OBJECTIVE: To determine the mechanical properties of various simply supported wood members under center point loading.

EQUIPMENT: Load test frame, load actuator, LVDTs, scale, moisture meter.

PROCEDURES:

1. Record the dimensions, mass, moisture content, % summerwood, % sapwood, rings/inch, and slope of grain for each wood specimen.

2. Place the composite member in the load frame with the load actuator centered on the supports. Position the LVDTs on either side of the specimen. Record the distance between supports and zero all readings.

3. Apply the center point load slowly onto the member and record the load and deflection of the member for every 100 pounds of loading. Continue loading until a total load of 2,000 pounds is attained.

4. Place the select structural dimension lumber specimen in the load frame with the long side horizontal and the load actuator centered on the supports. Position the LVDTs on either side of the specimen. Record the distance between supports and zero all readings.

5. Apply the center point load slowly onto the member and record the load and deflection of the member for every 100 pounds of loading. Continue loading until a total load of 1,000 pounds is attained.

6. Place the select structural dimension lumber specimen in the load frame with the short side horizontal and the load actuator centered on the supports. Position the LVDTs on either side of the specimen. Record the distance between supports and zero all readings.

7. Apply the center point load slowly onto the member and record the load and deflection of the member for every 100 pounds of loading. Continue loading until failure of the specimen.

8. Repeat steps 4 - 7 for the stud grade dimension lumber specimen.
CEEN 043 - Behavior & Properties of Engineering Materials  
Laboratory Experiment No. 7 - Static Bending of Wood

REPORT:

1. Use the measurement data to determine the specific gravity of each wood specimen and the moment of inertia for each test specimen based on the specimen orientation during testing.

2. Use the load/deflection data to determine a representative modulus of elasticity for each wood specimen.

3. Use the ultimate load of each test specimen loaded to failure to determine the modulus of rupture of the test specimen.

4. Comment on the differences in mechanical properties of the select structural and common stud specimens.

5. Determine the required depth of a 2 in nominal solid sawn select structural member to produce the same deflection response as the composite member.
<table>
<thead>
<tr>
<th>Specimen</th>
<th>Mass, g</th>
<th>Length, in</th>
<th>Width, in</th>
<th>Depth, in</th>
<th>M.C.</th>
<th>Rings/in</th>
<th>% Summerwood</th>
<th>% Sapwood</th>
<th>Slope of Grain, in/in</th>
<th>Span Length, inch</th>
<th>(Load, lb)</th>
<th>Center Span Deflection, inch</th>
<th>Failure Load, lb</th>
</tr>
</thead>
</table>