PROBLEM

For over a century, industrial casters have been manufactured using the same rigid technology – hard tooling. “Customization is a fact of life” but it is disruptive and delays deliveries. The current caster manufacturing methods create lead times of as long as eight weeks for custom orders! Customers want their orders fulfilled in the least amount of time possible.

With this in mind, our solution was to design a caster and manufacturing process that would reduce the lead times on custom orders to two to three days.

ACCOMPLISHMENTS

- Conceived and refined caster designs approved by Colson
- Created prototypes based on original and refined caster concepts
- Designed a flexible process that eliminates the need for hard tooling, thus significantly reducing inventory and other costs
- Created appropriate cost model based on new business model, with accommodations for direct costs
- Identified two possible locations for the proposed factory site (compared Illinois to present site in Arkansas)
- Drafted designs for the facility with accommodations for expansion

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FUTURE WORK

- Modify cost model to maximise Return on Investment
- Modify schematic to accommodate more caster families
- Liaise with Colson’s marketing department to contact potential customers to find out their interest in custom casters
REAL ESTATE ANALYSIS

Average Building Cost per SF:
Lower Half SF. Cost = $ 41.50
Median SF. Cost = $ 55.50
Upper SF. Cost = $ 74.50

Median Building Estimate:
16,200 SF. x $ 55.50 = $ 899,100.00

Mean Spec. Building Size:
25,000 SF.

Size Modifier:
0.648

Cost Modifier:
1.05 (source: Building Construction Cost Data 2006)

Location Factor:
Little Rock, AR = 81.2
Fayetteville, AR = 71.6
All Average = 75.1
Chicago, IL = 111.6

Final Estimated Building Cost:
Little Rock, AR = $ 766,572.66
Fayetteville, AR = $ 677,831.40

AR Average = $ 708,985.31
Chicago, IL Average = $ 1,053,565.38

TOTAL BUILDING SQUARE FOOTAGE
16,200 SF.

BUILDING TYPE
Manufacturing and Office

FLOOR PLAN

REVENUE PROJECTION

Assumptions:
No. of units manufactured per year: 4,600
No. of units manufactured per year, 5.336

Base Costs:
Estimated manufacturing cost per unit:
Total cost for production (Labor) = $ 15,111
Total cost for production (Equipment) = $ 302,000
Total cost for production (Transportation) = $ 32,775
Total cost for production (Sales) = $ 4,205
Total year 1 overhead cost = $ 7,520

Year 1 Data:

Amortization Schedule

Initial Capital Expenditure

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>$796,000</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>$250,000</td>
</tr>
<tr>
<td>Total</td>
<td>$1,046,000</td>
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Net Income Projections

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROI</td>
<td>36.5%</td>
<td>48.1%</td>
<td>72.1%</td>
<td>134.1%</td>
</tr>
<tr>
<td>Net Income</td>
<td>$1,046,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PROJECT SPONSORS

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