

## CASE STUDY

If the InHouse OutHouse (or OutHouse, for short) is to be successful as a concept, it must also be successful as a business. Setting aside any marketing coups that might cause consumers to value it dramatically beyond its cost (possible, though highly unlikely), the OutHouse will be bound by the same laws of economics as any other product or service, namely that the least expensive comparable option is the most desirable to the consumer.

This case study will offer a detailed look at the end consumer cost of the OutHouse compared to a site-built analog. As will become abundantly clear in the paragraphs below, the OutHouse built one-at-a-time (as evidenced by the initial prototype) is **not viable**; thankfully, it does not aspire to be viable as a one-off. Its true promise comes when it can be produced in dozens, or dozens of dozens. It is this mass produced model that will serve as the basis for analysis.

The OutHouse does not propose to dramatically reinvent the systems of construction, only their coordination and delivery. As such, both the OutHouse and its site-built analog are completely identical: both have framing, pipes and copper wiring; both have cabinets and drywall; both have fixtures and equipment; and both require professional involvement. Put another way, both have costs associated with materials and both require human labor to assemble. In each of these categories, OutHouse holds a key advantage:

- In a controlled factory setting, OutHouse can realize **labor savings** through two vehicles: first, careful coordination of tasks (and their required inputs) can reduce downtime; second, with the entire production team working directly for one entity, “middleman markups” can be eliminated (in the current system, skilled trades are executed by a sub-contractor for a contractor for the client; in other words, the client pays two overheads and two profit margins for each trade).
- At any scale of production, OutHouse has the ability to procure materials in greater quantity than any one-off project; as such **material savings** can be realized, even when these materials are exactly the same as a site-built analog. The greater the scale of production, the greater the savings.

The OutHouse, however, has several disadvantages. First, the benefits the factory brings are not free; maintaining an assembly facility with a modest level of automation and a sufficient stock of component inventory burdens each OutHouse produced with an inherent **factory overhead** cost. Second, the **cost of transport** from factory to site must be considered for each OutHouse. As such, the formula for OutHouse’s economic success is quite simple:

$$\text{labor savings} + \text{material savings} - \text{factory overhead} > \text{cost of transport}$$

Given this formula, we can begin to determine the threshold at which the OutHouse provides the consumer a viable alternative to site-built renovation (and at the same time providing its purveyors a viable economic model).

As an initial point of departure, let us first consider the estimated costs associated with a site-built analog identical to the OutHouse. We start here because we can leverage the collective experience of the existing remodeling industry to provide a detailed and accurate cost estimate based only on drawings and specifications. The cost estimate below was graciously provided by an experienced Houston-based contractor. Note that the *Fixtures + Appliances* category does not include installation; these costs are lumped into the *Plumbing* and *Electrical* categories.

| Item                  | Materials Cost     | Total Labor Cost  | Total Cost         |
|-----------------------|--------------------|-------------------|--------------------|
| Framing               | \$700.00           | \$800.00          | \$1,500.00         |
| Plumbing              | \$800.00           | \$1,200.00        | \$2,000.00         |
| Electrical            | \$800.00           | \$1,200.00        | \$2,000.00         |
| Mechanical            | \$3,500.00         | \$1,250.00        | \$4,750.00         |
| Insulation            | \$650.00           | \$200.00          | \$850.00           |
| Siding                | \$250.00           | \$600.00          | \$850.00           |
| Window                | \$150.00           | \$100.00          | \$250.00           |
| Gypsum Board          | \$200.00           | \$800.00          | \$1,000.00         |
| Paint                 | \$250.00           | \$600.00          | \$850.00           |
| Tile                  | \$450.00           | \$400.00          | \$850.00           |
| Door and trim         | \$700.00           | \$300.00          | \$1,000.00         |
| Cabinets and counter  | \$1,200.00         | \$800.00          | \$2,000.00         |
| Fixtures + Appliances | \$8,000.00         | \$0.00            | \$8,000.00         |
|                       |                    |                   |                    |
| <b>TOTALS</b>         | <b>\$17,650.00</b> | <b>\$8,250.00</b> | <b>\$25,900.00</b> |

