

# REFERENCE TECHNICAL AND REGULATORY PARAMETERS

This paragraph presents a brief description of the static system used for the **Coversun** system's load-bearing steel structure conceived with a trestlework typology.

**Coversun** is a fully integrated roofing system, composed of 1991x990 mm photovoltaic panels framed by a system of purposely designed aluminum sections, resting entirely on special-matching self-bearing steel structures installed over a span equivalent to the short side of the photovoltaic panels (approximately 1 m).

The aluminum sections and steel structure interact both at points where the Coversun system bears down on the prefabricated reinforced concrete loft-building beams and on the side along the panels, guaranteeing a sturdy clamp between the elements and the best possible seal against atmospheric agents.

The coupling between the aluminum and steel is achieved via an aluminum channel fit onto the flanges of the prefabricated beams along their entire length, thus guaranteeing optimal load distribution; the steel load-bearing beams clamp onto these channels via a system of bent profiles and clamping bolts.

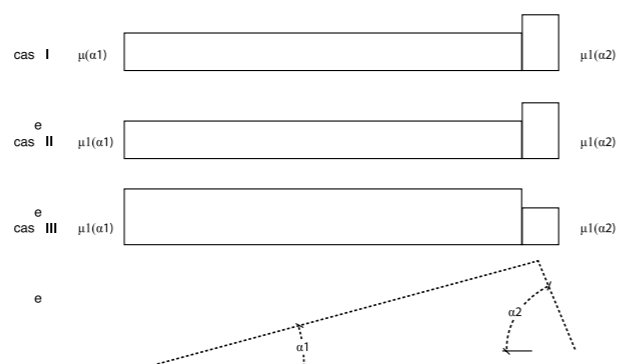
The Reference Technical Regulations used for load analysis and to verify the structural elements is:

**"New Technical regulations for Buildings" - Ministerial Decree Jan 14, 2008.**

In case of existing structures, where the Coversun System replaces classical curving fiber-cement roof elements, only non-structural roof elements are involved, therefore it is fulfill the provisions of paragraph 8.4.3 of the aforesaid Code, this intervention being considered a local repair or intervention, thus performing structural analysis only for the newly installed components.

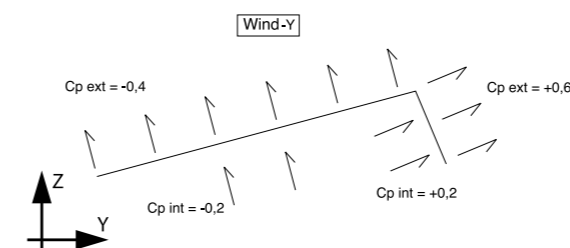
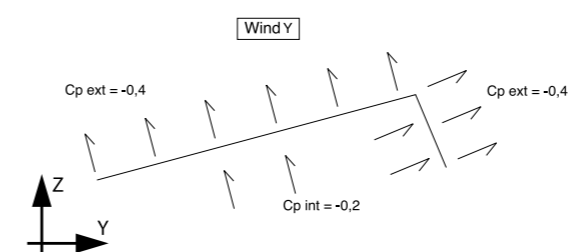
The load analysis regards:

- Permanent loads (own weights of the photovoltaic panels and of the supporting aluminum sections);
- Variable working loads (roofing accessible only for maintenance);
- The snow loads, categorized by the slopes of the roof system, are classified as snow loads without wind ("case I") and snow loads with wind (the worst case condition between "Case II" and case "Case III").



The loads caused by the wind, require an estimate of the shape factors in order to evaluate whether pressure or vacuum phenomena are present.

A typical situation is illustrated for example:



All the actions inferred from the load analysis will be converted into linear loads acting on the load-bearing steel structure to be verified.

In situations where existing roofing is to be replaced, the lightness of the system is such that normally, the comparison between preexisting roof loads and those that exist when installation is complete, do not necessitate complex reverification of the reinforced-concrete load-bearing structures.

Furthermore, in such instances, the increase of the masses present on the structure being negligible, structural analysis may be made under non-seismic conditions, verifying the degree of safety only of the new structures to be installed.

