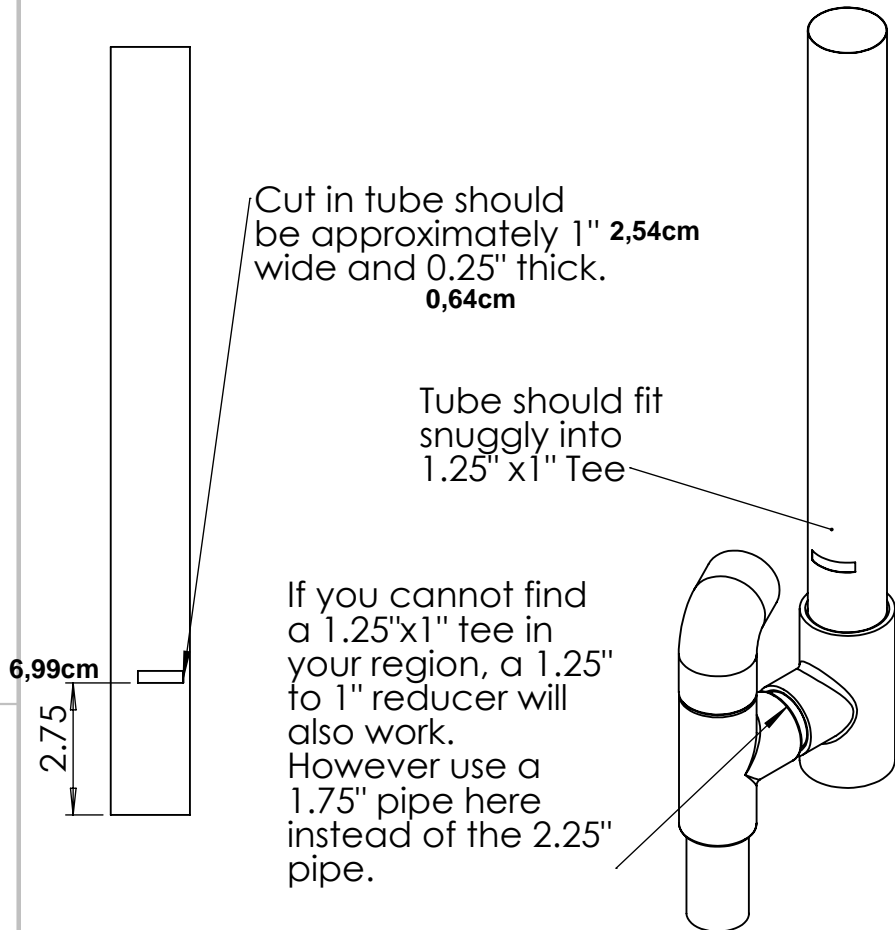
SIZE	DWG. NO.	REV
A	Light Switch	

SCALE: 1:2 SHEET 8 OF 14

2

1

B

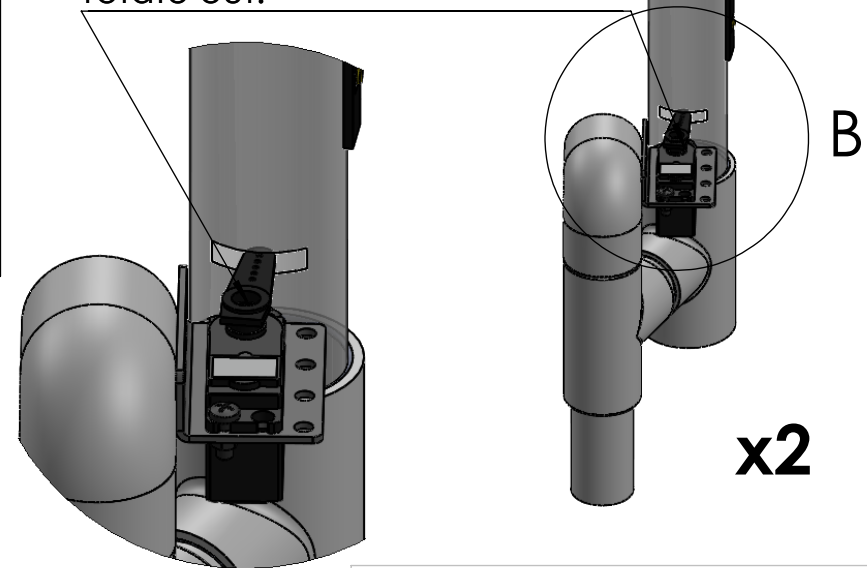


Optional: If you use an LED strip on your table, mount it on the side closest to the start box to match tournament tables. It will connect to the light switch at the other end of the table.