Now, we can extrapolate these figures to the production and installation of an OutHouse, under the following assumptions: materials used are identical and baseline total labor (both in terms of cost and time) are equal, with some hours allocated to the factory and some hours allocated to the site. To convert from labor cost to labor hours, a rate of \$25/hour is used (this assumes the worker is paid roughly \$16/hour, with an additional \$9/hour to cover benefits, workers' compensation, etc.). The ratio of factory hours to on-site hours is derived from the construction of the OutHouse prototype; the actual hours necessary to complete the prototype are not used in this comparison for reasons explained in the ensuing section.

| <b>Item</b>          | <b>Analog<br/>On-Site Hours</b> | <b>OutHouse Baseline<br/>Factory Hours</b> | <b>OutHouse<br/>On-Site Hours</b> |
|----------------------|---------------------------------|--|-----------------------------------|
| Framing              | 32                              | 16   | 16                                |
| Plumbing             | 48                              | 44   | 4                                 |
| Electrical           | 48                              | 44   | 4                                 |
| Mechanical           | 50                              | 46   | 4                                 |
| Insulation           | 8                               | 8  | 0                                 |
| Siding               | 24                              | 0  | 24                                |
| Window               | 4                               | 4  | 0                                 |
| Gypsum Board         | 32                              | 24   | 8                                 |
| Paint                | 24                              | 20   | 4                                 |
| Tile                 | 16                              | 16   | 0                                 |
| Door and trim        | 12                              | 0  | 12                                |
| Cabinets and counter | 32                              | 32   | 0                                 |
|                      |                                 |  |                                   |
| <b>TOTALS</b>        | <b>330</b>                      | <b>254</b>                                 | <b>76</b>                         |

Based on this table, one of the OutHouse's greatest advantages becomes clear: it dramatically reduces the amount of time spent on-site. Assuming a typical two-person construction crew (16 billable hours per day) with no delays for weather, inspection, material backorder, etc., a site-built analog takes 20.625 work days, or over **four weeks**. Alternatively, the same crew is able to complete the on-site installation of the OutHouse in 4.75 days, or **less than one week**. This represents a 77% decrease in the amount of time spent on-site, which means the OutHouse's new owner spends 77% less without at kitchen or a bathroom. While this time savings alone would be enough to convince some consumers of the OutHouse's viability, even more would be convinced if the OutHouse could also offer financial savings.

The biggest potential for savings lies in the OutHouse's potential to optimize human labor in the factory. By employing computer controlled fabrication techniques, even at a modest scale, precision and accuracy can be built into the parts and components, allowing them to be rapidly assembled. With this mind, and based on existing industry models, it is not unreasonable to expect a 50% reduction from the baseline factory hours shown above. In this light, collective tasks that would have taken 254 hours on-site take only 127 hours in the factory. Using the same labor rate described above (\$25/hour), these 127 saved hours equate to \$3,175 of savings in the production of the OutHouse.

These savings, however, come at a cost. While some can be attributed to careful choreography of labor, some come as a result of modest digital automation (namely the computer controlled fabrication of the structural frame, which not only facilitates its assembly but also provides all the necessary cut-outs for each trade to quickly install their systems) and the climate controlled assembly facility. Industry research indicates that facilities-related overhead would equate to roughly 20% of total labor cost, or \$635.00 per unit. As such, the total labor savings realized on the OutHouse would be \$2,540.00.

Let us also consider material savings made possible through mass-producing the OutHouse. Unlike the site-built analog, whose materials would most likely be purchased from a wholesaler (or at greater cost, from a retailer), the OutHouse could purchase directly from a distributor at substantial savings. The table below shows typical wholesaler sales margins for each category of materials, and the resulting savings realized by the OutHouse.

