Form and Force 2019

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Title: École Centrale, the different roof.

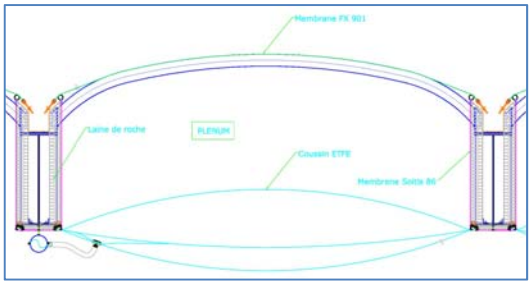
In September 2017, CentraleSupélec, a major establishment created by Ecole Centrale Paris and Supélec, opened its doors in the heart of Paris-Saclay University.

The CentraleSupélec campus consists of a set of 3 buildings forming a true "campus-city".
The building of the architectural firm OMA (under MOP law) combines teaching, research, student life and openness to the city. A language teaching center, shared with Paris-Sud and ENS Cachan, takes place there.

As part of this project, IASO obtained the contract for the construction of Ferrari Flexlight stretch membrane canopies coupled with ETFE cushions on the underside to improve the thermal and acoustic comfort inside this particular building.

This roof covers heated spaces including buildings at most R + 2, interior terraces, circulation and restoration areas. The level of the hall cover is located at +12.80 m level.

The totality of the textile covers of the hall occupies an area of approximately 4700 m2 divided into 103 modules of rectangular shape and of variable dimensions.



The roof of the hall consists of:

• A main metal frame.
• A secondary metal frame made of curved steel circular tubes.
• Four steel posts, intermediate supports of the PRS at the restoration area.
• Tensile membrane elements that make up the tight outer skin of the cover.
• ETFE cushions that make up the inner skin of the blanket. These inflated elements are powered by an air supply system.
• Plenum, wide cavity between the outer membrane skin and the ETFE cushions. This airtight space, closed and inaccessible in the life of the structure will be slightly overpressurized with dry air and dehumidified to avoid the risk of condensation and deposition of dust.

Each ETFE cushion is formed by 3 films of varying thickness:
- Printed top film of 200 microns.
- Transparent intermediate film of 100 microns.
- Transparent lower film of 200 microns.

The history of making this roof will be explained in detail.