Key Take-Aways:
1. Simulation reinforced behavior can change when knowing how much components & systems cost
2. Let the budget inform design... today we do it backwards
3. Continuous estimating is key, but is really hard and very few do it well. OPPORTUNITY TO IMPROVE!!!
4. Simulations are fun!!
# Austin Community of Practice

## 2017 Calendar of Events

**January**
- Kick-off Happy Hour  
  *Yard House at Domain Northside*

**February**
- Continuous Improvement with Kaizen  
  *Tuesday, February 21 – Lunch event*

**Early April**
- Intro to Lean Workshop  
  *Aaron Pitt & Bernita Balsamo*  
  *April 6th – All day event*
  *Texas Hospital Association*

**Late April**
- The Business Case for Lean  
  *John Pemberton, LG*  
  *April 27th – Lunch event*  
  *Galvanize*

**May**
- Target Value Design  
  *Felipe Hernandez, Beck Architecture*  
  *May 25th – Lunch event*

**June**
- Lean Coffee  
  *June 20*  
  *ABC Office*

**July**
- Break, Mid-Year Check-in with CoP

**August**
- Happy Hour  
  *Date/Location TBD*

**September**
- Pull Planning Workshop  
  *Christian Pikel, The ReAlignent Group*  
  *September 20 – Full Day Event*  
  *THA, 1108 Lavaca*

**October**
- Lean Coffee – Congress Recap  
  *Date/Location TBD*

**November**
- Learnings – Success & Failures  
  *CoP Members on a Panel*  
  *Date TBD*  
  *Location TBD*

**December**
- Break / 2018 CoP Planning
Austin Community of Practice
Presents

Target Value Design

Presenters: Felipe Hernandez & Matt Dungan
Target Value Design Foundational Practices

- Engage Deeply with the Client to Establish the Target-Value
- Lead the design effort for learning and innovation
- Design to a Detailed Estimate
- Collaboratively plan and re-plan the project
- Concurrently design the product and the process in design sets.
- Design and detail in the sequence of the customer who will use it
- Work in small and diverse groups
- Work in a Big Room
- Conduct Retrospectives Throughout the Process
# Target Value Design

## Foundational Practices

<table>
<thead>
<tr>
<th>TVD</th>
<th>Current Design Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Based on Detailed Estimate</td>
<td>Estimate Based on a Detailed Design</td>
</tr>
<tr>
<td>Design for What is Constructible</td>
<td>Evaluate the Constructability of Design</td>
</tr>
<tr>
<td>Design to Decisions / Set Based Design</td>
<td>Design in a Silo</td>
</tr>
<tr>
<td>Continuous Estimation</td>
<td>Estimating at Milestones</td>
</tr>
<tr>
<td>Work in Pairs, Groups, Face to Face, Co-locate</td>
<td>Work Alone in Separate Cubes</td>
</tr>
</tbody>
</table>
Design – Bid – Build Delivery Method

- Pre-Construction Services
  - Owner
  - Architect Hired
  - Engineers Hired

- Construction
  - CM/GC Hired
  - Major Trades Hired

Understanding

MHA - McDonough Holland & Allen PC
Target Value Design - IPD Delivery Method

- Owner
- Architect Hired
- CM/GC Hired
- Engineers Hired
- Major Trades Hired

Common Understanding

Pre-Construction Services

Construction

Time

Valid. Concept Design Implementation
Target Value Design Timeline

Chronology of a Lean Project
**Target Value Design**

*Establish Target Cost*

---

### Current Cost vs. Target Cost

<table>
<thead>
<tr>
<th>Building</th>
<th>System 1</th>
<th>System 2</th>
<th>System 3</th>
<th>System 4</th>
<th>System 5</th>
<th>Target Cost Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Cost</strong></td>
<td>Current Cost</td>
<td>Current Cost</td>
<td>Current Cost</td>
<td>Current Cost</td>
<td>Current Cost</td>
<td>Current Cost</td>
</tr>
</tbody>
</table>

