

TE, Consulting Engineer

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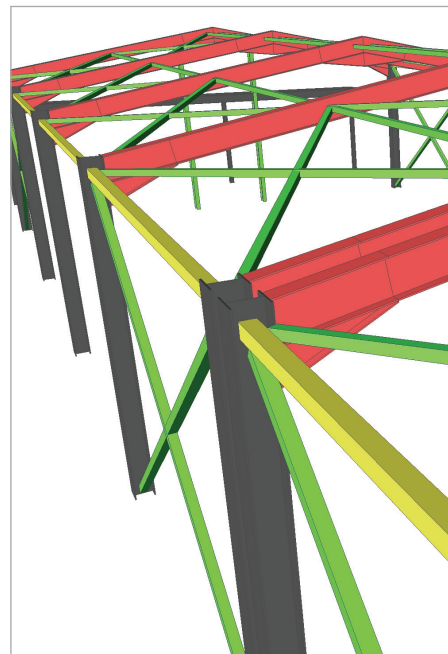
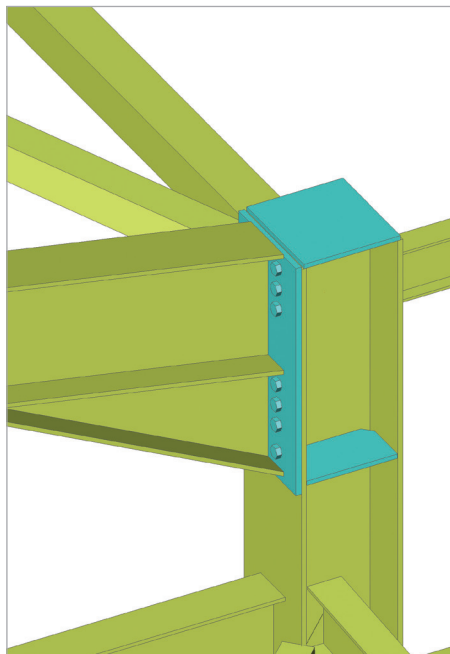


TE, Consulting Engineer was founded in 2007 to provide the following Civil Engineer Services:

- Technical advice for the development of new buildings.
- Technical advice for the restoration-upgrading of existing buildings.
- Structural design of new buildings (concrete, steel, composite, timber and masonry structures).
- Structural design and assessment of existing buildings.
- Supervision of civil engineering works.

Due to our experience and our knowledge, we can accomplish even the most exacting projects.

TE, Consulting Engineer has managed over 50 projects in Greece.



Software: Scia Engineer

Milk Factory - Chania, Greece

Introduction to the project

This project is about the New Milk Factory of Mr. Sxetakis Nikolaos. The construction will start in the early part of 2011 and is situated on Crete, the largest island of Greece.

The factory is composed of three separate buildings. The overall acreage of the construction will be about 1.000 m².

Description of the project

The whole structure consists of three separate buildings. The main building (about 800 m²) is designed out of steel and it includes:

1. The acceptance room of the milk
2. The chemical-checks room
3. The production area
4. The separate rooms for the storage of the end products
5. Offices

Connected to the main building there will be two more buildings:

- a. The boiler house (about 120 m²)
- b. The building that will accommodate the waste water treatment equipment (about 90 m²)

Main building

The distance between the columns of each frame is about 13 m. We designed this building out of steel. The distances between the frames are 5.8 m. At both sides of the building there are two small cantilevers for the cold-air pumps. The dimensions of the building are 13 m x 56 m and the height about 6 m. We used HEA280 for the columns, IPE330 for the beams and SHS cross-sections for the wall and the roof bracing.

Boiler house

The overall dimensions of this building are 15.5 m x 7.5 m. Due to the Greek Fire Protection Code we designed the boiler house from concrete walls, 25 cm thick and a light steel roof. In case of an explosion all the energy will go up.

Building for the waste water treatment equipment

The dimensions of this building are 14 x 6.5 m and the height about 3.5 m. We designed it from steel using

HEA140 for the column, IPE220 for the beams and SHS cross-sections for the wall and the roof bracing.

The use of Scia Engineer for this project

We designed three separate 3D Models, one for each building, using the Line Grid option. The next step was to make all the load cases, the load groups and the load combinations.

Load groups

1. G : permanent
2. S : snow
3. W : wind
4. E : seismic

Load cases

1. LC1 : self weight
2. LC2 : panels' weight
3. LC3 : purlins' weight
4. LC4 : snow
5. LC4 : seismic Y
6. LC5 : seismic X
7. LC6 - LC22 : 3D Wind Load Cases

Load Combinations

1. EN-ULS
2. EN-SLS
3. EN-seismic X
4. EN-seismic Y

For the wind loads we used the 3D wind option to calculate with accuracy all zones according to EN1991-1-4.

For the permanent loads and the snow we used line forces on beams.

The seismic design followed the EN1998. After the linear and the modal analysis we did section and unity checks for all the members. We also proceeded to serviceability check for the main beams.

Project information

Owner Sxetakis Nikolaos
Architect Tsolakis Eleftherios
General Contractor Tsolakis Eleftherios
Engineering Office TE, Consulting Engineer
Construction Period From April 2011 to September 2011
Location Crete, Greece



Short project description

This project is about the new Milk Factory of Mr. Sxetakis Nikolaos. The construction will start early 2011 and is situated on Crete, the largest island of Greece. The structure consists of three separate buildings. The overall acreage of the construction will be about 1.000 m². Because of the complex geometry of the structure, a 3D model was used for specific studies regarding the seismic design of the building. Wind and snow loads have also been calculated using the 3D Wind module.