Full Tube Mechanism:

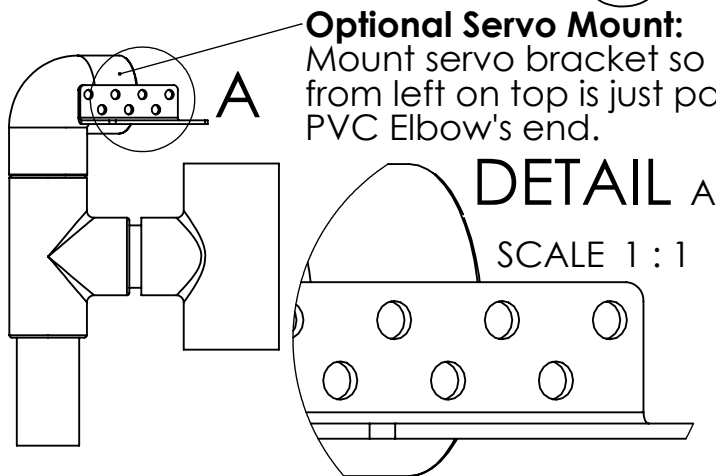
Mount servo and trimmed servo horn on bracket with two medium screws. Angle elbow and servo horn so that it sits inside tube slightly and can rotate out.

B



B

A



DETAIL B

SCALE 1 : 2

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

A

DWG. NO.