**From design options to TVD clusters:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical &amp; Plumbing (17%)</td>
<td>$1,700,000</td>
</tr>
<tr>
<td>Electrical (14%)</td>
<td>$1,400,000</td>
</tr>
<tr>
<td>Foundation/Structure (12%)</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Envelope including roof (20%)</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Hardscape, Landscape (10%)</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Framing &amp; Drywall, Millwork (12%)</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Interior Finishes (flooring, fixtures, furniture) (10%)</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Contingency (5%)</td>
<td>$500,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$10,000,000</td>
</tr>
</tbody>
</table>
Figure 4  Target value design process scheme
<table>
<thead>
<tr>
<th>Category</th>
<th>Funding</th>
<th>Current</th>
<th>Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Fees</td>
<td>420,000</td>
<td>370,000</td>
<td>50,000</td>
</tr>
<tr>
<td>E, F &amp; E</td>
<td>2,145,195</td>
<td>134,354</td>
<td>910,841</td>
</tr>
<tr>
<td>I. S.</td>
<td>656,157</td>
<td>81,012</td>
<td>14,707</td>
</tr>
<tr>
<td>Permit</td>
<td>15,000</td>
<td>99,707</td>
<td>74,707</td>
</tr>
<tr>
<td>Testing</td>
<td>349,550</td>
<td>11,817</td>
<td>1,129</td>
</tr>
<tr>
<td>Land</td>
<td>2,353,200</td>
<td>1,904,800</td>
<td>-448,400</td>
</tr>
<tr>
<td>Construction</td>
<td>3,408,500</td>
<td>340,900</td>
<td>-3,067,600</td>
</tr>
<tr>
<td>Site</td>
<td>79,990,750</td>
<td>63,195</td>
<td>-16,795</td>
</tr>
<tr>
<td>Landscaping</td>
<td>40,007</td>
<td>19,243</td>
<td>20,764</td>
</tr>
<tr>
<td>Concrete</td>
<td>134,935</td>
<td>49,113</td>
<td>85,822</td>
</tr>
<tr>
<td>Masonry</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Structure</td>
<td>104,052</td>
<td>45,890</td>
<td>58,162</td>
</tr>
<tr>
<td>Roof Carp</td>
<td>13,634</td>
<td>9,391</td>
<td>4,243</td>
</tr>
</tbody>
</table>

**Target Value Design**

**Tracking Target Cost**
Let's play a game!

Instructions

Owner’s Design Request:

• The Owner wants to design and build a tower that is 2’-0” tall which is capable of holding a marshmallow at the top and that is no more than 2” out-of-plumb. The tower must be constructed with supplied materials and must be free standing. (i.e. cannot be taped to a table).

▪ Materials Required
  – Masking Tape
  – Bamboo Skewers
  – Drinking Straws
  – Uncooked Spaghetti
  – Coffee Stirrers
  – Marshmallows
This round is played in DBB format. Owners, Designers, and Pre-Con/Constructors are in separate areas.

The design process, approval process and construction process should mimic real life.

Designers should design a tower using supplied design sheet, obtain approval from the Owner team and deliver to the Constructors to construct.
Construction Tower – 30 mins.

REGISTER NOW!

LEAN IN DESIGN FORUM
MAY 31-JUNE 1 • CHICAGO, IL

WYNDHAM GRAND CHICAGO RIVERFRONT
71 East Wacker Drive | Chicago, Illinois 60601

LEARN MORE: leanconstruction.org/events/2017-design-forum
When construction is complete calculate the cost of your tower using specified unit costs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit cost</th>
<th>Number of units</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaghetti sticks</td>
<td>$1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee stirrers</td>
<td>$5.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking straws</td>
<td>$2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bamboo skewers</td>
<td>$3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masking tape (per joint)</td>
<td>$0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit (10%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Cost:
This time Owners, Designers, and Constructors work collaboratively at the same table as one team.

Design knowing the cost of materials.

Design to meet Allowable Cost, see if you can reach Target Cost. Redesign if needed.
Construction Tower – 30 mins.

Capture and Leverage the Lean Advantage

19th LCI Congress
October 16-20 • Anaheim, CA

Learn More: lci congress.org/2017
When construction is complete calculate the cost of your tower using specified unit costs.

---

### Round 2 - Costing Sheet

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit cost</th>
<th>Number of units</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaghetti sticks</td>
<td>$1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee stirrers</td>
<td>$5.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking straws</td>
<td>$2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bamboo skewers</td>
<td>$3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masking tape (per joint)</td>
<td>$0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit (10%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cost:**
Reference Page