
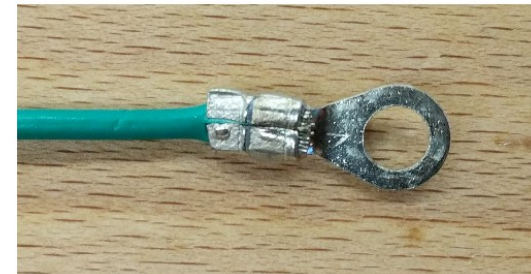
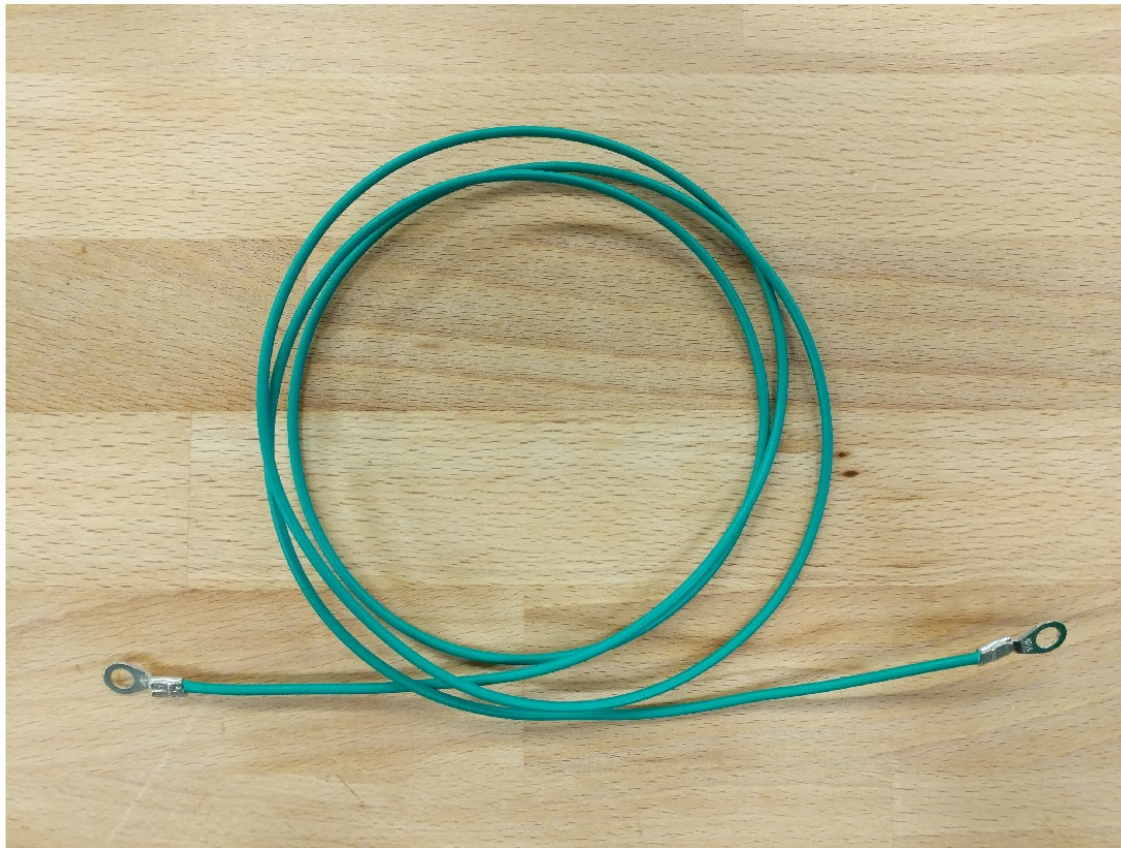



Build Plate Assembly		
	Created by: Joshua Vasquez	last edited: 2/19/2020
	SCALE: 1:2	SHEET 1 OF 13

Cut a length of 16 AWG wire to 1250mm. Strip the ends and crimp a ring terminal to either end.



