

BEFORE

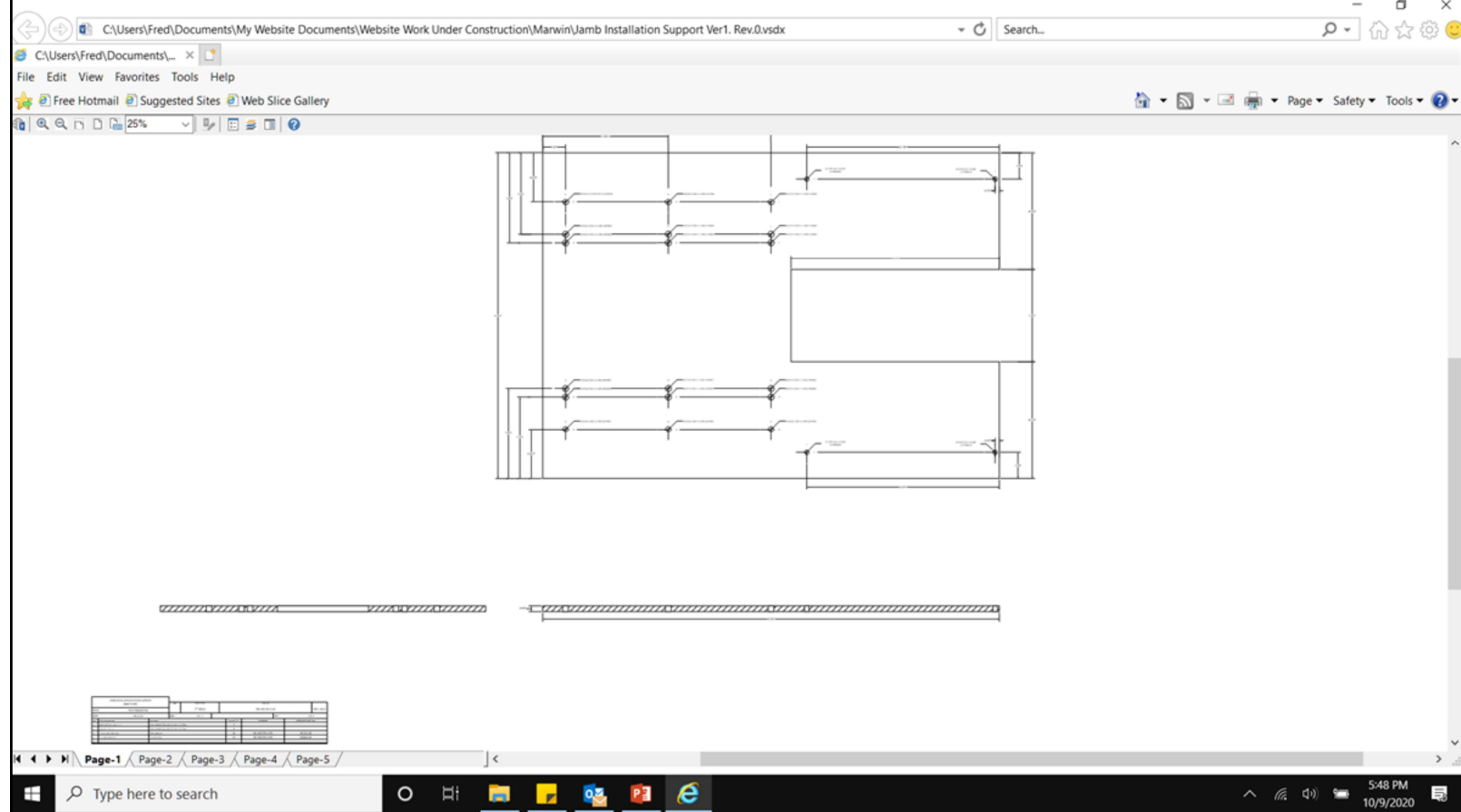
I was laid off in August of 2019 and was unemployed for 9 months. To make ends meet I took up A temporary manufacturing efficiency consultant job with a company in West Columbia South Carolina that was embarking on their 'lean' journey to improve business operations.