| Item                  | Wholesale Materials Cost | Typical Wholesale Margin | Distributor Materials Cost | OutHouse Savings  |
|-----------------------|--------------------------|--------------------------|----------------------------|-------------------|
| Framing               | \$700.00                 | 15.00%                   | \$595.00                   | \$105.00          |
| Plumbing              | \$800.00                 | 15.00%                   | \$680.00                   | \$150.00          |
| Electrical            | \$800.00                 | 15.00%                   | \$680.00                   | \$150.00          |
| Mechanical            | \$3,500.00               | 15.00%                   | \$2,975.00                 | \$592.50          |
| Insulation            | \$650.00                 | 15.00%                   | \$552.50                   | \$97.50           |
| Siding                | \$250.00                 | 25.00%                   | \$187.50                   | \$62.50           |
| Window                | \$150.00                 | 25.00%                   | \$112.50                   | \$37.50           |
| Gypsum Board          | \$200.00                 | 15.00%                   | \$170.00                   | \$30.00           |
| Paint                 | \$250.00                 | 25.00%                   | \$187.50                   | \$62.50           |
| Tile                  | \$450.00                 | 25.00%                   | \$337.50                   | \$112.50          |
| Door and trim         | \$700.00                 | 25.00%                   | \$525.00                   | \$175.00          |
| Cabinets and counter  | \$1,200.00               | 25.00%                   | \$900.00                   | \$300.00          |
| Fixtures + Appliances | \$8,000.00               | 25.00%                   | \$6,000.00                 | \$2,000.00        |
|                       |                          |                          |                            |                   |
| <b>TOTALS</b>         | <b>\$17,650.00</b>       |                          | <b>\$13,902.50</b>         | <b>\$3,747.50</b> |

One consequence of purchasing directly from a distributor is that inventory must be kept in the factory; this inventory carrying cost is one component of factory overhead. Based on data from across the manufacturing industry, each OutHouse produced can be burdened with a carrying cost equivalent to 10% of its total material costs (or \$1,390.25). As such, the OutHouse realizes a total material savings of \$2,357.25, a reduction of 13.5%.

The total combined material savings and labor savings, after the deduction of associated factory overhead, equates to \$4,897.25 per unit. A reasonable estimate for regional transport and delivery of the OutHouse is \$2,200 per unit (which include the cost associated with a truck-

mounted forklift for positioning on-site). As such, the total financial savings realized in the mass production of the OutHouse is **\$2,697.25**.

It is important to emphasize that this figure is a projection based on industry “rules-of-thumb” gathered from conversations with those in the manufacturing and construction fields. It is also important to emphasize the the initial OutHouse prototype came nowhere close to achieving these savings, not in terms of material cost and not in terms of labor. As much as anything, the exercise undertaken above provides a long-term goal for the precise coordination necessary to make OutHouse a success.

We will now look at material cost by category for the OutHouse prototype. In the table below, the estimated material cost for a site-built analog is used as the baseline.

| Category              | Total Cost         | Baseline           | Change         |
|-----------------------|--------------------|--------------------|----------------|
| Framing               | \$1,221.13         | \$700.00           | +74.45%        |
| Plumbing              | see below          |                    |                |
| Electrical            | see below          |                    |                |
| Mechanical            | see below          |                    |                |
| Insulation            | \$218.00           | \$650.00           | -66.46         |
| Siding                | \$581.00           | \$250.00           | +132.40%       |
| Windows               | \$291.00           | \$150.00           | +94.00%        |
| Gypsum Board          | \$206.00           | \$200.00           | +3.00%         |
| Paint                 | \$276.00           | \$250.00           | +10.40%        |
| Tile                  | \$501.00           | \$450.00           | +11.33%        |
| Door and trim         | \$585.00           | \$700.00           | -16.43%        |
| Cabinets and counter  | \$2,724.86         | \$1,200.00         | +127.07%       |
| Fixtures + Appliances | \$7,795.41         | \$8,000.00         | -2.56%         |
| <b>TOTAL</b>          | <b>\$14,399.40</b> | <b>\$12,550.00</b> | <b>+14.74%</b> |

The table above demonstrates that the prototype’s total material expenditure was approximately 15% above the baseline. Let us take a closer look at two categories that are indicative of the overall challenges:

- In the *Framing* category, approximately \$300 was thrown away because of mis-cuts that had to be re-made. Additionally, it became apparent that the frame was over-structured and at times redundant; minimizing these redundancies will also cut material costs in future iterations.
- In the *Cabinets and counter* category, the overage resulted from using a higher level of finish than was initially specified. This highlights the impact that design-based choices have on material costs. This does not necessarily argue that high quality/high finish cannot exist in the OutHouse, only that they must be strategically deployed when bottom-line cost is a key concern of the end user.

