

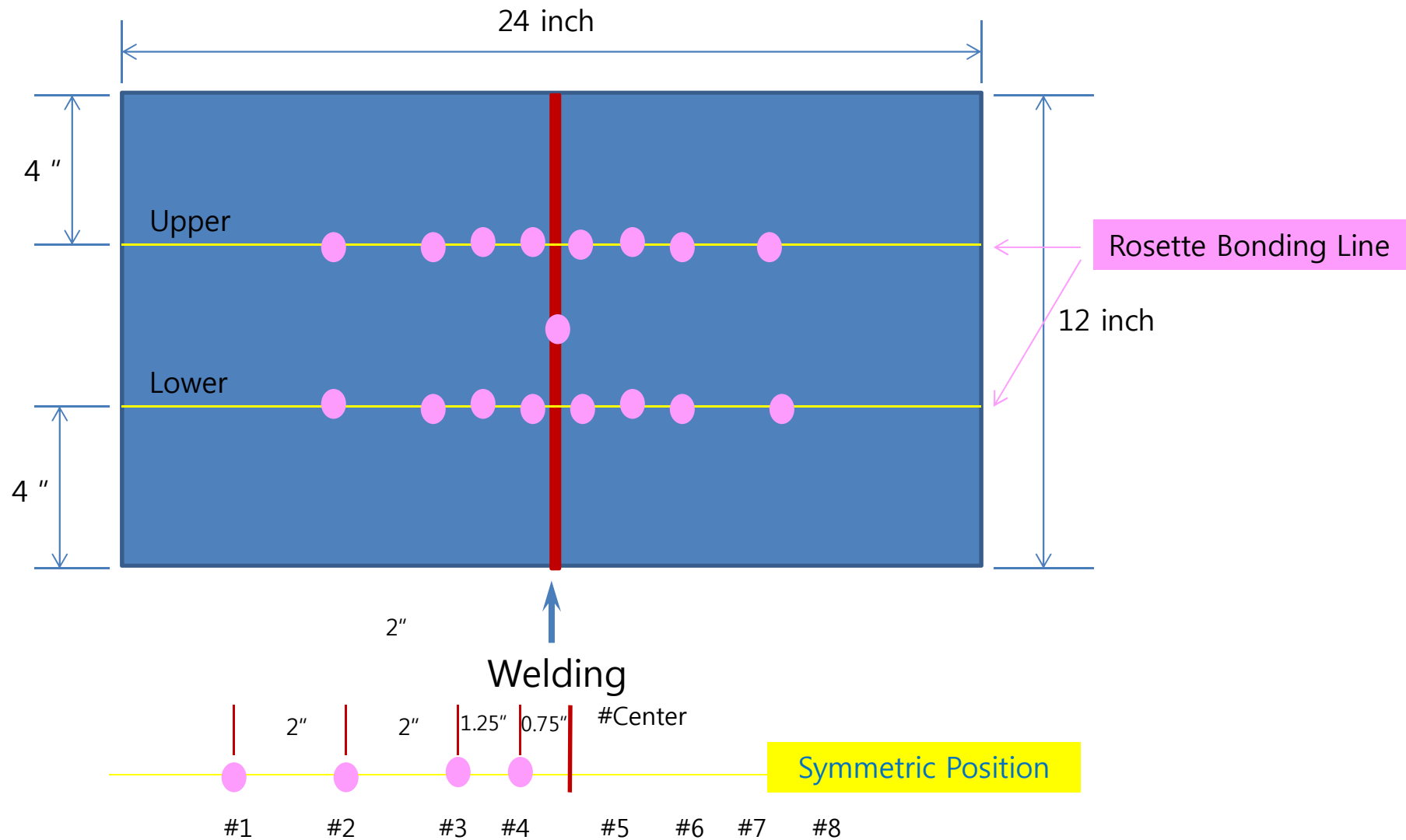
# Residual Stress Measurements

Based on the Hole Drilling Method

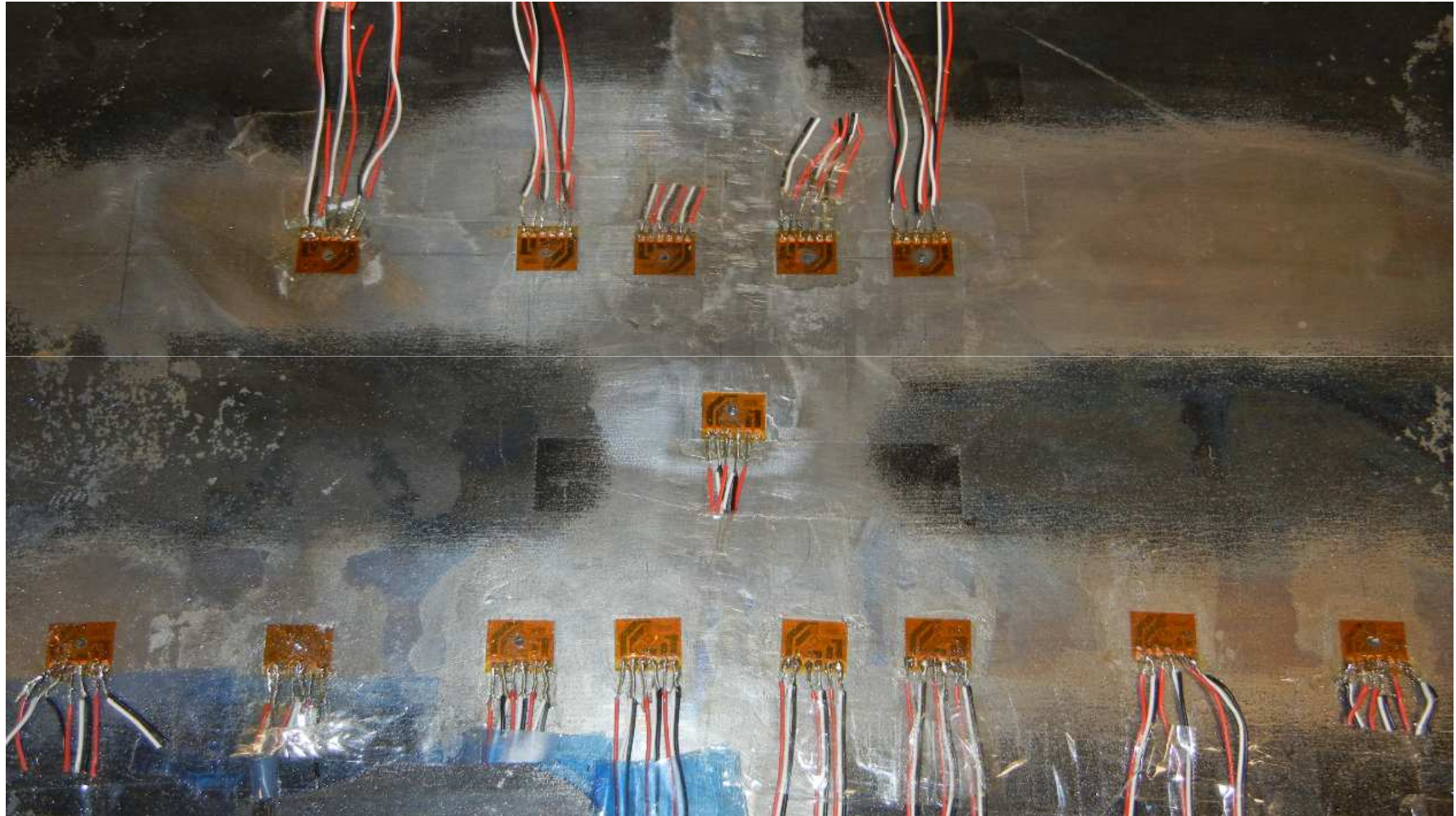
**Overall View of Set-up: Welded Hot Rolled Mild Steel Plate (ASTM A36), Residual Strain Gage Rosettes, P-3500 Strain Gage Amplifier, SB-10 Ten-Channel Switch and Balance Unit**

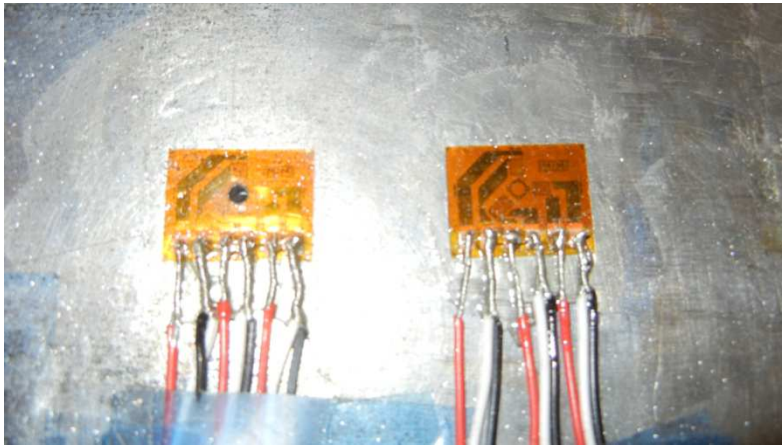


# Specimen : Welded Hot Rolled Steel Plate (Intended Rosette Pattern)

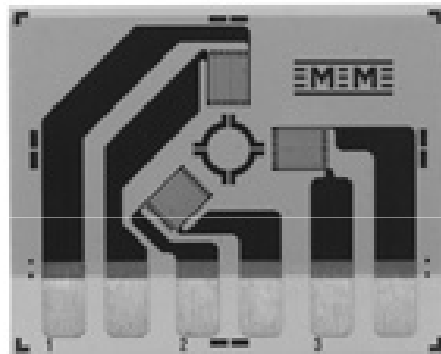


# Rosette Pattern Completed as of Nov 17





**Rosettes:  
Before (on Right)  
and  
After (on Left)  
Center Hole is Drilled**



**Definition of gage  
element 1, 2, and 3**

↑      ↑      ↑  
**3      2      1**

**Element number: 3**

**2**

**1**



**P-3500 Strain Gage  
Amplifier (Left)  
SB-10 Ten-Channel Switch  
and Balance Unit (Right)**

### Homework Assignment 4

- a. Calculate principal residual stresses and orientation of principal coordinate system at all available rosette positions, based on through-hole measurement. Report results both in tabular form and as a plot
- b. Calculate residual stresses through the thickness of the plate, using the blind-hole method and data collected using the center rosette (only). Report results both in tabular form and as a plot