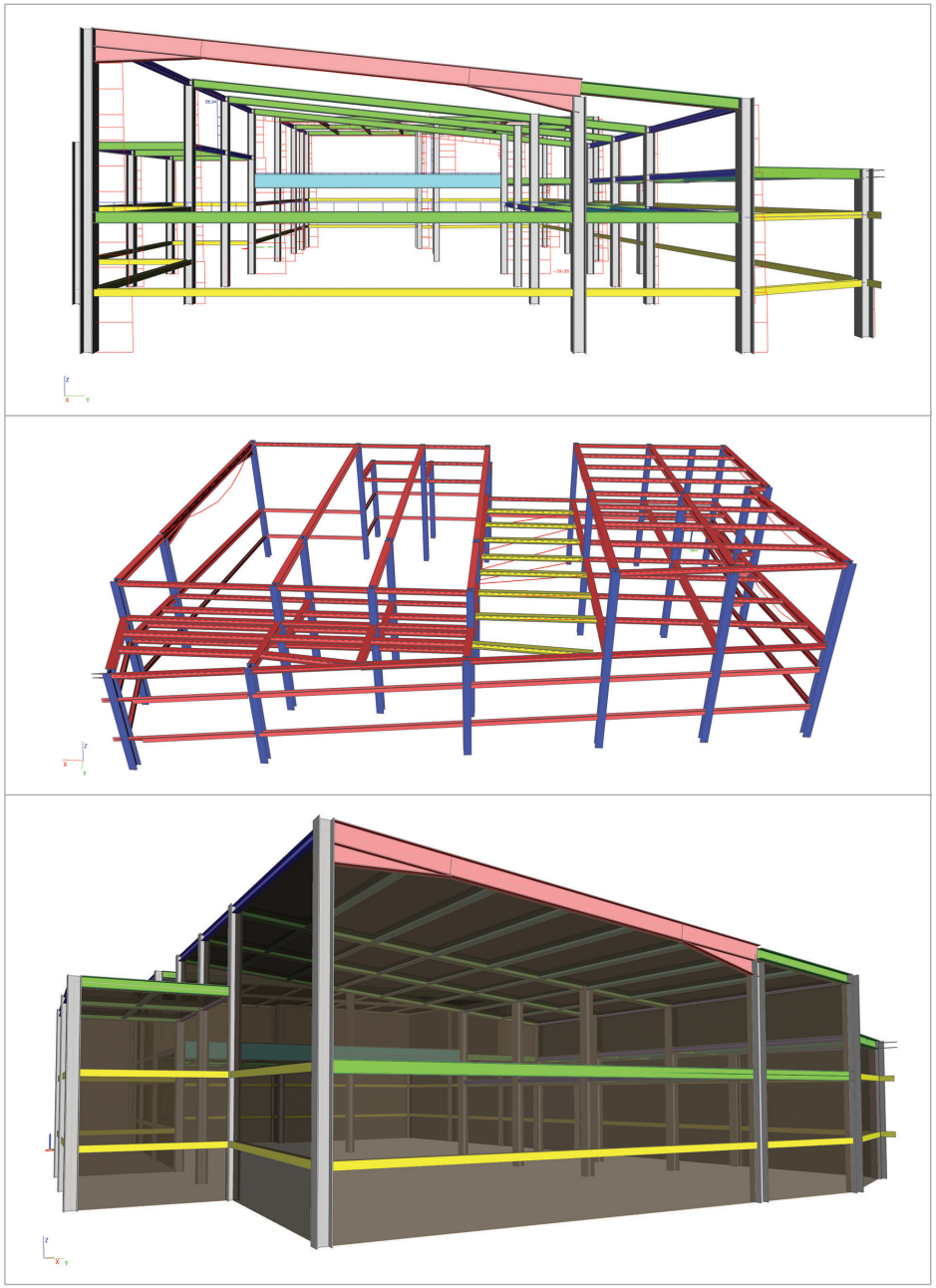
Fresh & Frozen Seafood, Packaging Industry - Crete, Greece



Introduction to the project
This project includes a new structure for an industrial enterprise that supplies fresh seafood and packages the produce prior to sale. The enterprise also has the means to freeze seafood.

The new structure consists of a two-floor building with a basement. On the first floor, the seafood will be delivered for all the necessary processing prior to the final packaging phase. On the first floor will sit the offices of the enterprise, while the basement will be used for stocking frozen products.

The location of the structure is very close to the larger port in the area. Therefore, the seafood can be delivered very quickly and the frozen products can be sent on to other places or countries.

The total area the industrial enterprise will cover is approximately 900 sqm.

Description of the project
The structure was designed from steel members and concrete slabs. Due to the complicated architectural view, a 3D model was designed.

Approach
We used HEB for the columns, HEA for the main beams, IPE for the secondary beams and an SHS cross-section for the wall bracing.

The secondary beams were designed using the composite beam module in order to reduce the total weight of steel.

To simulate the diaphragm of the concrete slab, HEA1000 for roof bracing was used, without weight and mass, using property modifiers.

The use of Scia Engineer in this project
We designed the 3D model using the Line Grid option. The next step was to make all the load cases, load groups and load combinations.

Load groups:
1. G : permanent
2. S : snow
3. W : wind
4. E : seismic
5. Q : variable

Load cases:
1. LC1 : self-weight
2. LC2 : permanent
3. LC3 : variable
4. LC4 : snow
5. LC5 : seismic X
6. LC6 : seismic Y
7. LC7 - 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 and the snow loads, we used line forces on beams. The seismic design followed EN1998.

After the linear and the modal analysis, we conducted section and unity checks for all the members. We also proceeded to a serviceability check for the main and secondary beams.

Software: Scia Engineer

TE, Consulting Engineer

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CONSULTING ENGINEER

TE, Consulting Engineer was founded in 2007 to provide the following civil engineering 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 60 projects in Greece.

Project information

Owner	Rokakis Ioannis, Antonios & Georgios CRETEFISH ENT. COMPANY
Architect	Kolokotronis George
Engineering Office	TE, Consulting Engineer
Location	Crete, Greece
Construction Period	09/2013 to 06/2014

Short description | **Fresh & Frozen Seafood, Packaging Industry**

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