



Project submitted: SILOS CALCIA - 2017, March 31st

Project Information1

Please choose the category for your project: [**Industry including laboratory test**]

Name of Project [**SILOS CALCIA**]

Address [**rue Bruneseau**]

Country [**FRANCE**]

City [**PARIS**]

State - Postal Code [**FR-75013**]

Project Size (**Dimensions, Area, Span**)

- Two 37m high silos, holding 11 000m³ of cement in up to 6 different qualities,
- A new rail terminal (outside of our operation), allowing for two trains of about 10 wagons each, filled with cement,
- Compressors and pneumatic transport system needed to rise cement from the trains to the top of the main silos,
- 4 loading stations under the silos fitted with weighbridges,
- a large platform for large truck's specific gyrations,
- a 150m² office building, cantilevering onto the street, raised on large pillars,
- a 180m² quality control and testing center for UNIBETON, tucked in underneath the peripherique road,
- 70m² support spaces (mostly on ground aside the main silo), such as workshop, supply or locker room,

Concrete Quantity - Volume Area Tonnage [approximately 3500 m³ -Ciment Couvrot] in plus of Deep concrete foundations and reinforcement of first meter of soil by injection.

Concrete Work Duration [Silos : 2x 3 weeks in February 2013 and June 2013, other building:2013]

Date of Project Completion [**july 2014**]

Overall Project Description

[The project is located 5 meters away from Paris eastern ring road, at the end of Zac Rive Gauche's large development district. Urban studies conducted by Ateliers LION since 2000, as well as new Urban regulation (PLU) updated in 2010, have made room for a new Bruneseau Nord neighborhood. This project is characterized by high rise buildings and mixed programs where architecture and infrastructure meet. To allow for this new development, the city of Paris has asked CIMENTS CALCIA to give up their existing distribution center located near the Seine, and offered a new site closer to the existing rails out of Austerlitz station. SEMAPA undertook the building of this new project for CIMENTS CALCIA.]



Description

[The project, which transforms an industrial facility into an urban sculpture, is to be considered as the first step of a process to transform the new Bruneseau Nord site.

3 conditions were needed to make this building possible:

- the urban and political vision to extend the city to the East with a pedestrian link from Paris to Ivry.
- the desire to develop this forgotten industrial area, linked to the many existing networks and technical issues or urban rules.
- the presence of a contractor such as Vinci TPI, specialized in civil engineering structures was needed]*

Our answer was what it is now: first, the main silos had to be inserted in the one and only position that allowed for all existing flux and networks to work. Then the quality control center, because it had to rest on ground, was slid underneath the “peripherique”. The office building was set right on the property limit and high on pillars for trucks to come in below. The whole program could then be linked together by a vertical cylinder housing a stair and lift.

Concrete Description

Many techniques were used for construction

The project relies on many different uses of concrete. The main silos and the vertical tower were cast in slipform, a robust method to do this. The platform, rose by 2,5 cm per hour which took 3 weeks, day and night, in February, and 2 weeks in June 2013 to get to the top of each of the 37m silos, with an average of 15 workers constantly on deck.

The shells for the horizontal silos were prefabricated, then trucked-in, lifted, rolled and fitted in no more than 24 hours for each entity, then they are covered by resin layer in view to increase durability of element.

Polygonal windows

The opening on the shells had to be big enough to bring in light but small enough to keep the mass and the surface. The polygonal shape chosen for these openings was imagined as a form of abstraction of two different ideas: the shape of the stones that are used in making the concrete, or a mineral fragment or a broken rock as another. The making of the fixed polygonal aluminum windows was complex. The first issue was the geometry of the polygon meeting with the cylindrical shell - that was sorted with th offices 3D tools.

A sustainable project:

« Considering the new urban project, it was obvious that our existing plant had to be moved if we wanted to keep our activity running in Bruneseau, says Jerome Lestringant, general manager for



CIMENTS CALCIA's distribution centers in France. The catchment area of our existing center in Tolbiac was quite concentrated and dense: around 80% of our clients are within 30 km around the site. We obviously wanted to stay near them »

Stay as close as possible to the city center

The key quality for the existing plant in Tolbiac rests in its strategic position at the heart of the city. While 100% of the cement comes upstream by train, the last few kilometers made downstream by truck by our clients, is usually done in the opposite direction from main urban traffic directions. Moving the plant away from this position would have increase truck movements by 15 000 a year, in the direction identical to the already oversaturated general traffic.

Artistic intervention

A work of art, imagined by Laurent Grasso is currently being tested. It will give yet another dimension to this already atypical urban project.

Construction Team

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Postal Code []

Sponsoring Chapter: ACI Paris Chapter

Name of Chapter Contact (Name of the representative of the Sponsoring Chapter who invited the submitter to submit the entry)

[François Toutlemonde, president of ACI Paris Chapter]

Photo 1: [Aerial view - VIB architecture - ©Stephane CHALMEAU]



Photo 2: [Cross section - VIB architecture]

