



First, I started with creating random two-person teams. Next, I explained to everyone that they would be required to retrieve scrap metal and layout three pieces of metal. One piece of metal was 5" square, (this is the base). The next pieces are to be 2" x 7" and 2" x 8". These are for the two sides. The thickness we used was 3/16".

After they used the PAC to cut their pieces, they were required to find the center of the 7" and 8" long pieces. They took the two pieces to our press brake so they can bend in half, achieving a 90-degree bend on each piece. Afterwards, they centered the two pieces on the base plate and used the GMAW process to weld them together. The two vertical joints were welded downhill.



After each team had completed the task, they were given a demonstration on the proper application of the penetrant test. They were given time to ask questions and then they were required to check their weldments using the same penetrant kit. Students cleaned their part first, followed by applying the penetrant to the inside of the box. Next, they sprayed the developer on the outside of their box on the welds they had just completed. (We did it this way to save time)



After a few minutes, some of the boxes began to reveal the penetrant. The students seemed surprised that they had leaks, especially since many had nice looking welds. They learned the importance of wrapping the corners, weld bead sequence, and producing quality welds. This created a lot of discussion on how they would do this exercise again. They enjoyed performing the penetrant test, we discussed the other common methods of checking weldments. A few of the students didn't realize that there are so many opportunities in the NDT field.

The picture above is after 24 hours.