Note: a good crimp:  
(1) partly bites into the insulation  
(2) bites securely into the wire

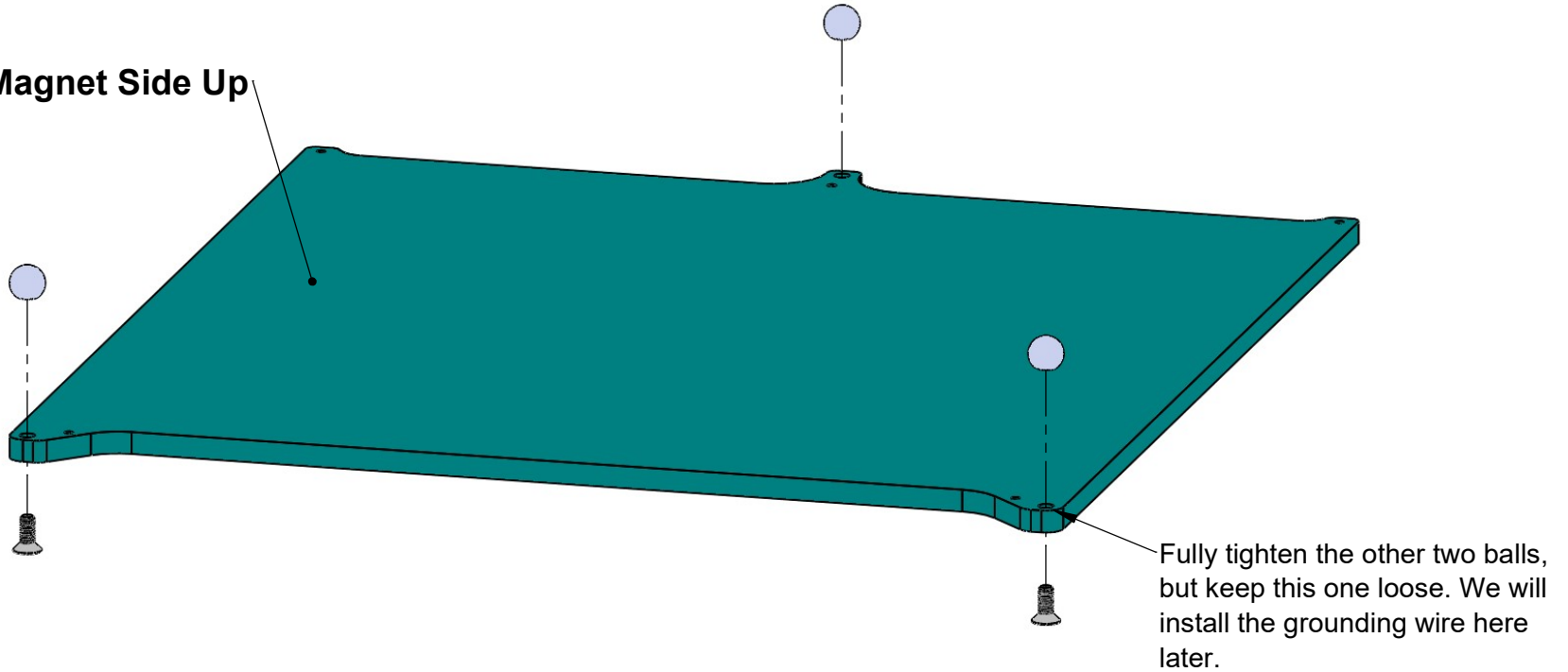
Note: do not twist the stranded ends of the wire before crimping.

Grounding Wire Fabrication		
	Created by: Joshua Vasquez	last edited: 2/19/2020
	SCALE: 1:2	SHEET 2 OF 13

Note: the aluminum bed plate is delicate and very very flat! For the next few steps, work with the bed plate on top of a piece of cardboard to prevent it from resting directly on a table.

Note: the aluminum bed plate also contains an array of high-strength high-temperature magnets. Keep small magnetic objects like screws and screwdrivers away from these magnets during assembly.

