Advanced BIM & Lean

LCI-UK Summit
29 October 2015
Strategic Definition

Preparation and Brief
'Chip' thinking

**CHIP:**
A set of interacting or interdependent components making up a 'chunk' of the supply chain.

**MODULE:**
A set of interacting or interdependent components providing a supporting function to the chips.

- COMMERCIAL
- PROCESS
- TECHNICAL
- HUMAN RESOURCES
- UTILITIES
- ARCHITECTURE
- CONSTRUCTION
Pharmaceutical chips

- Air Compression
- **Batch Mixing**
- Bulk Nitrogen Tank
- Blending
- Crystallisation
- Encapsulation
- Continuous Drying
- Fluid Bed Drying
- Spray Drying
- Continuous Granulation
- High Sheer Granulation
- Roller Compaction
- Sampling
- Sieving
- Product Inspection
- Microfluidic Emulsion
- Wet Bead Milling
- Solution Prep
- Solvent Handling
- Spray Drying
- Tablet Coating
- Tablet Compression
- Wash

### BATCH MIXING

<table>
<thead>
<tr>
<th>TECHNICAL DATA</th>
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<tbody>
<tr>
<td><strong>Equipment</strong></td>
</tr>
<tr>
<td>Batch mixer</td>
</tr>
<tr>
<td>Dust collection / extraction</td>
</tr>
<tr>
<td>Tanks</td>
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<tr>
<td>Portable tanks</td>
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<tr>
<td><strong>Discharge from small and bulk dispense</strong></td>
</tr>
<tr>
<td>Dimensions</td>
</tr>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
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<tr>
<td>Height</td>
</tr>
<tr>
<td>Area</td>
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<tr>
<td>Volume</td>
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<tr>
<td><strong>Electrical</strong></td>
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<tr>
<td>Power LV supply</td>
</tr>
<tr>
<td>Lighting</td>
</tr>
<tr>
<td><strong>HVAC</strong></td>
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<tr>
<td>Air change rate</td>
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<tr>
<td>Diversified cooling loads</td>
</tr>
<tr>
<td><strong>Process</strong></td>
</tr>
<tr>
<td>Plant steam</td>
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<tr>
<td>Compressed air 6-bar</td>
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<tr>
<td>Total process water</td>
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<tr>
<td>CIP total process water</td>
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<tr>
<td><strong>Domestic</strong></td>
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<tr>
<td>Total RAW water</td>
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</tbody>
</table>

*Caption: Chip capacity is an estimate.*

Mapping inc equipment, facility, M&E, revenue, IT, external works.
Excludes cost of land.
Excludes inflation.
Includes fees, etc. (est; assumptions)
Excludes import and local taxes / duties.
£18,240
(NHS grade D, newly qualified nurse, outside London)

x 20 years = 152m²
£2,400/m²
4
Technical Design

5
Construction
Components
- Trusses
- Columns
- Building Fabric
- Walls
- Ceilings
- Flooring
- Fixed furniture & equipment
- Furniture
- Architectural metalwork
- Security modules
- Waste modules
- Change modules
- Accessories

Interfaces
Interface library - connections between standard components
- Structural connections
- Envelope to structure
- Internal fit out to envelope / structure
- Walls to ceilings

Design tools
Sub-assemblies comprising standard components in common configurations

Packaging
All components with packaging for shipping
Truss Services Support Frame - Assembly Specification

**Generally:** Unistrut services support frame with connection brackets for mounting services inside trusses.

**Related drawings:** CO#TR-031

**Structural Support:** From truss top and bottom chords, max 1200 c/s.

**Nut & Bolt Fixings:** M8x50, Penny Washer & Nyloc Nut

**Installation:** This component will typically be preinstalled within the truss, however where fitting on site is required follow the instructions below.

**Assembly Instructions:**
1. Unpack CO#TR-031 for installation onto the truss.
2. Identify the correct location on the truss and lay CO#TR-031 on the floor next to it.
3. Remove bolts 1 and 2 from each of the mounting brackets, keep the bolts and lower bracket portions together.
4. Mount CO#TR-031 vertically in approximately the correct location of the truss top chord.
5. Reapply the lower bracket portions and loosely fit bolts 1 and 2 to each bracket.
6. Slide CO#TR-031 into its final position.
7. Tighten bolts 1 and 2 using a torque wrench to lock CO#TR-031 into position.
8. Once all services supports are in place (max 1200mm c/s), install ducts and pipes from above and connect to unistrut horizontal bar using steel straps & fixings. (EXPAND ON THIS)
6 Handover and Close Out

7 In Use
Questions

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