Tube Mechanism

REV

SCALE: 1:4

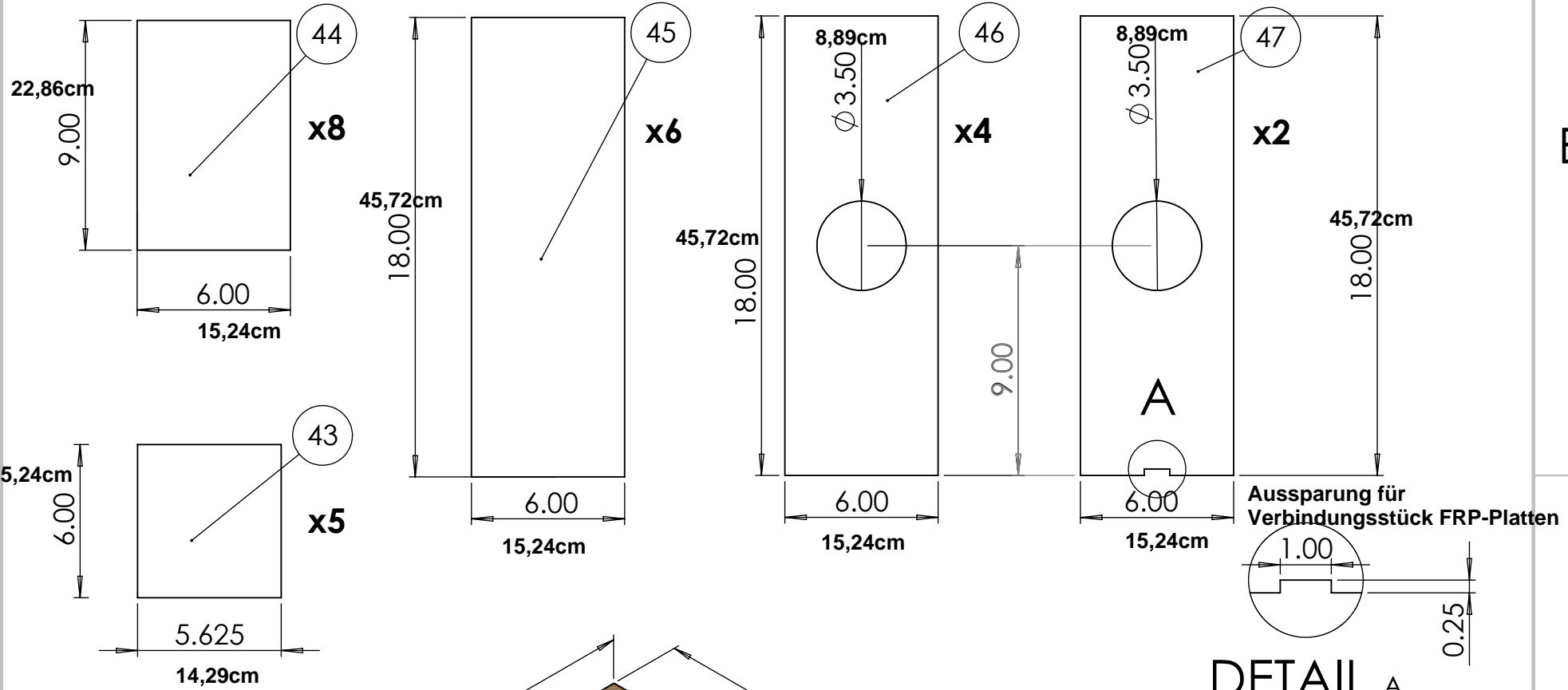
SHEET 9 OF 14

2

1

**Corrugated Plastic
and Wood Cuts**

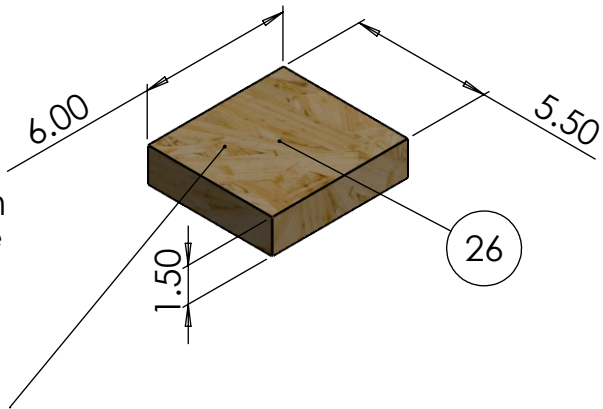
B



B

A

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.



DETAIL A

SCALE 1 : 3

Aussparung für
Verbindungsstück FRP-Platten

KISS Institute for Practical Robotics

TITLE:

**2023 GAME
TABLE FULL**

SIZE DWG. NO. REV

A Plastic & Wood Cuts

SCALE: 1:6

SHEET 10 OF 14

A

2

1

2

1

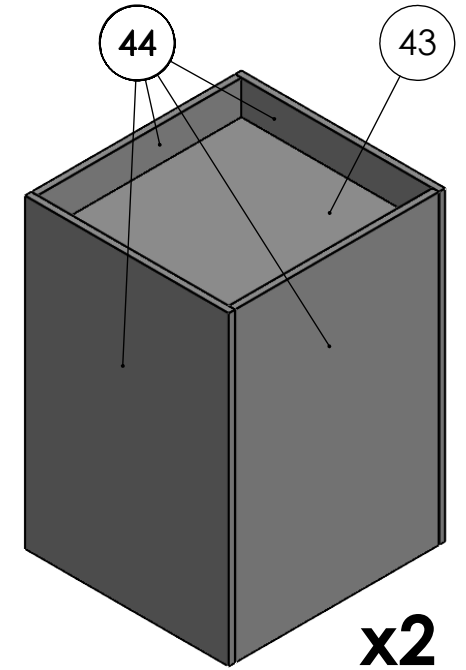
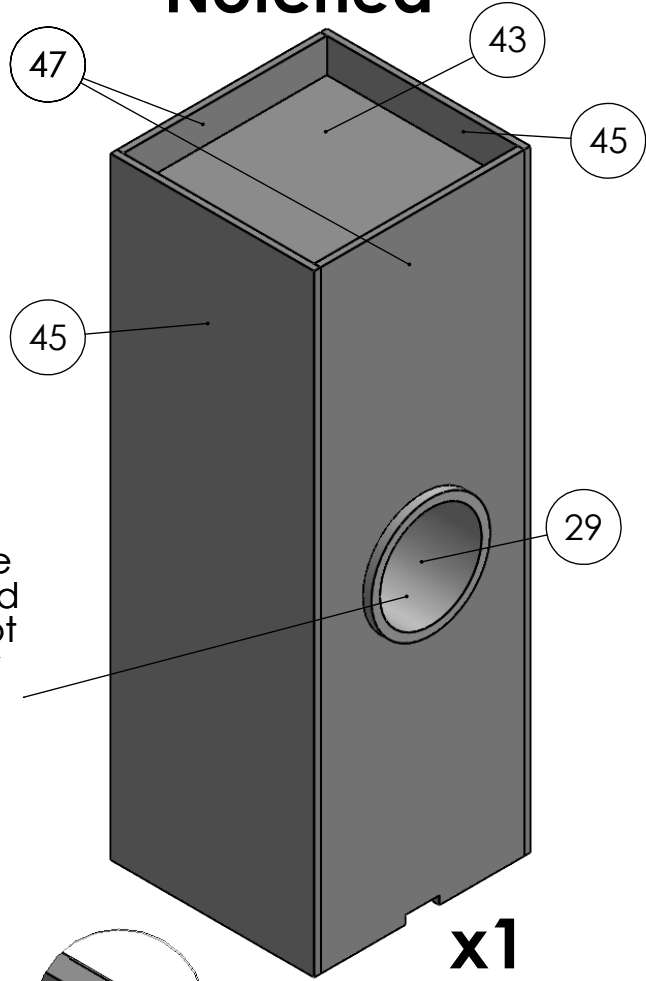
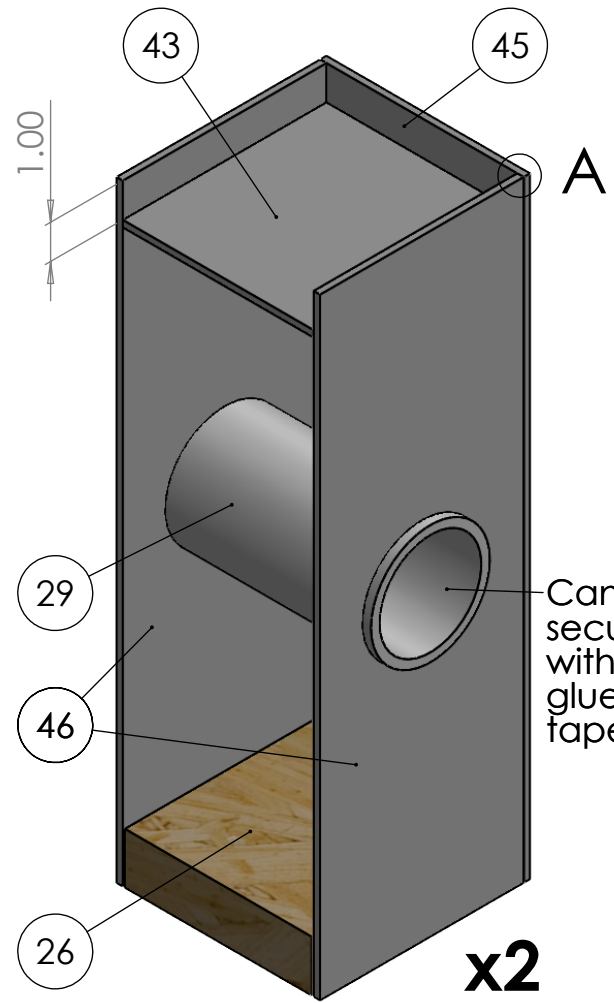
18" Building