**Magnet Side Up**



ITEM NO.	DESCRIPTION	QTY.
1	Bed Plate	1
2	10mm steel balls with M4 threads	3
3	M4 Flathead screw, 10mm long	3

#### Kinematic Ball Installation

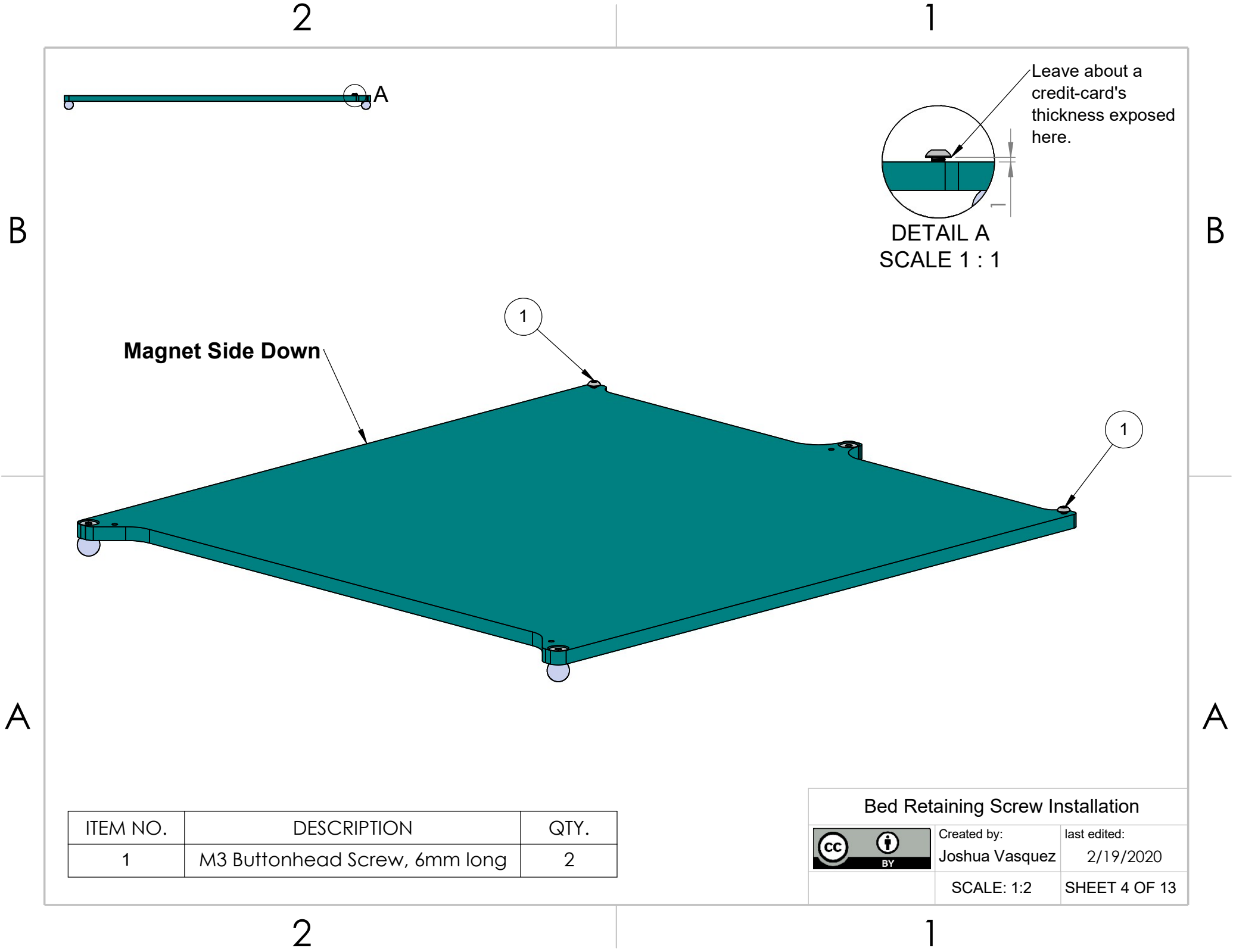


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Joshua Vasquez


last edited:  
2/19/2020

SCALE: 1:2

SHEET 3 OF 13



ITEM NO.	DESCRIPTION	QTY.
1	M3 Buttonhead Screw, 6mm long	2

Bed Retaining Screw Installation		
	Created by: Joshua Vasquez	last edited: 2/19/2020
	SCALE: 1:2	SHEET 4 OF 13

Grip a Solder Terminal Lug firmly with pliers at about the halfway point. Then bend it about 90 degrees with your finger. Make 3 pieces.