There were also material costs for categories not present in the site-built analog, namely the costs associated with delivery:

| Category      | Total Cost        |
|---------------|-------------------|
| Delivery Tray | \$1,537.00        |
| Insertion     | \$711.00          |
| <b>TOTAL</b>  | <b>\$2,248.00</b> |

The *Delivery Tray* category includes all the steel used to construct the delivery tray as well as its cost of fabrication. This tray will be refined in future iterations (and will be given more sophistication to make insertion even easier); as a result its cost will be higher. Regardless, the delivery tray is reusable and is a one-time expense. Similarly, *Insertion* materials (like the hand winches, for example) are also reusable items.

Next we can look at costs associated with the trades. Estimated total cost for a site-built analog is used as the baseline for each trade:

| Trade        | Total Cost        | Baseline          | Change        |
|--------------|-------------------|-------------------|---------------|
| Plumbing     | \$2,000.00        | \$2,000.00        | 0.00%         |
| Electrical   | \$3,034.00        | \$2,000.00        | 51.70%        |
| Mechanical   | \$3,200.00        | \$4,750.00        | -32.63%       |
| <b>TOTAL</b> | <b>\$8,234.00</b> | <b>\$8,750.00</b> | <b>-5.90%</b> |

The same plumber who provided a bid as part of the estimate also carried out the work, which explains the equality between actual and baseline. The prototype incorporated LED lighting, which accounts for almost all of the the increase in electrical costs above baseline. As highlighted above, this net increase emphasizes how important material specifications will be in future iterations of the OutHouse.

Finally, we can consider the total labor invested in the prototype. Just as above, \$25/hour is used as the standard labor rate. Estimated labor cost for a site-built analog is used as the baseline for each category, with one caveat: twenty-five percent (25%) of the labor cost from each baseline category is reallocated to create a rough *Insertion* category against which to compare.

| Category              | Total Hours    | Labor Cost         | Baseline          | Change          |
|-----------------------|----------------|--------------------|-------------------|-----------------|
| Framing               | 216            | \$5,400.00         | \$600.00          | +800.00%        |
| Plumbing              | included above |                    |                   |                 |
| Electrical            | included above |                    |                   |                 |
| Mechanical            | included above |                    |                   |                 |
| Insulation            | 8              | \$200.00           | \$150.00          | +33.33%         |
| Siding                | 68             | \$1,700.00         | \$450.00          | +277.78%        |
| Windows               | 10             | \$250.00           | \$75.00           | +233.33%        |
| Gypsum Board          | 118            | \$2,950.00         | \$600.00          | +391.67%        |
| Paint                 | 50             | \$1,250.00         | \$450.00          | +177.78%        |
| Tile                  | 38             | \$950.00           | \$300.00          | +216.67%        |
| Door and trim         | 24             | \$600.00           | \$225.00          | +166.67%        |
| Cabinets and counter  | 68             | \$1,700.00         | \$600.00          | +183.33%        |
| Fixtures + Appliances | included above |                    |                   |                 |
|                       |                |                    |                   |                 |
| Delivery Tray         | included above |                    |                   |                 |
| Insertion             | 240            | \$6,000.00         | \$1,150.00        | +421.74%        |
|                       |                |                    |                   |                 |
| <b>TOTAL</b>          | <b>840</b>     | <b>\$21,000.00</b> | <b>\$4,600.00</b> | <b>+356.52%</b> |

This table makes it clear that reducing total labor is the single biggest area for improvement in future iterations of the OutHouse. The dramatic overages compared to the baseline can be attributed to the following:

- Assembly of the prototype was carried out almost entirely by amateurs with little to no experience in any of the categories. As such, a task that may have taken a professional little more than an hour to complete might have instead taken a day or more.
- Many tasks were done and re-done (and sometimes re-done again), sometimes because of the amateurism explained above, sometime because details imagined on paper did not properly resolve in reality.
- Although the ambition was to provide all the necessary cut-outs for mechanical, electrical, and plumbing in the CNC-cut stressed structural plywood system, many of the design assumptions proved incorrect. The process of correcting these mistakes was incredibly time consuming.
- While mechanisms to deal with a badly out-of-level existing floor were thoroughly considered and incorporated into the prototype (with great success), there was no

consideration given to interfacing with a badly out-of-plumb existing wall. A great deal of the time in the *Insertion* category was devoted to resolving this issue.