18" Building Notched

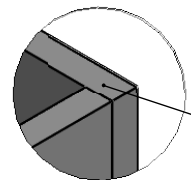
9" Building

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

A

A

18" Building

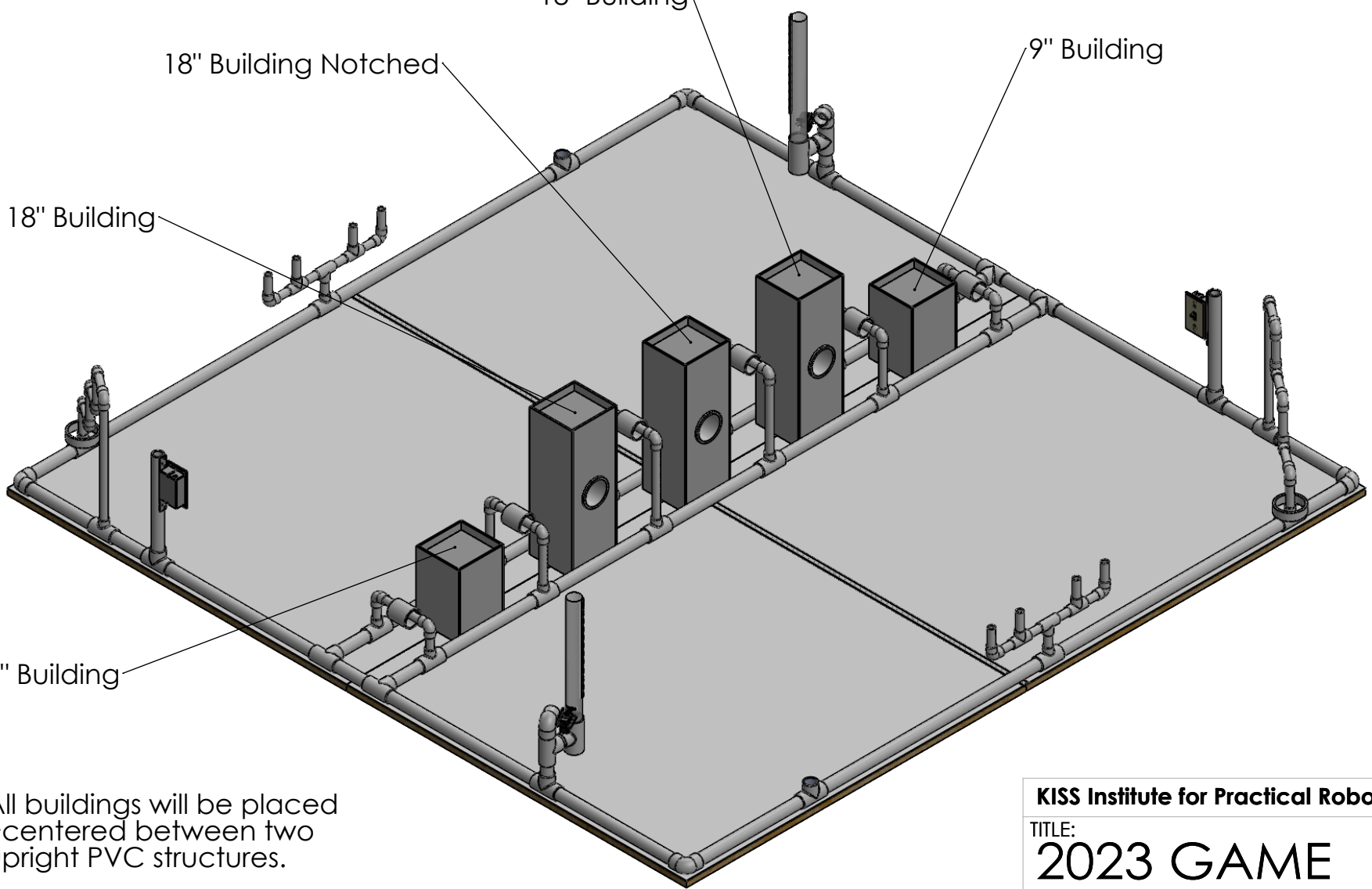
18" Building Notched