B



B

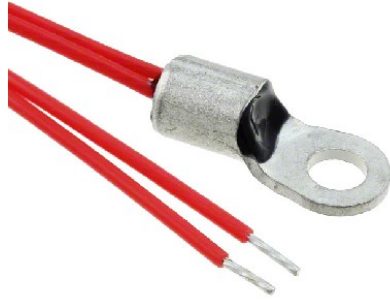
A

A

Spring Anchor Creation		
	Created by: Joshua Vasquez	last edited: 2/19/2020
	SCALE: 1:2	SHEET 5 OF 13


We recommend that you use the NTC Ring Lug Thermistor for measuring bed temperature instead of the Heated Pad's built-in thermistor. We will reuse the wires from the heated pad, however.

First cut the two thin red wires from the Heated Pad at the tip of the bed. Then solder them to the two exposed leads of the Ring Lug Thermistor. Insulate the connections with heat shrink tubing.



This Ring Lug Thermistor will be screwed into the bed in the next step.

Image Credit: Digikey

Thermistor Wiring		
	Created by: Joshua Vasquez	last edited: 2/19/2020
	SCALE: 1:2	SHEET 6 OF 13

2

1

Install the thermistor such that it touches the metal part of the plate.  
Note the orientation of the thermistor.  
Also note that wires are not shown here.

Magnet Side Up

C

B

D

B

A

DETAIL B  
SCALE 1 : 1

DETAIL C  
SCALE 1 : 1

DETAIL D  
SCALE 1 : 1

ITEM NO.	DESCRIPTION	QTY.
3	M3 Buttonhead Screw, 6mm long	3
5	Bent M3 Solder Terminal Lug	3
6	Ring Lug Thermistor	1

### Spring Anchor Installation



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Joshua Vasquez

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2/19/2020

SCALE: 1:2

SHEET 7 OF 13

2

1



2

1

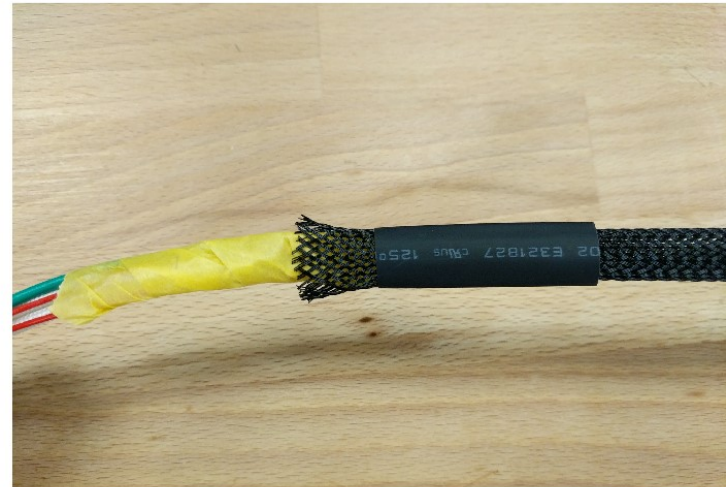
B



Cut 75mm of 1/2-in. cable sleeving. Slide two 10mm bits of heat shrink tubing onto the ends.

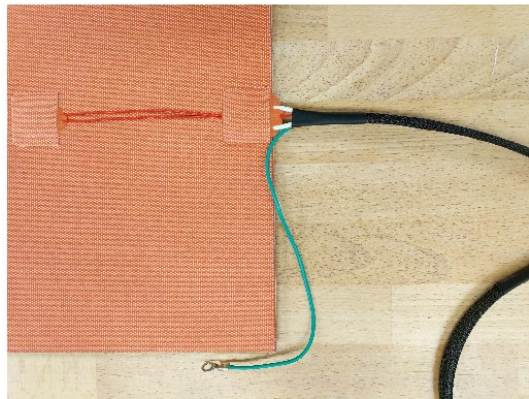


Collect the thermistor wires, grounding wire, and bed heater wires into once bunch. Tape the far ends together and run the bunch all the way through the cable sleeve.