For me the one thing that I noticed quickly in their operations that it was very labor intensive and their production assembly lines was fraught with ergonomic inefficiencies. I knew that if I could improve the ergonomics I could improve the capacity, capability, available, flexibility, reliability and overall efficiency of the process lead time.

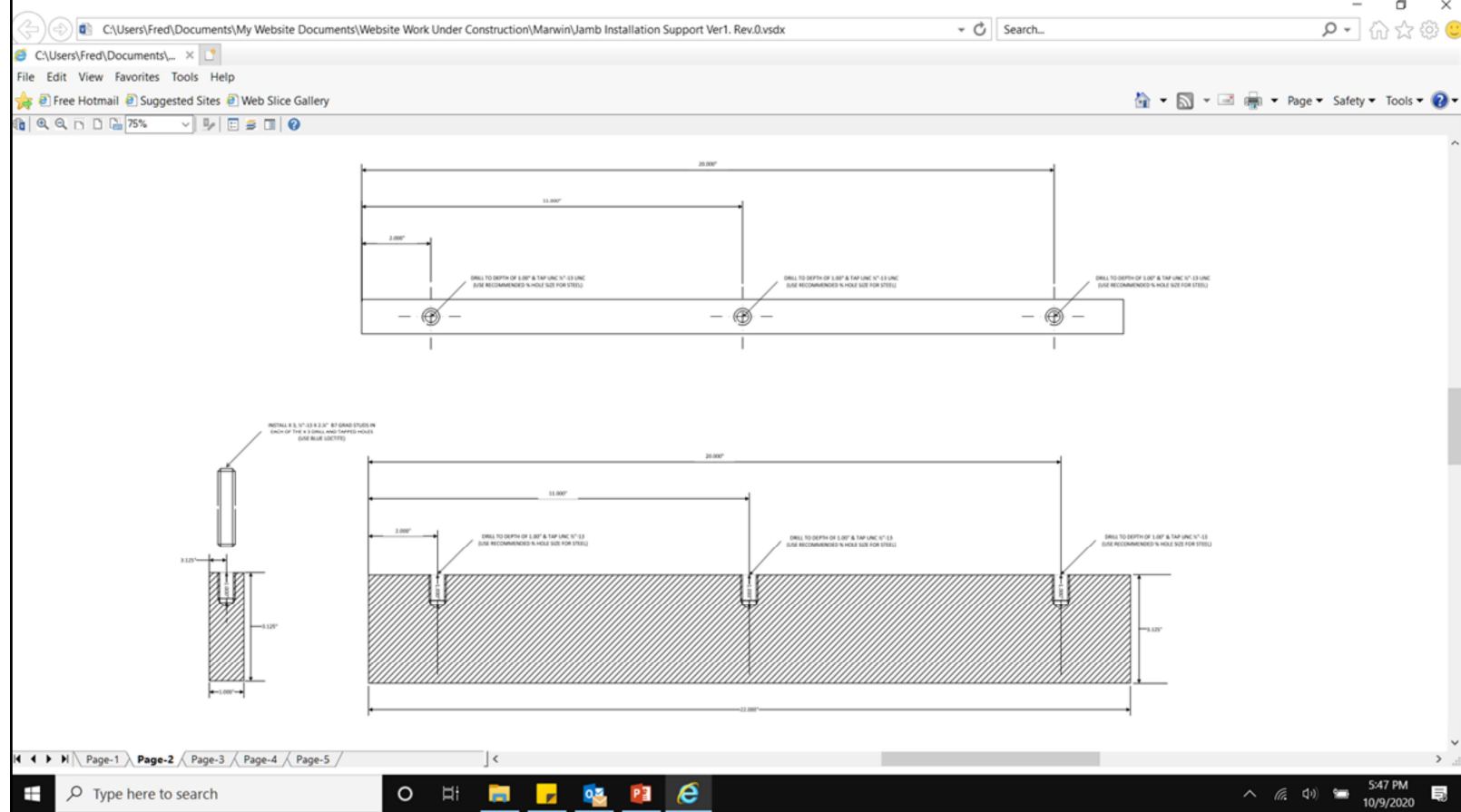
In this slide the operator of a folding attic stair production assembly line work station had to pick up the attic door jamb walk it over to the work station and then balancing the end of the jamb between one of his foreleg thighs and rest it on his shoulder and holding it steady with his left hand offer up and align it to the attic door hinge for screws and nuts installation. This was my number one pet peeve of all the ergonomic problems this company had in its production lines.