9" Building

18" Building

9" Building

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

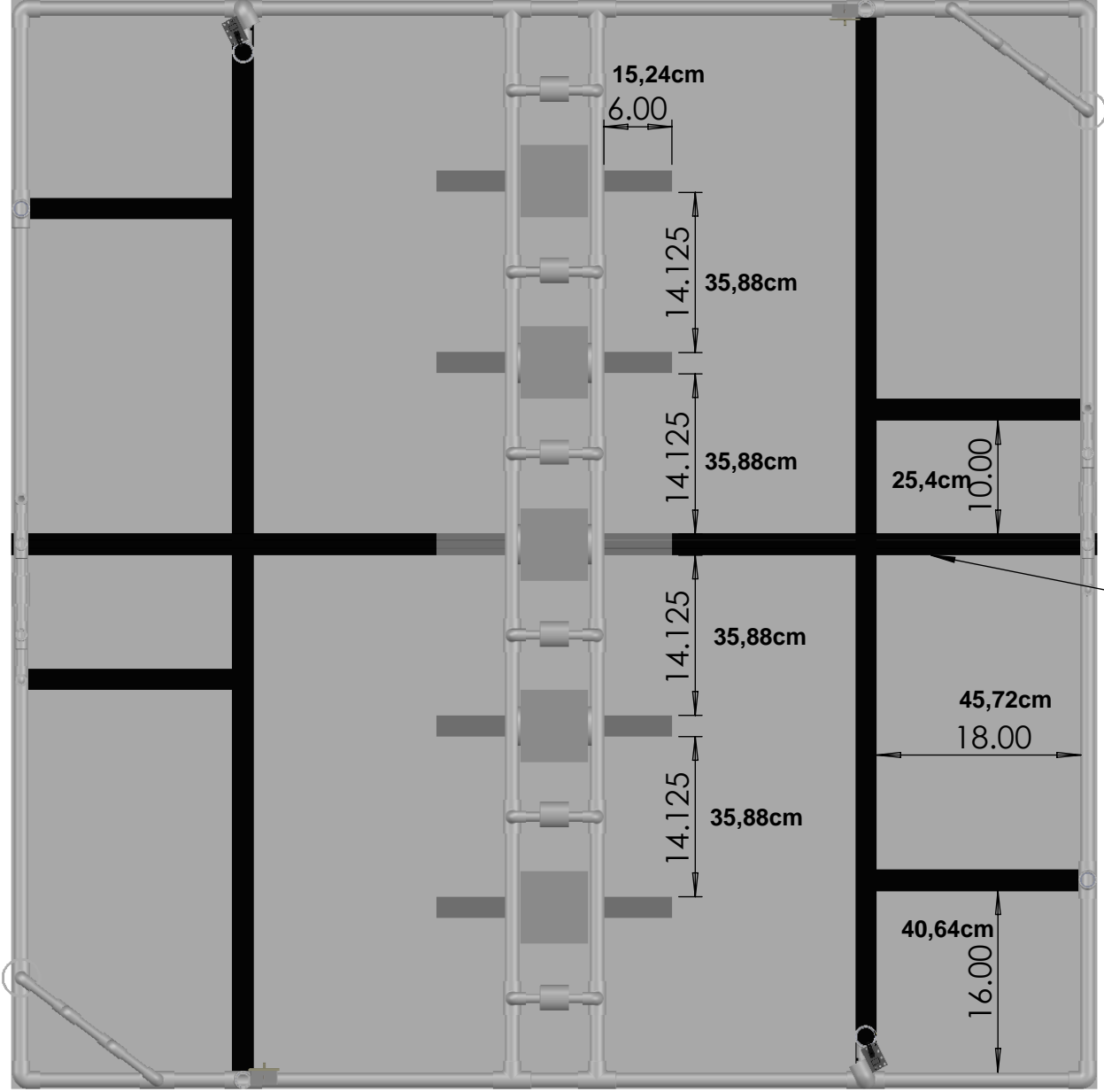
1

2

1

B

B



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.