B

A



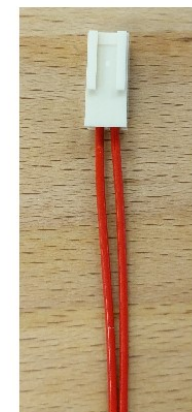
Pull out the ground wire near the pad such that it extends just past the nearest corner of the pad as shown above.



Crimp Ring terminals on the bed heater wires. From the **Duet Ethernet** box, crimp two small pins from the loose bag and click them into a two-prong connector.



1



2

A

2

1

### Heated Pad Wire Management 1/2



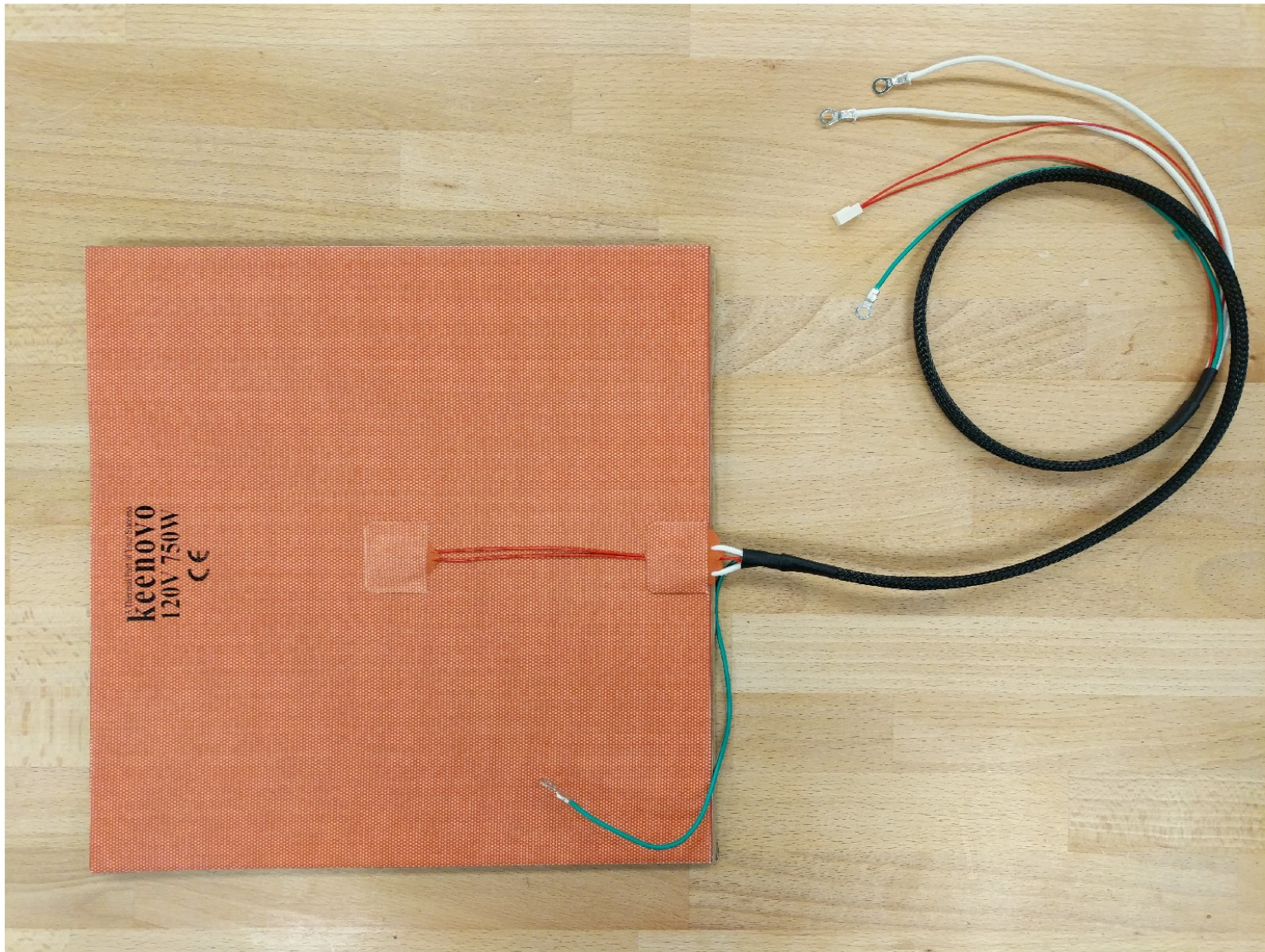
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Joshua Vasquez