So, I designed a simple shelf with two support rail mounted on it then attached to the underside of the roller conveyor. I kid you all the operators at this and the three other production lines at this station had calluses on their shoulders from this job task.

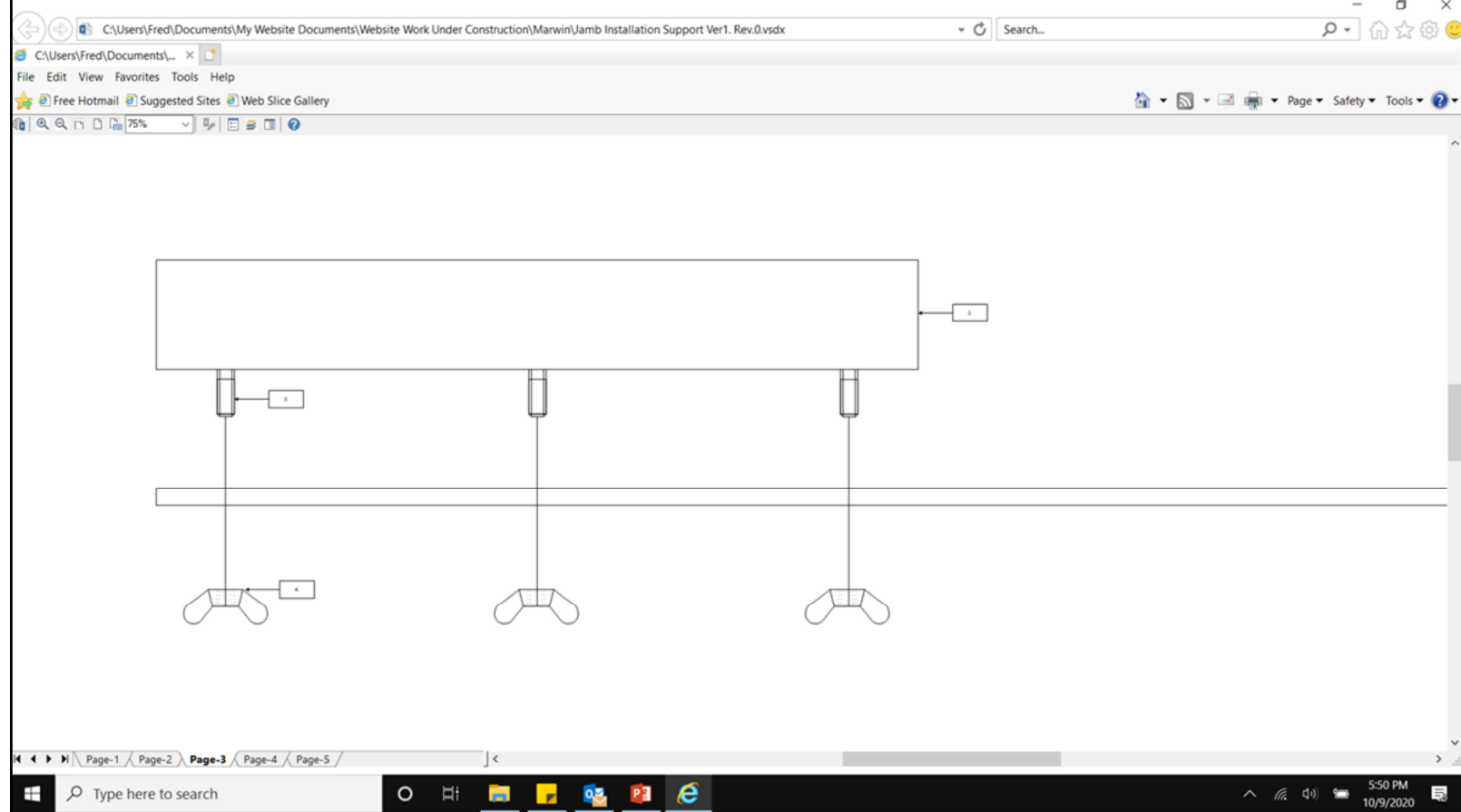
BEFORE VIDEO RECORDING LINK TO YOUTUBE - <https://youtu.be/Ha2FTicH77U>



