

Latest update of version 15.1.0.1 of 3Muri Project

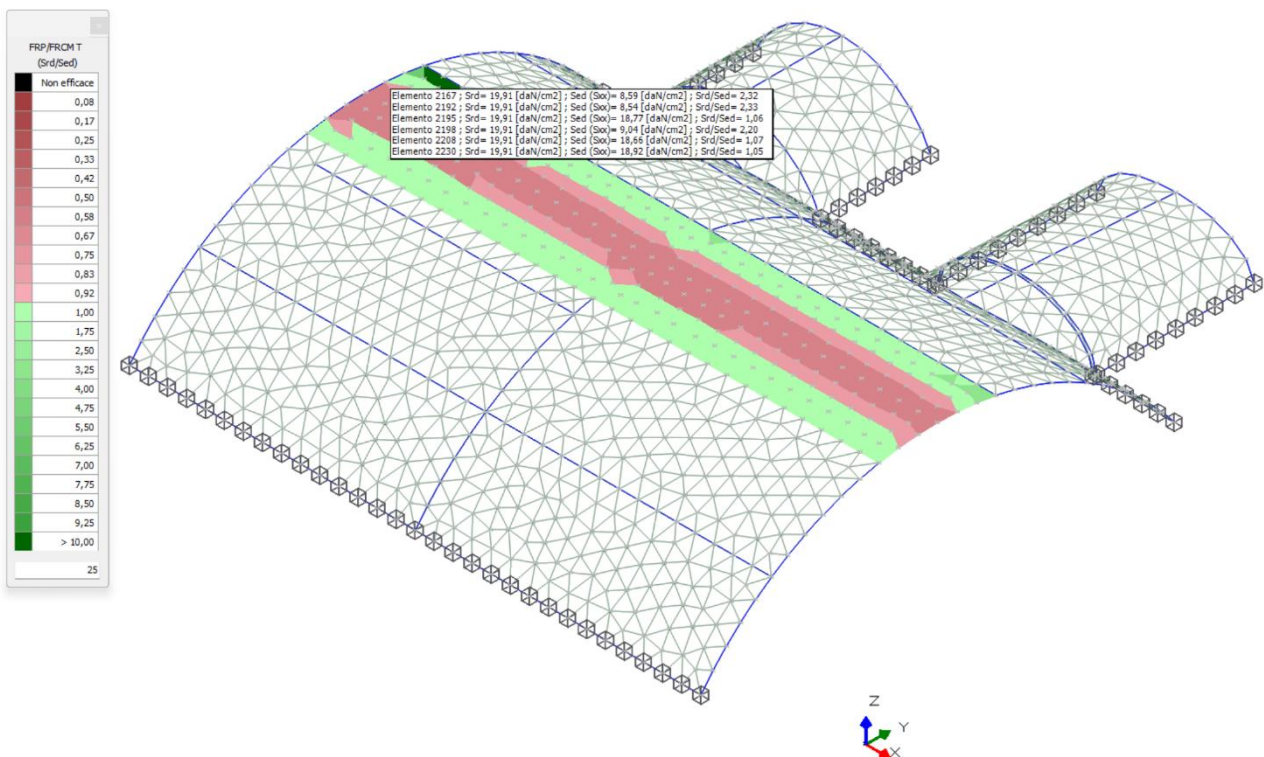
IMPLEMENTATION OF REINFORCEMENTS IN THE 3MURI VAULT SOFTWARE

Reinforcement measures on vaults aims to contain thrusts and improve the overall response of the structure.

FRP/FRCM reinforcements provide the vault with the ability to resist tensile stresses that often occur at the crown and ribs, thus limiting the formation of cracks and therefore limiting deformation.

Chains, on the other hand, act as tie rods, while beams are often used as hooping devices when it is necessary to open holes in the vault or repair damaged sections.

Together, these reinforcement systems **reduce out-of-plane mechanisms, increase overall safety margins** and can be designed with criteria of compatibility and, where possible, reversibility of the interventions.



FRP/FRCM reinforcements on vaults

In the 3Muri Volte software, FRP/FRCM reinforcements can be applied to vaults, walls and braces, improving the mechanical characteristics of the masonry vault by providing it with adequate resistance to the tensile stresses that may be generated.