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2/19/2020

SCALE: 1:2

SHEET 8 OF 13





Heat shrink the two loose heat shrink sleeves. The result should look like above.

## Heated Pad Wire Management 2/2



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Joshua Vasquez

last edited:  
2/19/2020

SCALE: 1:2

SHEET 9 OF 13



2

1

Install the Heated Pad by peeling away the sticky layer and placing it **over the magnet side such that the magnets can no longer be seen.**

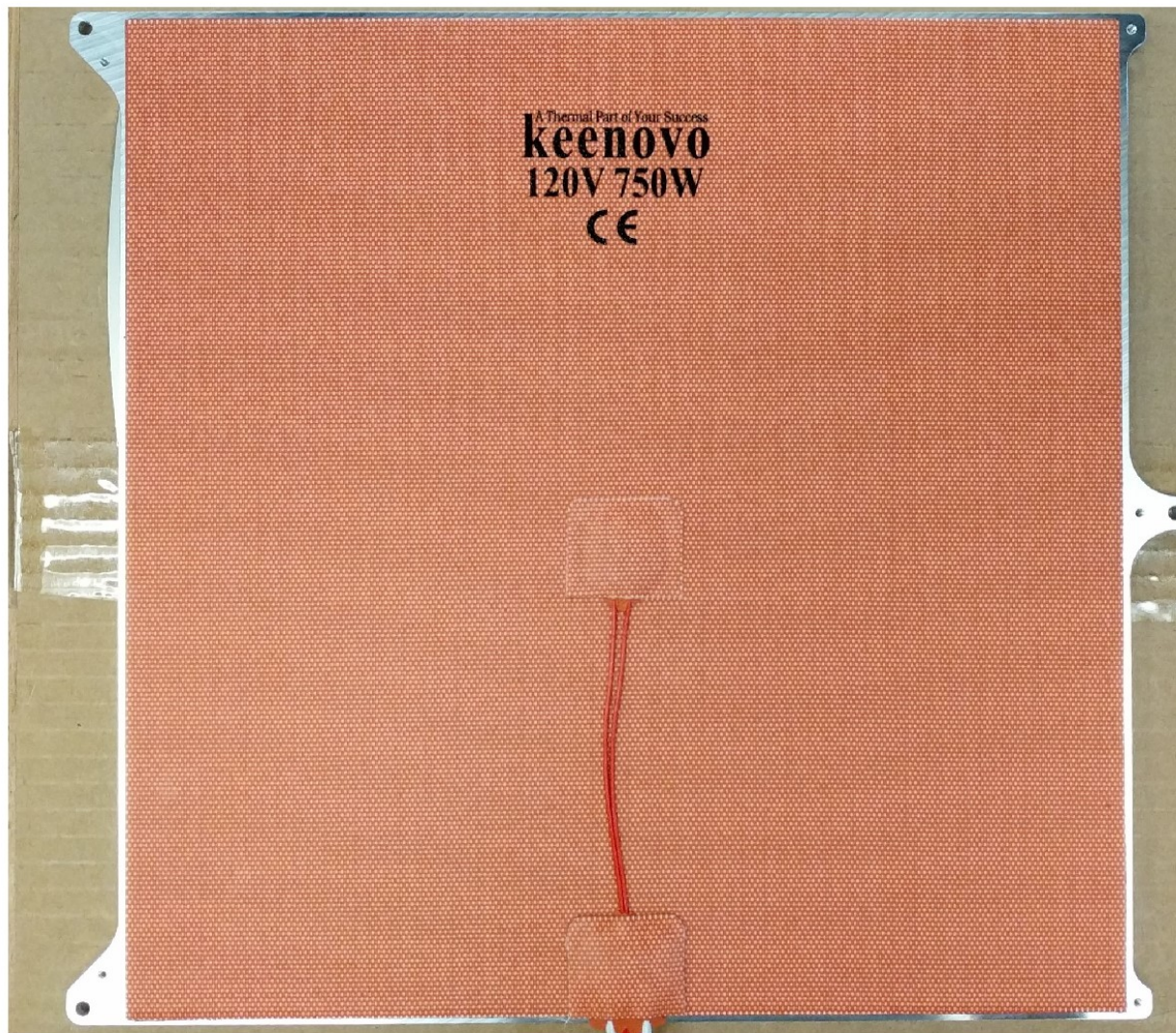
Note the orientation of the plate! The wires will stick out from the side. Also note that there will be a border on all sides since the pad is 300x300mm and the plate is 305x305mm.