- While some materials were purchased with foresight, many others required special trips to local supply houses. Properly stocked supplies would easily reduce total labor.

Once all the figures are summed together, the total cost of the initial OutHouse prototype was **\$45,881.40**, or roughly 77% more than a site-built analog. Thankfully, it is commonplace and expected that the cost of a prototype dramatically exceed the cost of a full production unit. The exercise carried out above, as well as the detailed look at prototype expenditures, will guide future iterations of the OutHouse and ultimately inform its commercial success.



| Item   | Category              | Unit Price | Quantity | Unit   | Extended Price |
|--|-----------------------|------------|----------|--------|----------------|
| Plywood (3/4")   | Framing               | \$31.97    | 13       | sheet  | \$415.61       |
| Plywood (1/2")   | Framing               | \$22.47    | 16       | sheet  | \$359.52       |
| Header - House   | Framing               | \$10.00    | 10       | lnft   | \$100.00       |
| Header - Core  | Framing               | \$10.00    | 10       | lnft   | \$100.00       |
| 2x4s for Opening Framing                                   | Framing               | \$3.00     | 8        | each   | \$24.00        |
| 2x6s for Floor Framing                                     | Framing               | \$4.00     | 4        | each   | \$16.00        |
| Screws, Nails, Etc.  | Framing               | \$20.00    | 10       | box    | \$200.00       |
|  |                       |            |          |        |                |
| Insulation   | Insulation            | \$45.00    | 4        | bale   | \$180.00       |
| Foam   | Insulation            | \$4.00     | 8        | can    | \$32.00        |
|  |                       |            |          |        |                |
| Hardi-Panel  | Siding                | \$27.00    | 5        | sheet  | \$135.00       |
| Aluminum Angle   | Siding                | \$30.00    | 4        | each   | \$120.00       |
| Roof Cap   | Siding                | \$320.00   | 1        | each   | \$320.00       |
|  |                       |            |          |        |                |
| RAM 1' W X 4' 6" H tempered                                | Windows               | \$151.00   | 1        | each   | \$151.00       |
| RAM 1' W X 4' 6" H annealed                                | Windows               | \$134.00   | 1        | each   | \$134.00       |
|  |                       |            |          |        |                |
| Drywall  | Gypsum Board          | \$17.50    | 10       | sheet  | \$175.00       |
| Joint Compound   | Gypsum Board          | \$20.00    | 1        | bucket | \$20.00        |
| Drwall Tape  | Gypsum Board          | \$5.00     | 1        | roll   | \$5.00         |
|  |                       |            |          |        |                |
| Paint  | Paint                 | \$40.00    | 6        | gallon | \$240.00       |
| Polyurethane   | Paint                 | \$30.00    | 1        | gallon | \$30.00        |
|  |                       |            |          |        |                |
| Tile   | Tile                  | \$7.00     | 65       | sqft   | \$455.00       |
| Durock   | Tile                  | \$8.00     | 5        | sheet  | \$40.00        |
|  |                       |            |          |        |                |
| Aluminum Angle   | Door and trim         | \$3.00     | 90       | lnft   | \$270.00       |
| Polygal  | Door and trim         | \$4.00     | 60       | sqft   | \$240.00       |
| MDF for mechanical room panels                             | Door and trim         | \$23.00    | 3        | sheet  | \$69.00        |
|  |                       |            |          |        |                |
| 18" Base Cabinet / 3 Drawers                               | Cabinets and counter  | \$170.00   | 2        | each   | \$340.00       |
| 30" Oven Cabinet   | Cabinets and counter  | \$96.00    | 1        | each   | \$96.00        |
| 30" Sink Cabinet   | Cabinets and counter  | \$114.00   | 1        | each   | \$114.00       |