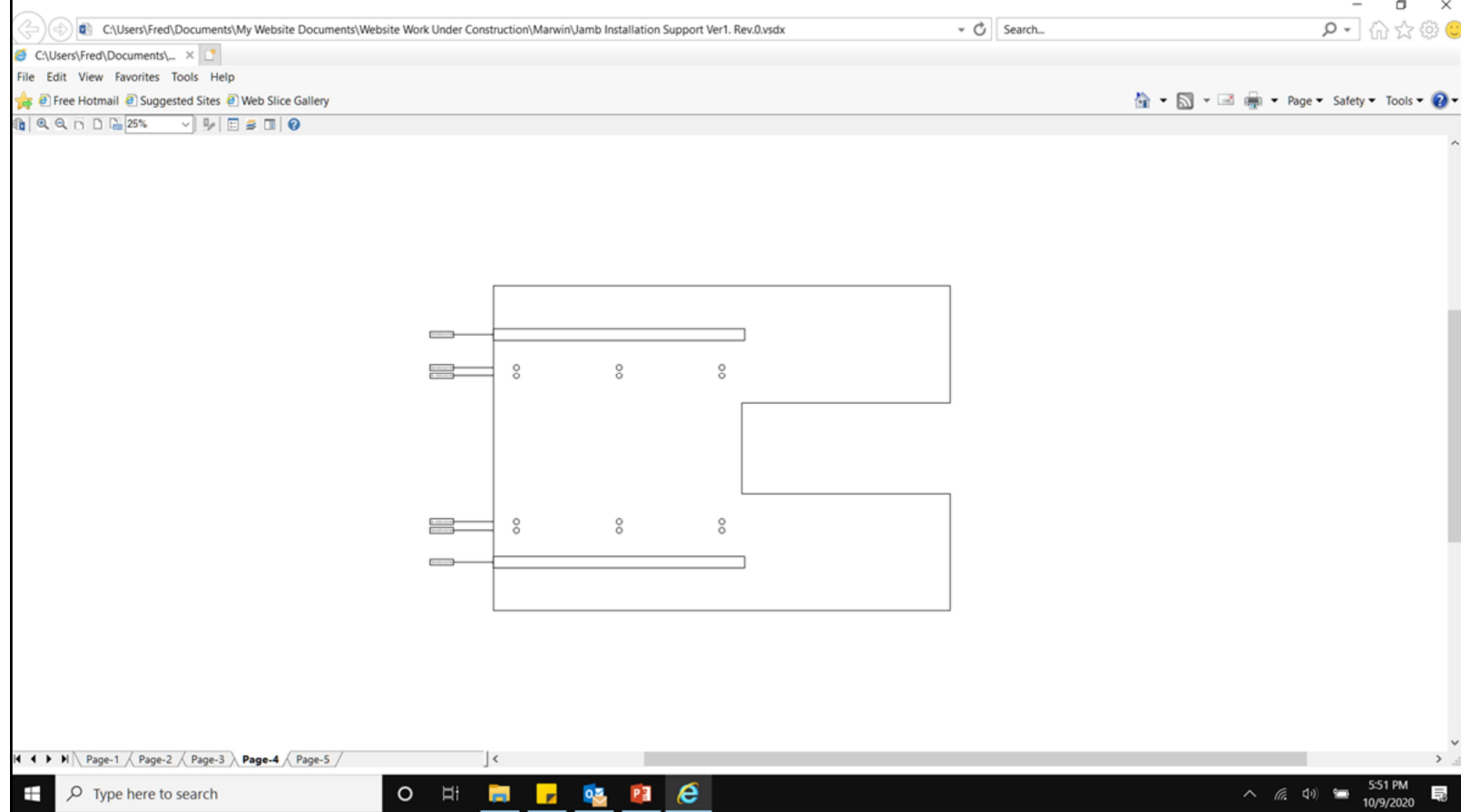
Self designed information document holder board made from acrylic plastic – 11 1/8" X 8 1/2" X 1/2".
Drawn using Microsoft Visio Professional 2016.



