

PROJECT MISSION

To produce a sustainable design of an office bookcase with minimal material while minimizing its impact on the environment.

PROJECT GOALS

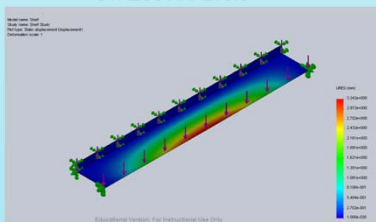
- Research Design Elements:
 - materials
 - configuration
 - functionality
- Design in ©SolidWorks
- Develop Written Report
- Power Point Presentation
- Poster Presentation

PROJECT PLAN

1. Produce Parts (22 total)
2. Assemble Parts
3. Run Stress Analysis on Shelves
4. Determine if results of stress analysis results are suitable for end product.

PROJECT EVALUATION

STRESS ANALYSIS



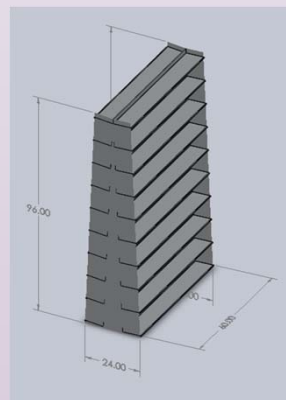
POSSIBLE SOLUTIONS

In researching our design we agreed that these factors needed to be addressed :

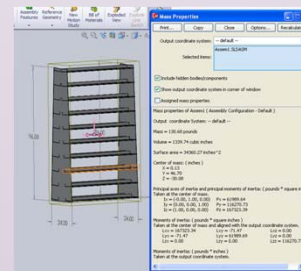
- a) Maximum Strength
- b) Minimal Material
- c) Optimal Book Volume
- d) 'Green' Friendly
- e) Reasonable Cost
- f) Aesthetically Pleasing
- g) Functionality
- h) Multi-purpose utilization

FINAL SOLUTION

Capacity = 980 books
 1060 Aluminum Sheet Metal
 AISI 1020 Steel, Cold Rolled
 Tilted Shelf Design



Final Dimensions



Center of Mass (Centroid)

LESSONS LEARNED

- 1) Due to time constraint, try to keep your design elements simple.
- 2) Metal work requires more time, material knowledge and technical expertise.
- 3) Individuals in groups exhibit different levels of strength and knowledge.

TAKE AWAYS

1. Time and effort necessary to complete task
2. Understood design process and its tools and feel comfortable with the ability to teach in the high school arena.
3. Less confidence using and teaching SolidWorks independently.

John Bacon – Ashland Public Schools
Mark Casto – Amesbury Public Schools
Dan Hogan – Littleton Public Schools
Joel Rubin – Stoughton Public Schools