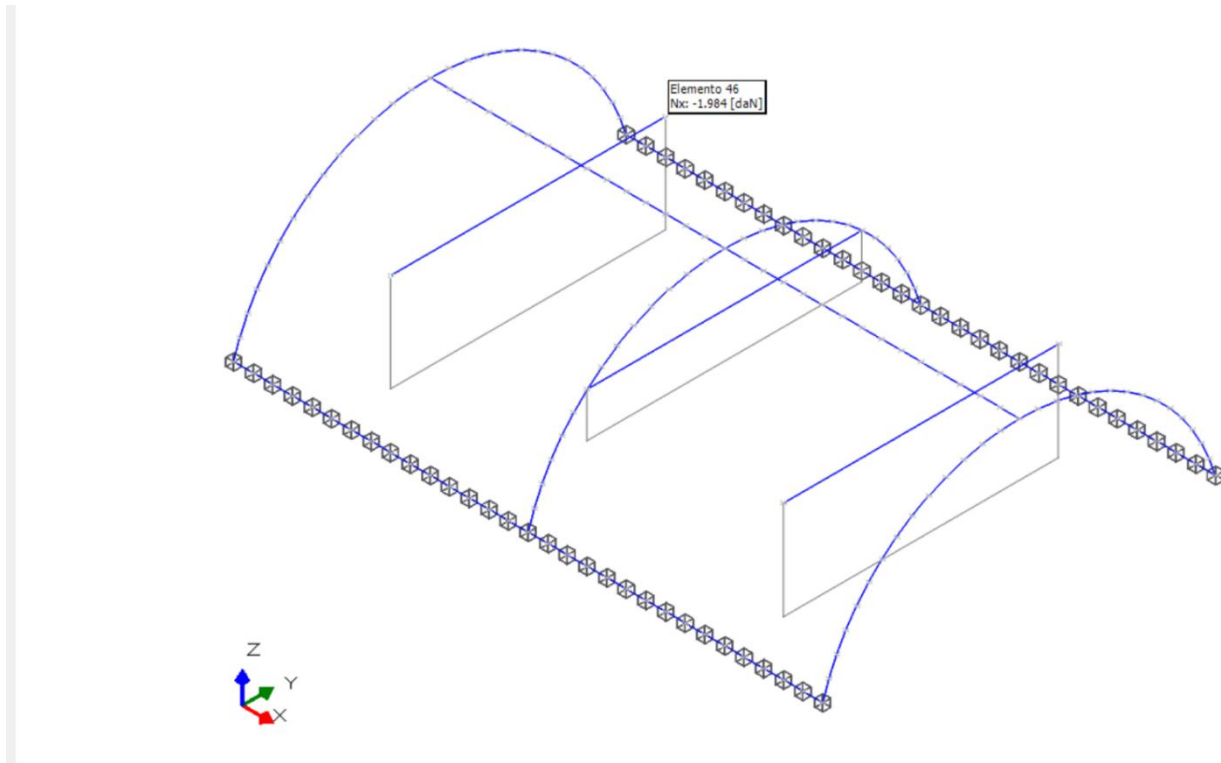
The parameters and input methods for FRP/FRCM reinforcements are the same as those already used in the 3Muri software.

Their mechanical characteristics can be defined by the user or the 3Muri reinforcement libraries can be used.

They can be applied either on the intrados only, on the extrados only, or on both sides of the vault surface.

Furthermore, you can choose whether to apply them to the entire surface of the vault or only in the most critical areas, optimising the reinforcement intervention.

The verification of FRP/FRCM reinforcements is immediate and can be viewed through a colormap on which the result of the verification is immediately visible.



Beams and chains in vaults

In the 3Muri Volte software, beams and chains are linear (1D) elements that are included in the vault model. They are connected to the nodes of the 2D elements, with which they exchange forces and stresses.

The materials that can be used are steel, wood and reinforced concrete.

The parameters and input methods are the same as those already used in the 3Muri software. In particular, the profile libraries already present in the 3Muri software can be used to define the metal profiles.

The output includes the display of stress diagrams.

The verification of the chains is immediate and can be viewed through a colour map on which the outcome of the verification is immediately visible.