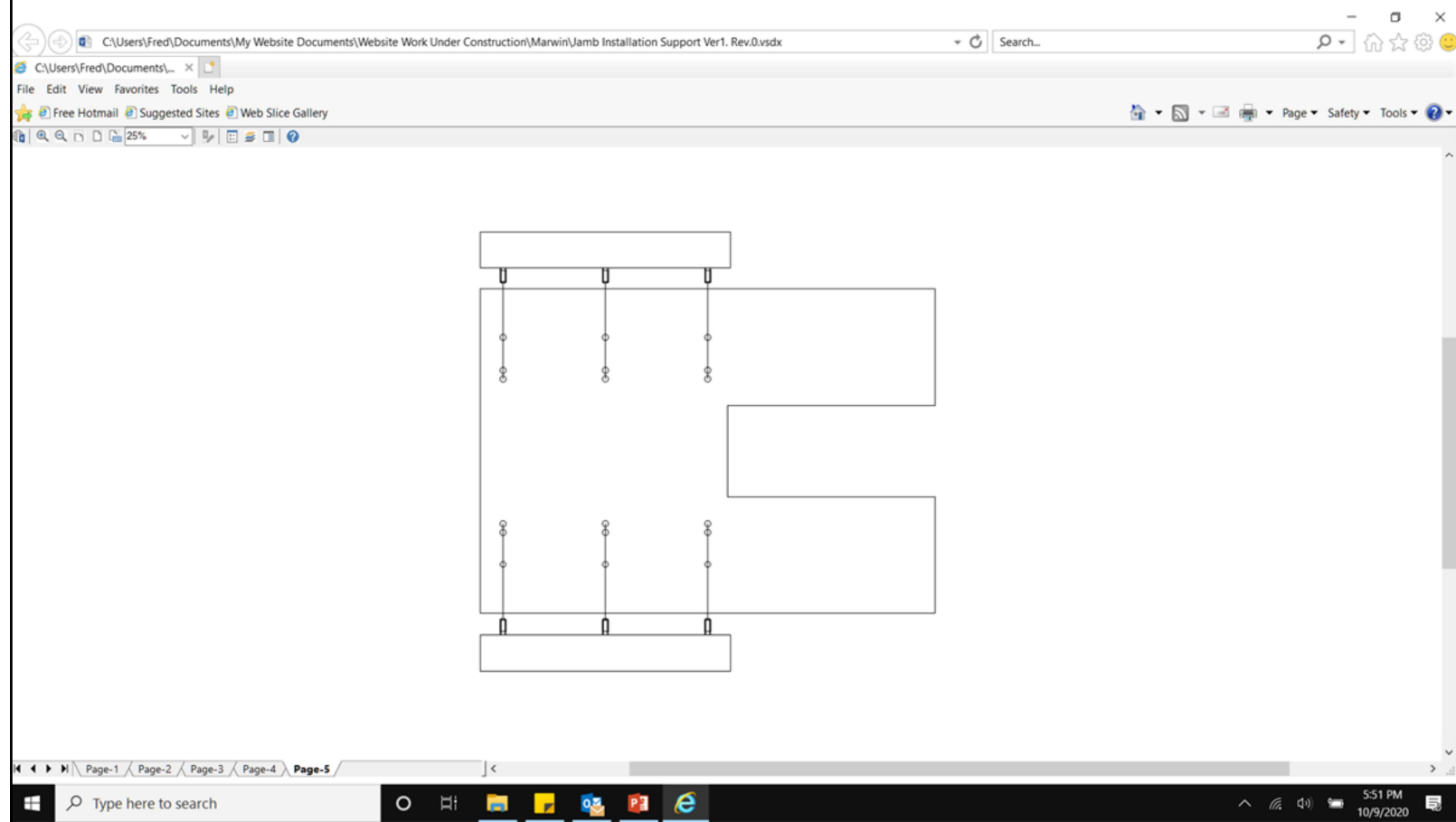
Because this company products was about 95% made from wood there was a copious supply of wood of every size and shape I could want, I made a mock up of want I had in mind from wood. I then installed it, tried it out and when I proved it worked I designed and made the permanent from steel. The next four slides shows my design drawing of the final steel version.