A

A

KISS Institute for Practical Robotics

TITLE:
2023 GAME TABLE FULL

SIZE	DWG. NO.	REV
A	Tape	

SCALE: 1:15 SHEET 13 OF 14

2

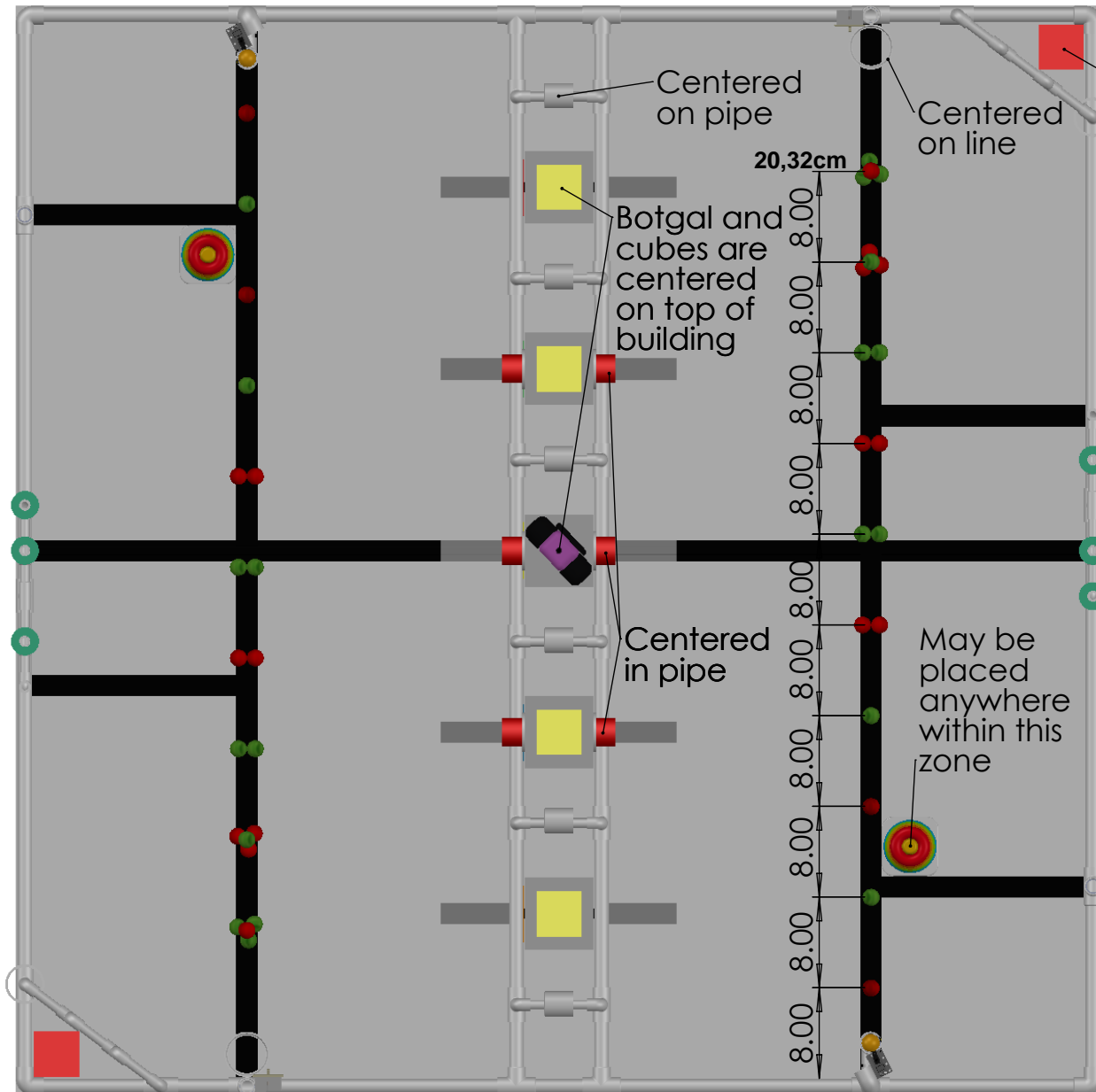
1

2

1

B

B



Starts as flush as possible with corner

Centered on pipe

Centered on line

Botgal and cubes are centered on top of building

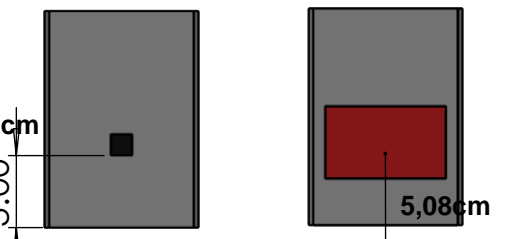
20,32cm

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

A

A

2

1

KISS Institute for Practical Robotics

TITLE:
2023 GAME TABLE FULL

SIZE	DWG. NO.	REV
A	Game Pieces	