B

B

A

A



### Heated Pad Installation



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Joshua Vasquez

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2/19/2020

SCALE: 1:2

SHEET 10 OF 13

2

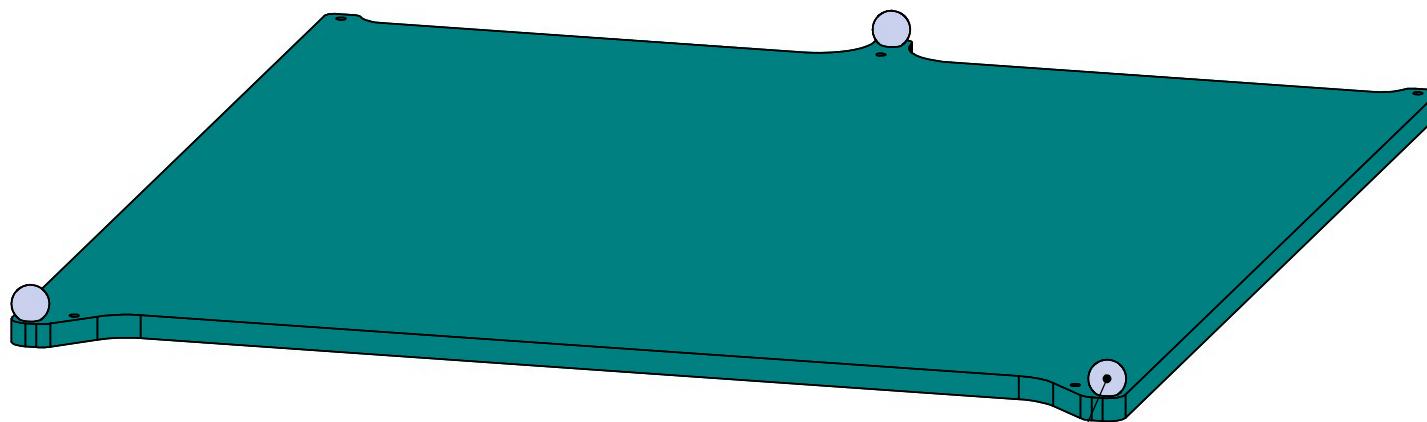
1

2

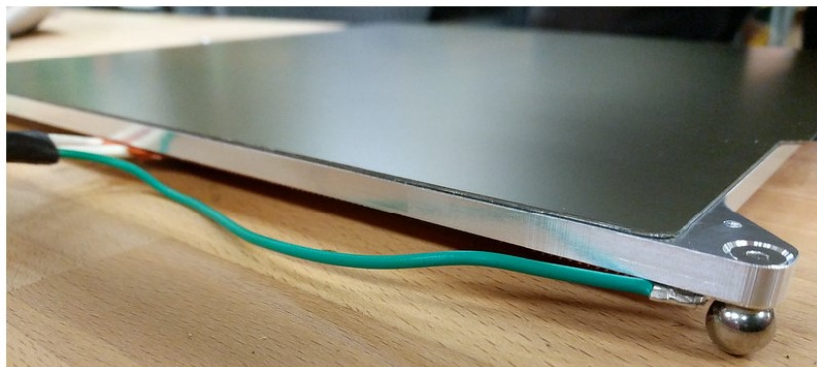
1

B

B



With the Heated Pad installed, install the grounding ring terminal between this kinematic ball such that the terminal is contacting the metal plate. but not touching the pad. Securely fasten the kinematic ball back.