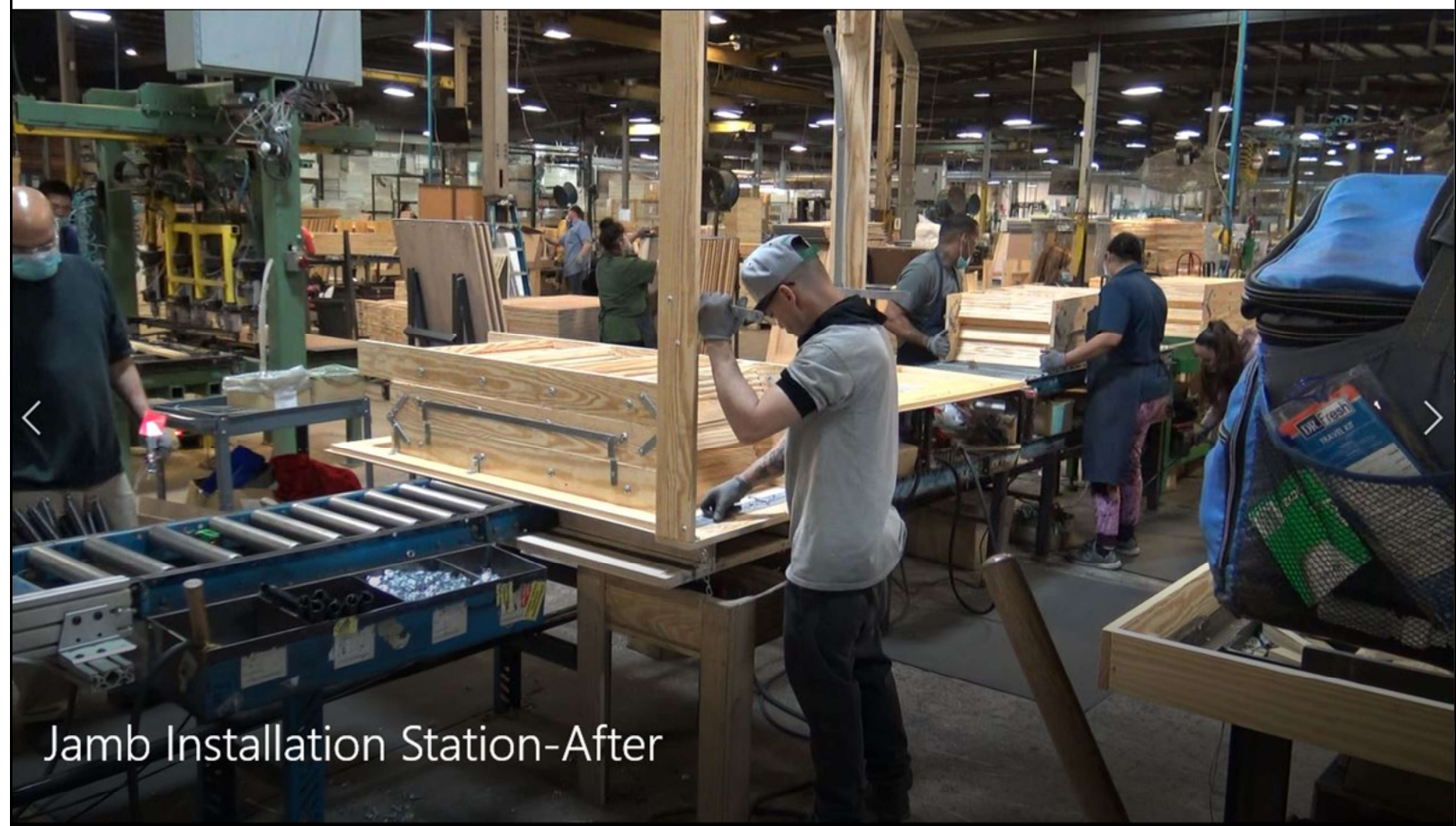
Side view of the support rail



Plane view of the support base plate.



Assembly drawing.