| 30" Base Cabinet / 4 Drawers                               | Cabinets and counter  | \$244.00   | 1        | each   | \$244.00       |
| 15" Base Cabinet / 4 Drawers                               | Cabinets and counter  | \$189.00   | 1        | each   | \$189.00       |
| 18" Wall Cabinet / H39-1/8"                                | Cabinets and counter  | \$71.00    | 3        | each   | \$213.00       |
| 30" Fan/Refrigerator Wall Cabinet / H24"                   | Cabinets and counter  | \$82.00    | 2        | each   | \$164.00       |
| 30" Fan/Refrigerator Wall Cabinet / H17-3/4"               | Cabinets and counter  | \$66.00    | 2        | each   | \$132.00       |
| 12" Wall Cabinet / H39-1/8"                                | Cabinets and counter  | \$60.00    | 1        | each   | \$60.00        |
| Cover Panel for Base Cabinet                               | Cabinets and counter  | \$23.00    | 2        | each   | \$46.00        |
| Cover Panel for Wall Cabinet H41-5/8"                      | Cabinets and counter  | \$40.00    | 1        | each   | \$40.00        |
| 3'x8' Cover Panel  | Cabinets and counter  | \$104.00   | 1        | each   | \$104.00       |
| Lagan Countertop / Beech (25-5/8 x 96-7/8)                 | Cabinets and counter  | \$59.00    | 6        | each   | \$354.00       |
| Klippig Door Pulls (White)                                 | Cabinets and counter  | \$4.99     | 14       | each   | \$69.86        |
| 31-1/2" Godmorgon Cabinet / 2 Drawers                      | Cabinets and counter  | \$199.00   | 1        | each   | \$199.00       |
| Sheet Mirror   | Cabinets and counter  | \$290.00   | 1        | each   | \$290.00       |
| Plywood  | Cabinets and counter  | \$32.00    | 2        | sheet  | \$64.00        |
|  |                       |            |          |        |                |
| Bradford White Tall 40 Gal. (18" Dia. x 60" Tall)          | Fixtures + Appliances | \$430.00   | 1        | each   | \$430.00       |
| Mirabelle Winterhaven Wall Hung                            | Fixtures + Appliances | \$500.00   | 1        | each   | \$500.00       |
| Gerberit In Wall Tank                                      | Fixtures + Appliances | \$456.00   | 1        | each   | \$456.00       |
| Gerberit Bolero Dual Flush Actuator Plate - White          | Fixtures + Appliances | \$105.60   | 1        | each   | \$105.60       |
| Mirabelle Self Rimming Bathroom Sink (31-1/2" / 3 Holes)   | Fixtures + Appliances | \$432.99   | 1        | each   | \$432.99       |
| Mirabelle "Edenton" High Bathroom Sink Faucet              | Fixtures + Appliances | \$342.29   | 1        | each   | \$342.29       |
| Mirabelle "Edenton" 60" Soaking Tub                        | Fixtures + Appliances | \$800.00   | 1        | each   | \$800.00       |
| Mirabelle "Edenton" Tub Spout                              | Fixtures + Appliances | \$69.84    | 1        | each   | \$69.84        |
| Mirabelle Shower Head                                      | Fixtures + Appliances | \$63.57    | 1        | each   | \$63.57        |
| Mirabelle "Edenton" Tub & Shower Faucet Trim Kit           | Fixtures + Appliances | \$348.31   | 1        | each   | \$348.31       |
| Mirabelle Tub & Shower Rough In Valve                      | Fixtures + Appliances | \$124.69   | 1        | each   | \$124.69       |
| Mirabelle MIRMLED1LGTCP "Edenton" 1 Bulb Wall Sconce       | Fixtures + Appliances | \$96.85    | 1        | each   | \$96.85        |
| ProFlo Single Bowl Sink                                    | Fixtures + Appliances | \$124.60   | 1        | each   | \$124.60       |
| Mirabelle "Ravenel" Pull-Out Spray Kitchen Faucet          | Fixtures + Appliances | \$397.67   | 1        | each   | \$397.67       |
| Summit FFBF Series of Apartment Sized Refrigerator-Freezer | Fixtures + Appliances | \$950.00   | 1        | each   | \$950.00       |
| Bosch 30" 300 Series Electric Cooktop                      | Fixtures + Appliances | \$699.00   | 1        | each   | \$699.00       |
| Bosch 30" Single Wall Oven 300 Series                      | Fixtures + Appliances | \$1,349.00 | 1        | each   | \$1,349.00     |

