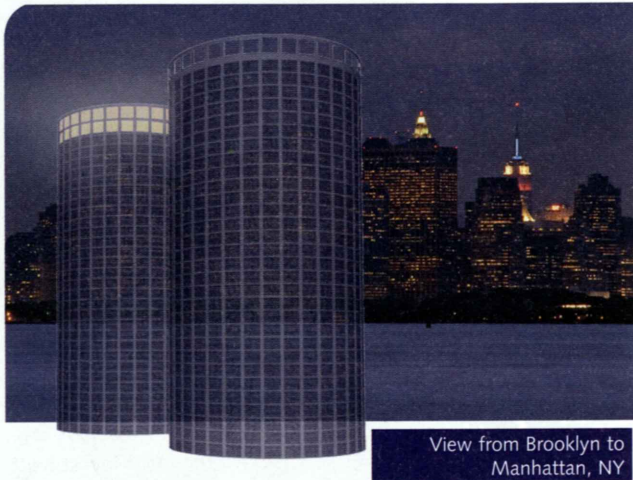


Silo design acceptance

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This article discusses the ways in which silos can be designed to achieve greater acceptance by local neighbourhoods where a silo is proposed, as well as public authorities which often have to give cement producers licenses/approval to enlarge their existing cement plant capacity with another silo.



View from Brooklyn to Manhattan, NY

A common story: a few years ago a cement plant was built outside a village. The village had developed well and had grown close to the cement plant. Environmental factors of the plant became increasingly important for the village, and the people who lived close to the plant were interested in future investment projects and any future increases in emission levels from the plant. Extension projects in such cases have to be handled very carefully. The following two cases show how this could happen.

Bush Terminal, Brooklyn NYC

The client will import cement to Pier 6 at the Bush terminal in Brooklyn, NYC. An investigation showed that drive-through-silos proved the best solution to store 2 x 25,000t of cement and distribute them. Investment and operation costs with this kind of terminal project were much lower than with a flat storage or dome solution. The problem at this site is that the port restriction says that the buildings on the pier should not be higher than 30m. However, a drive-through-silo solution requires a building height

of approximately 60m. It is obvious that only a solution which brings a benefit to everyone will be successful when negotiating with the port authority. For this reason, an architect was included in the team to see and explain things in another way. A 60m tall silo with its geometrical pure cylindrical shape is, in most cases, a foreign object to the surrounding area. Office or apartment buildings always get a (human) scale with the storey or the addition of the construction elements. It was thus decided to add a structure to the two silos in Brooklyn which reminds of the tall buildings at the south end of Manhattan at the other side of the Bay. In accordance with the technical decision on how to construct the silos (climb formwork) it was possible to lay a grid of horizontal stripes and vertical columns.

The space between was softly painted in different colours like the skin of a fish. From afar this screen gives the silos the impression of 'real' buildings. [Permit planning and port authority permits 2006].

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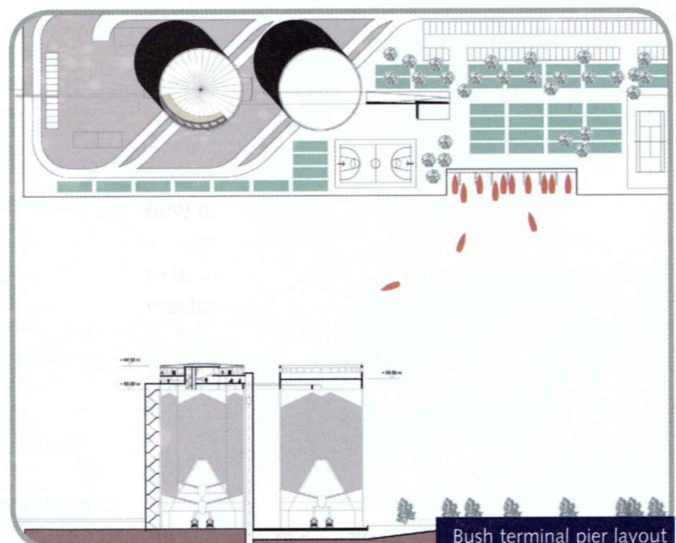
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A 60m tall silo with its geometrical

Multi-chamber cement silo, Jura Cement, Wildegg plant

Jura Cement Fabriken in Wildegg, Switzerland, needs a new cement silo to produce and store more types of cement and to compensate small older silos. The plant is located between a river and a village. The new silo must be placed over or next to the railroad because it will be the route used to deliver the cement. Transport of the cement for filling and extracting should be short, so the ideal place for this project is close to the mill building and near the railroad. The ideal location is on the south border of the plant opposite the village of Wildegg. The village has become located very close to the plant. The locals are tired of new projects being carried out around the plant because they are concerned of being exposed to higher emissions with each new extension project.

As such, it was clear very early on that a solution must be reached which benefits both parties. Thus, architect Thomas Wirz was asked to be part of the design team to introduce new ideas on the table.



Wildegg design: suggestions for public discussion



Wildegg design: silo shadow consideration for November 3 as an average winter day



As already mentioned, a cement silo near a residential area is always a kind of a landmark. Therefore, the design of the silo has to take some responsibility for the environment. For the multi-chamber cement silo in Wildegg, different key areas for a silo design were developed to discuss with the plant owner and the locals. Four different areas were identified and of course this doesn't include all possibilities. The areas were:

- materiality
- creation
- structure
- covering.

The intention is always to break down the huge volume of the silo in the perception, to give it a human scale, in order to connect it better to the surrounding areas.

Under the "materiality" section cement as material was focused on. Special treatments of the surface make the ordinary concrete precious. With the changing weather the surface of the silo gets a dynamic element. "Creation" is the most self-evident category; here paintings

for the silo design were used. All the suggested patterns and images deal with the cement plant and the special site of this place. Under "structure" the shape of the silo comes alive through the lights and shadows of the 3D-structure of the surface. Like the Bush terminal in Brooklyn the silo gets a human scale. "Covering" refers to using panels or grids to build a second 'skin' around the silo. This creates a lot of possibilities to work with artificial light, solar cells etc. For the rural site in Wildegg this category doesn't work so well.

The design of a silo can easily get a negative touch. It should not be used as a simple advertisement. The motive of the design should not be too "loud",

too aggressive, too funny etc. It is in place for several years and therefore it should be as ageless and self-evident as possible. For Wildegg a modest design was proposed, which takes into consideration the site and gives the people some identification.

Before the permit planning and decision for the silo "cover" was finished, the client invited locals and all others interested to discuss the proposed designs to find out which received the most acceptance. Therefore it was also important to show people – with different shadow diagrams – the impact a tall building of this nature has on the local environment. After some discussions about the design, the proposal with the vertical gravel trips was selected and finally taken into the permit planning stages. [Permit planning and government permit 2007].

Conclusion

Silos and storage buildings are large and important investments for the plant owners. In the overall environmental and company image view it makes sense to take a break and spending a moment to think about how to make your investment project nicer.

To design buildings in a nicer way is normally not a question of the money because the costs are between two and five per cent of the total investment costs of such a project.

Wildegg – final design for permit planning