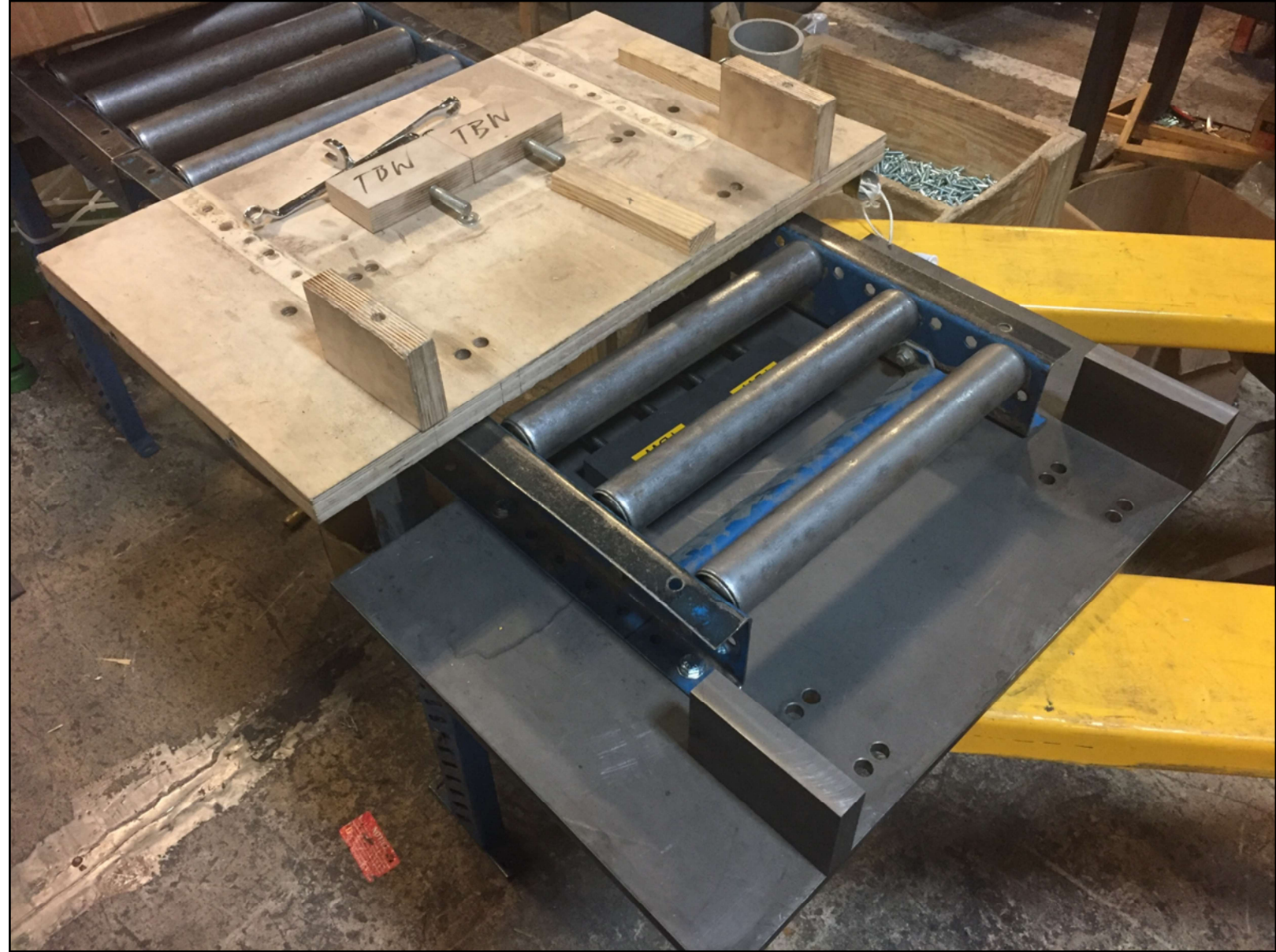
Jamb Installation Station-After

AFTER

This is the mock up design installed on the line note that the operator now only has to pick up the jamb and rest it on top of the support rail. No need for him to use his foreleg thigh or shoulder to balance the jamb.

