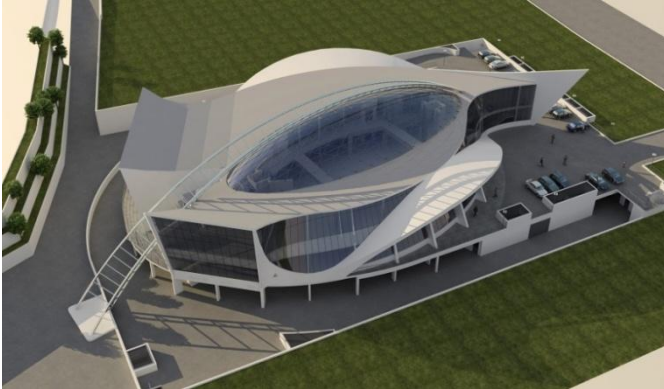




As – Built survey in SEM Building Nicosia, Cyprus



View of the SEM building



View of the site



Scaffolds covering the site

In General

Purpose

Scan the facades of an IT services building (SEM) in order to produce the as build drawings

Field Work (Measurement of interested area)

2 days / 2 staff members

Office Work (Digitization of the detail points)

15 days / 3 staff members

Utilised Geodetic Instrumentation

- Laser Scanner Leica P20
- Laser Scanner Registration Targets
- Firmware
- Leica Cyclone 8.0.2
- 3D Reshaper
- AutoCAD 2012

Deliverables

- Point cloud of the facades
- Mesh of the facades
- 3D lines of the facades
- Technical Report

Difficulties

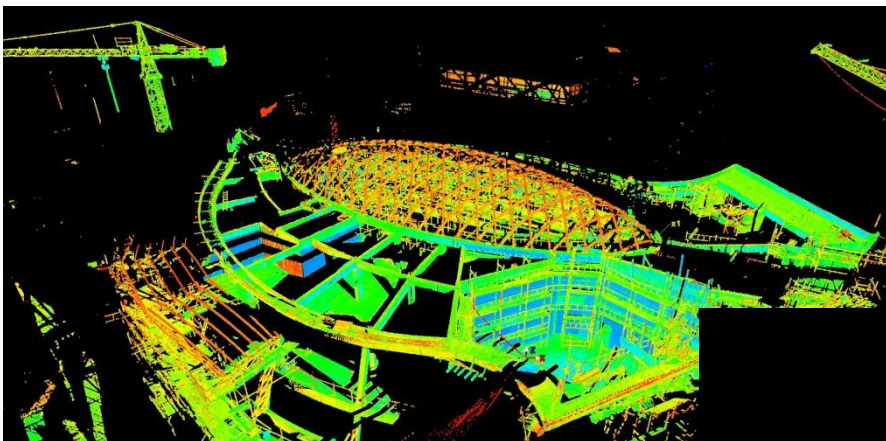
- The daily working schedule of the site
- The areas of interest were covered with scaffolds and other objects that reduced the available visibility levels



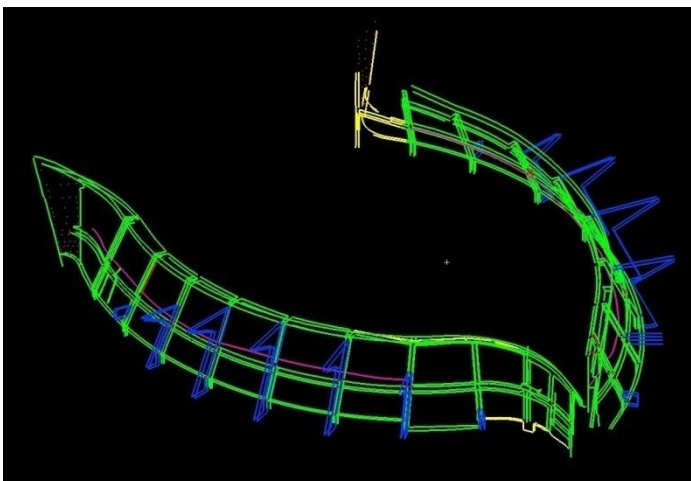
Measurement series

The first action was to place adequate number of black and white targets all over the building. Targets were well recognizable and they had a size of an A4 paper. Additionally, 4 smaller targets were used in order to offer additional constraints to continuous scans. The whole building was covered through 91 setup positions of laser scanner with over of 2.5 billion of points. In order to define the common building coordinate system (in which all point clouds would refer) and to enhance the final achieved accuracy, geodetic data from the existing network were used.

After measurement series completion, all data were loaded to the appropriated software for further processing. All the scan data were inserted to Leica Cyclone 8.2 software. The data were registered by using the mathematical algorithm for the 100% of the common part between two point clouds. After the connection of all point cloud data, the registered point cloud was aligned with the help of the coordinates of the existing stations recorded with the laser scanner. After the registration and alignment, the point cloud was ready for shapes' and facades' drawing. After the completion of the facades drawing on 3D Reshaper software, they were exported in a vector format (.dxf).



Sample of point cloud



The final edges of the facades and steel structures



Mesh with the object of interest

- when it has to be right