| Item   | Category              | Unit Price | Quantity | Unit   | Extended Price     |
|--|-----------------------|------------|----------|--------|--------------------|
| Bosch 30" Under Cabinet Ventilation 500 Series - Stainless Steel | Fixtures + Appliances | \$449.00   |          | 1 each | \$449.00           |
| Bathroom Exhaust Fan   | Fixtures + Appliances | \$50.00    |          | 1 each | \$50.00            |
| <b>TOTAL MATERIAL EXPENDITURES</b>                               |                       |            |          |        | <b>\$14,339.40</b> |
|  |                       |            |          |        |                    |
|  |                       |            |          |        |                    |
| Plumbing (Labor + Material)                                      | Plumbing              | \$2,000.00 |          | 1 each | \$2,000.00         |
| Electrical (Labor + Basic Material: CORE)                        | Electrical            | \$1,500.00 |          | 1 each | \$1,500.00         |
| LOOX LED 2015 Warm Strip Light                                   | Electrical            | \$220.00   |          | 3 each | \$660.00           |
| LOOX LED 2013/2015 Aluminum Track                                | Electrical            | \$48.00    |          | 1 each | \$48.00            |
| LOOX LED 2013/2015 Aluminum Track End Caps                       | Electrical            | \$4.00     |          | 1 each | \$4.00             |
| LOOX LED 2002 Warm Down Light                                    | Electrical            | \$36.00    |          | 5 each | \$180.00           |
| LOOX LED DRIVER 12 V (0.5 - 15 W)                                | Electrical            | \$36.00    |          | 3 each | \$108.00           |
| LOOX LED DRIVER 12 V (2.4 - 30 W)                                | Electrical            | \$60.00    |          | 4 each | \$240.00           |
| LOOX LED 2015 Driver Connection Cable (2m)                       | Electrical            | \$4.00     |          | 1 each | \$4.00             |
| LOOX LED Extension Leads (2m)                                    | Electrical            | \$8.00     |          | 5 each | \$40.00            |
| Electrical Devices   | Electrical            | \$250.00   |          | 1 lsum | \$250.00           |
| Mechanical (Labor + Material)                                    | Mechanical            | \$3,200.00 |          | 1 each | \$3,200.00         |
| <b>TOTAL TRADE EXPENDITURES</b>                                  |                       |            |          |        | <b>\$8,234.00</b>  |
|  |                       |            |          |        |                    |
|  |                       |            |          |        |                    |
| Steel C12 x 20.7 (Main Tracks)                                   | Delivery - Tray       | \$384.60   |          | 1 each | \$384.60           |
| Steel C5 x 6.7 (Cross Ties)                                      | Delivery - Tray       | \$188.00   |          | 1 each | \$188.00           |
| Steel C08 x 18.75 (Alignment Tracks)                             | Delivery - Tray       | \$308.40   |          | 1 each | \$308.40           |
| Steel L2.5 x 2.5 x 0.25 (Cross Ties and Mount Points)            | Delivery - Tray       | \$116.00   |          | 1 each | \$116.00           |
| Assembly Labor   | Delivery - Tray       | \$500.00   |          | 1 each | \$500.00           |
| Teflon Tape  | Delivery - Tray       | \$20.00    |          | 2 each | \$40.00            |
| Come-Along   | Delivery - Insertion  | \$43.00    |          | 2 each | \$86.00            |
| Hardware for Insertion (bolt, eyelets, etc)                      | Delivery - Insertion  | \$75.00    |          | 1 lsum | \$75.00            |
| Forklift Rental  | Delivery - Insertion  | \$550.00   |          | 1 each | \$550.00           |
| <b>TOTAL DELIVERY EXPENDITURES</b>                               |                       |            |          |        | <b>\$2,248.00</b>  |