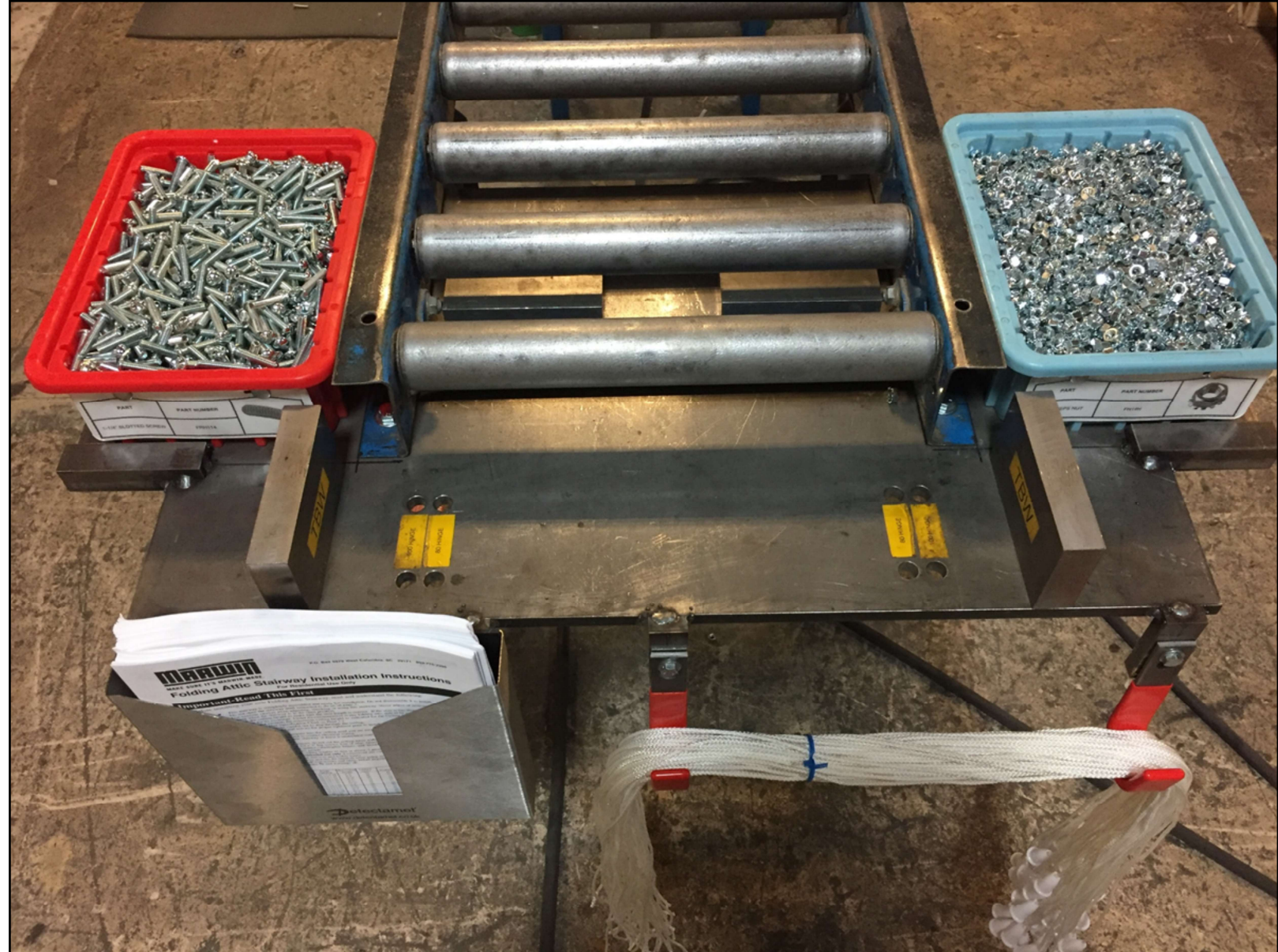
Apart from the ergonomic improvement my invention also reduced the cycle time of this operation from 18 seconds to 8 seconds.

AFTER VIDEO RECORDING LINK TO YOUTUBE - <https://youtu.be/xw9tPBU9Nvw>



This picture shows both my original mock up design made from wood and my later design made from steel.

One other thing that I did was to mount the install station in-line with the production assembly line to improve material flow and presentation of the work in process.



I later went on to mount the totes that contained the screws and bolts to the support rail base plate and pull cord hooks and instructions manual holder.



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