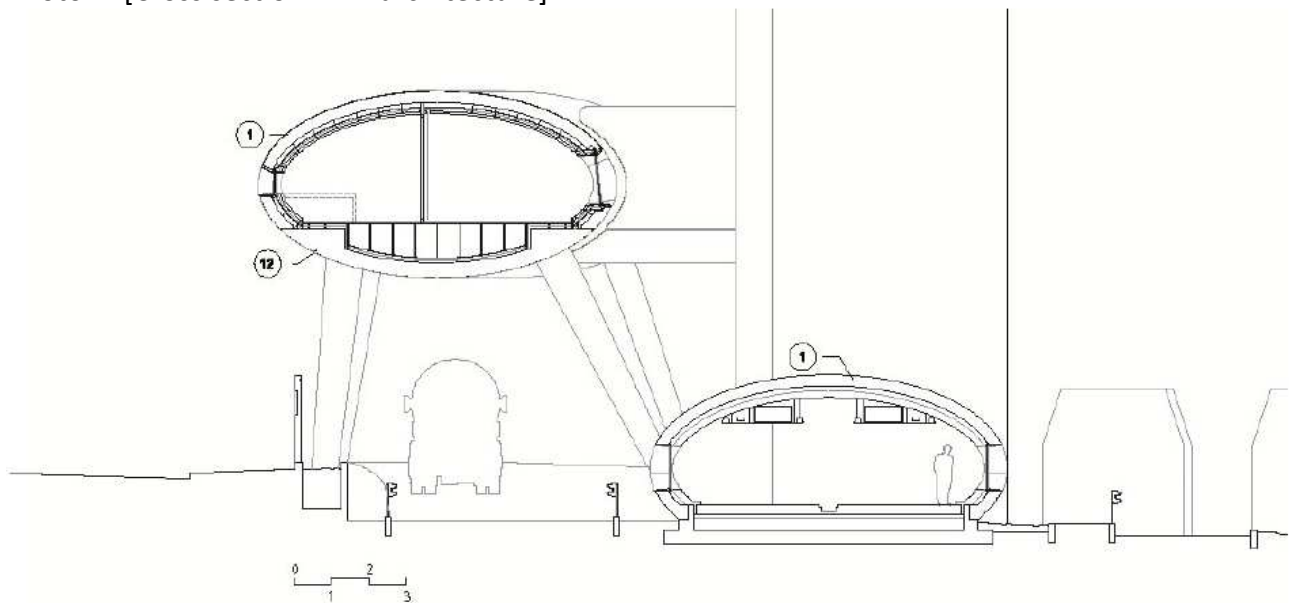


Photo 3: [Under the ring road - VIB architecture - ©Stephane CHALMEAU]



Photo 4: [VIB architecture]

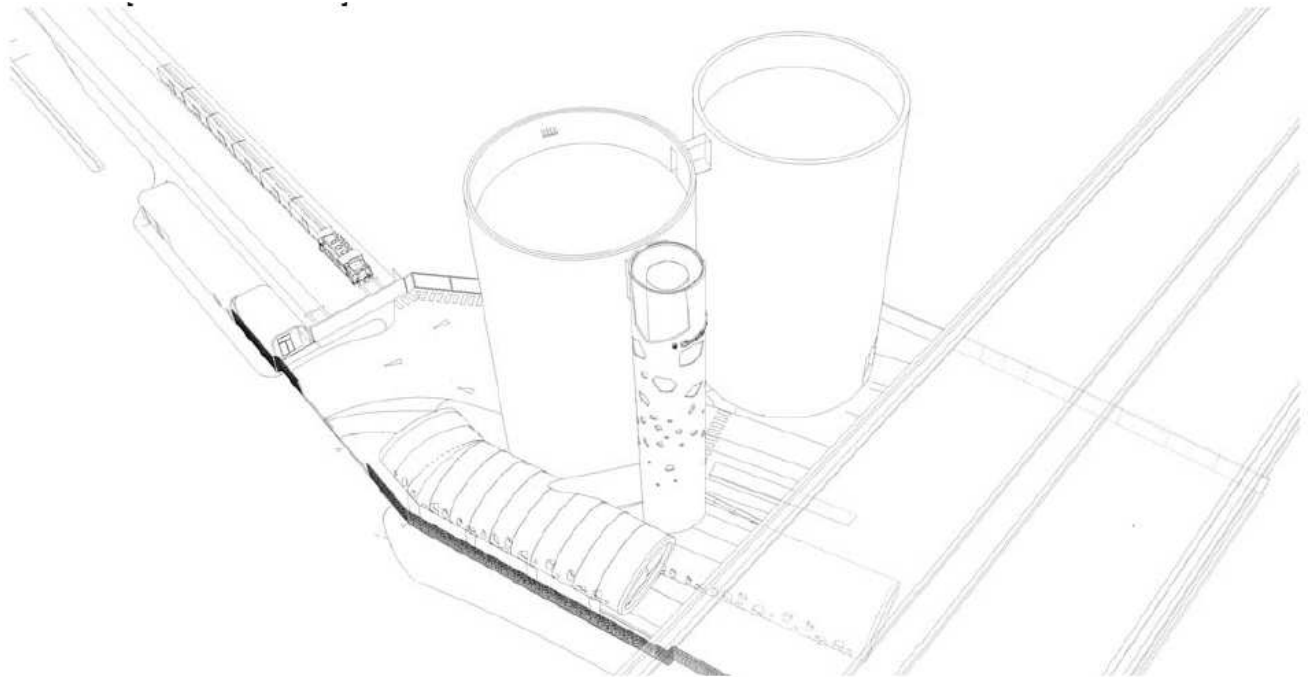


Photo 5: [At night - VIB architecture - ©Stephane CHALMEAU]



Photo 6: [Solar WIND by Laurent Grasso – Permanent artistic installation
Courtesy of ©Laurent GRASSO studio]



Photo 7: [Precast concrete - ©VIB architecture]



Photo 8: [Concrete volumes - VIB architecture - @Stephane CHALMEAU]

