SCE - Innovative design of storage bins

#Think different
Square silo

- Optimum space utilisation
- Minimum dead-space
- Better Hygiene
- Easy division into smaller sections
- Self-Supporting Bin/Silo walls
- Seamless Connections
- Easy, Fast and Safe Assembly
- Easy Shipment

Typical Round silo storage lay-out design

40% more storage possible in square silos than round silos

Resulted in **Hygienic** and efficient building
50% productivity improvement possible during construction.

30% cost savings possible.

#Think best practices

SOURCE: McKinsey Global Institute analysis
50% productivity improvement possible during construction

<table>
<thead>
<tr>
<th>Implementation of best practices</th>
<th>Impact on productivity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation</td>
<td>8–9</td>
</tr>
<tr>
<td>Collaboration and contracting</td>
<td>8–9</td>
</tr>
<tr>
<td>Design and engineering</td>
<td>8–9</td>
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<tr>
<td>Procurement and supply-chain management</td>
<td>7–8</td>
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<tr>
<td>On-site execution</td>
<td>7–8</td>
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<tr>
<td>Technology</td>
<td>4–6</td>
</tr>
<tr>
<td>Capability building</td>
<td>4–6</td>
</tr>
<tr>
<td>Cumulative impact</td>
<td>27–38%</td>
</tr>
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</table>

Cost savings %

- First time right co-engineering & clear scope agreement. 6–7%
- Designed for easy assembly with precise pre-manufactured parts with a food safe result. 7–10%
- Lean manufacturing and just in time delivery. 3–5%
- Fastest assembly time in the industry and supported by dedicated project manager. 4–5%
- Early exchange of 3D design models to improve on-site execution. (BIM) 4–6%
- On-site hands-on training. 3–5%

27–38% cost savings possible

1 The impact numbers have been scaled down from a best case project number to reflect current levels of adoption and applicability across projects, based on respondents to the MGI Construction Productivity Survey who responded “agree” or “strongly agree” to the questions around implementation of the solutions.

2 Range reflects expected difference in impact between emerging and developed markets.

SOURCE: McKinsey Global Institute analysis
Traditional bulk storage building versus SCE solution

Total Installed Cost

Visible cost of a storage & process building
(=Delivered At Place contract price)

Invisible cost
(No pre-assembled parts)
(Larger building)
(Storage & Building not integrated)
(Maintenance & Cleaning Cost
(Separate silo lay-out design)

Faster Installation
(Pre-assembled parts)

Less civil work
(Smaller & lighter footprint)

Easier Project Management
(Integrated storage & building facility)

Self-cleaning silos
(Modular & integrated hygienic silos)

Save $ up to 30%
FLOUR MILL BY SCE – Building design
FLOUR MILLING - Specifics

Process specific requirements

- High level of hygiene needed
- Importance of FIFO in storage of the products
- Different products with different properties require different solutions:

Product specific requirements

<table>
<thead>
<tr>
<th>Product</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>Wheat tempering</td>
<td>Not so free flowing, need for FIFO</td>
</tr>
<tr>
<td>Bran</td>
<td>Sticky when compressed or humid need for decompression noses</td>
</tr>
<tr>
<td>Flour / Semolina</td>
<td>Avoid all slits that could contain product</td>
</tr>
<tr>
<td></td>
<td>Avoid condensation</td>
</tr>
<tr>
<td></td>
<td>Avoid product batches to mix</td>
</tr>
</tbody>
</table>
Silo walls for tempering, flour and bran bins

>> SMOOTH WALLS

- Self-cleaning, Twin skin panel prevents condensation
- No tension-rods
- Flour: vertical rounded corners inside the bin
- Bran: decompression noses to prevent bridging
Hopper design specifically for wheat, flour, bran

>> RIGHT CHOICE is essential TO ENSURE FIFO

- No dead corners
- Design according to product flowing properties:
  - Flour/ Bran: min. 70° all around
  - Daily/tempering bins: angle valley min. 50°
Butterfly hopper: SCE patent ensures optimal outflow

>> SAME ANGLE ALL AROUND AVOIDS FUNNEL FLOW
Bintops & Floors

>> HYGIENIC DESIGN

- Walkable neat surface – tear plate 5/7 mm
- Standard 2,50 kN/m²
- Customised options
  - Access hatch
  - Connection for filters
  - Filling hole
  - (Sunken) Connection for high level detection
  - Hand railing
  - ...

...
Excellent protection & hygiene for flour

WALLS AND HOPPERS ARE POWDER COATED

- Pre-painted silo system
- No sand blasting and painting at site
- High resistance: more protection than normal paint
- Allows better flow of the product
- Foodgrade – on demand
- Acc. to EN ISO 12944
- Free of solvents and heavy metals
- Environmental friendly paint system
Sandwich panels for optimal hygiene

**>> HORIZONTAL INSTALLATION**

- Attached directly to the bin columns to reduce dust
- Marginal space between bin wall and cladding (closed off at bin top level!)
- Smooth wall inside allows for fast cleaning and maintenance

Kickplate prevents dust falling down
The co-engineering with the machine supplier and SCE resulted in the most efficient footprint and installation of the feed mill.

HAWA CHICKEN - Lebanon
‘SCE, I thank you very much for the way you designed and installed our flour mill building. Everything came well prepared, well manufactured and well painted, so installation went very smooth.

Gaster Lule - Founder & Managing Director
“This flour mill building makes us unique in Eastern Africa. SCE promised us quality and that is exactly what they supplied.”

Mandela Millers
“SCE has been very effective during the project in interactions with all our feed mill stakeholders, including other suppliers involved”

Walter Figgemeier - MD - RLB Feed mill
Served Industries

Grain & oilseeds
- Flour Milling
- Rice Milling
- Seed Processing
- Malt/Brewers
- Grain Logistics

Feed
- Animal feed
- Pet food
- Aqua feed

Food
- Coffee
- Cocoa
- Bakery, Biscuits, Cereal, Noodle, Pasta, Malt

Others
- Granulates
- Fertilizers
- Orchid substrate
Projects around the globe

- Ask our references
- Belgium HQ
- Asia Office
Thanks!

ABOUT OUR SQUARE SILOS

- Optimum space utilisation
- Easy, fast and safe assembly
- Better hygiene

ABOUT US

- Personal approach
- +30 years of experience
- Greatest attention and care