A

A

### Bed Retaining Screw Installation(2)



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Joshua Vasquez

last edited:  
2/19/2020

SCALE: 1:2

SHEET 11 OF 13

2

1

Create 3 Springs from the spring stock by cutting it to length and folding over the first loop with pliers. These springs should measure between 16 and 18mm center-loop-to-center-loop



Note: this extension spring stock is not to be confused with the Spring Guide, which has a smaller diameter.

ITEM NO.	DESCRIPTION	QTY.
1	Extension Spring Stock (McMaster-Carr: 9665K12)	60mm

### Bed Spring Fabrication



Created by:  
Joshua Vasquez

last edited:  
2/19/2020

SCALE: 1:2

SHEET 12 OF 13



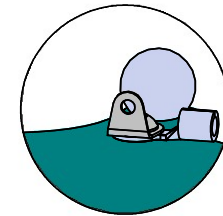
2

1

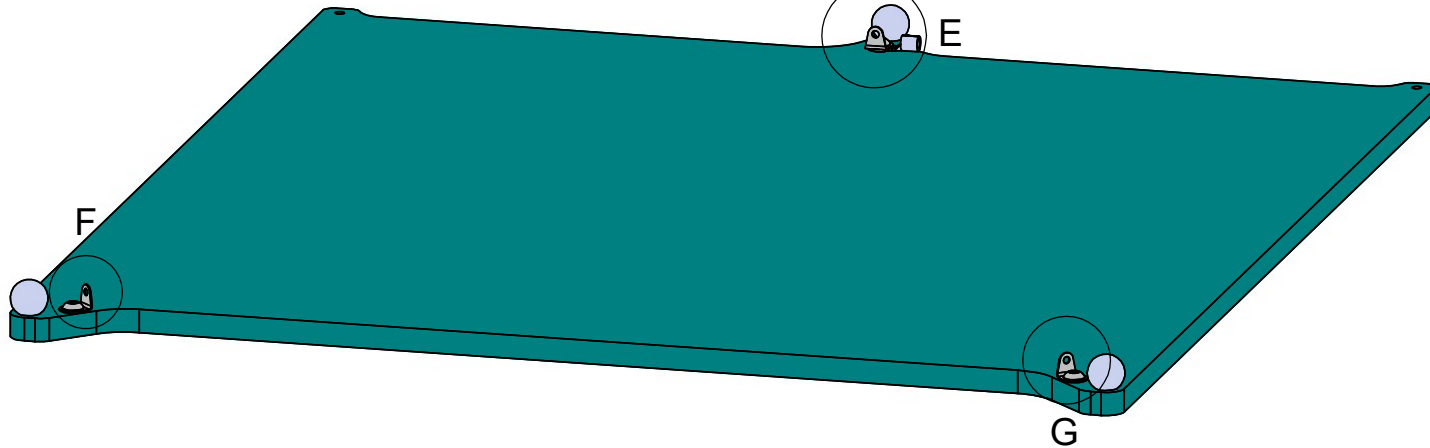
Loop one end of each spring through the exposed hoop of each spring anchor.  
Feel free to squeeze the loop closed with a set of pliers such that it doesn't fall out.

B

B

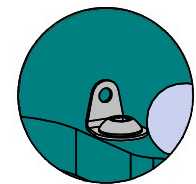


DETAIL E  
SCALE 1 : 1



DETAIL F  
SCALE 1 : 1

The bed is complete!  
Set it aside on some cushy cardboard.



DETAIL G  
SCALE 1 : 1

A

A

2

1

### Bed Spring Installation



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2/19/2020

SCALE: 1:2

SHEET 13 OF 13