Paper Column Demonstration

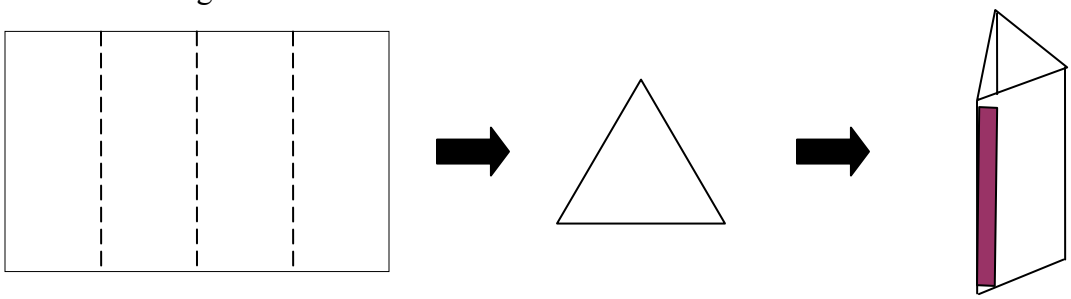
This is a quick, low-tech demonstration of local buckling in compression members.

You'll need:

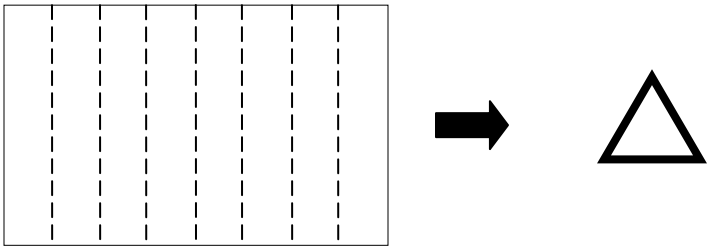
1. 20 lb. 8-1/2" x 11" paper (2 sheets per group of students (2 -3 students))
2. 67 lb. (or heavier) 8-1/2" x 11" cardstock (1 sheet per group of students)
3. scotch tape (1 roll per group of students)
4. AISC manuals (1 per group) – this demonstration has been tested with the 13th edition.

Ask the students to:

- Take 1 sheet of the 20 lb. paper and fold it into quarters as shown. Fold into a triangular cross section and tape the overlapping edge. Be sure to tape along the entire height of the column.



- Take another sheet of the 20 lb. paper and fold it into 8 equal sections. Fold into another, smaller triangular cross section and tape the edge.



- **Predict** – which column will successfully hold the load (the AISC manual)? Which one will fail, and how?
- **Load** the smaller column with the AISC manual. What happens? (Note: Hold the manual at the top of the column and slowly release the manual to load the column. Be sure to load concentrically!)
- **Load** the larger column with the AISC manual. What happens? (Note: Hold the manual at the top of the column and slowly release the manual to load the column. Do not let go of the manual. Otherwise, it may be difficult to observe the column behavior. Be sure to load concentrically!)
- **Comment** on the behavior of each column. **Compare** shape, area, widths and thicknesses of the sides.
- Now, take 1 sheet of the 67 lb. paper and fold into quarters. Fold into a triangular cross section and tape the edge.
- **Load** the column with the AISC manual. What happens?
- **Comment** on the b/t ratio of this column as compared to the first column and its response to the loading.

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