

**IS Muri** is a software designed for the calculation and verification of gravity, semi-gravity and cantilever retaining walls, with counterforts or keys.

The wall can be characterized by the presence of piles, micropiles, tiebacks (active and passive); it can have any kind of geometry and it can also include a simple or a complex footing with variable thickness. User is free to assign or not assign an inclination to the foundation and to the wall surface (both inside and outside).

The software automatically suggests predefined reinforcement schemes that users can easily modify and customize, adapting to their personal needs and saving them for possible future works.

In addition to the ground pressures, IS Muri software allows the introduction of concentrated or distributed (linear or trapezoids) loads, acting on the soil profile, at the desired height and on each structural element.

The load combinations are automatically generated depending on the chosen approach, or can be freely created by user.

IS Muri performs the verification of structural elements in each significant section according to the Limit States method, as required by NTC 2008 and Eurocodes. The analysis can be carried out both in static and dynamic conditions.

The ground profile, both upstream and downstream, is represented by a broken line whose vertices can easily be moved using the mouse. The ground can be composed of several layers, whose characteristics are quickly assignable: it can be cohesive, non-cohesive or rock. For each layer the designer assigns an inclination which can be different between upstream and downstream. The ground water can have different depths and inclinations in front and on back.

**IS Muri** performs the checks to overturning, sliding, bearing capacity and global stability. The pressures calculation method is the "trial wedge" or Culmann method; in case of basement wall, pressures are calculated with " $k_0$ " instead of " $k_a$ " coefficient. The foundation bearing capacity is calculated with the theories of Terzaghi, Meyerhof, Vesic, etc...

The global stability is checked using the Fellenius and Bishop methods; after setting a mesh of centers, IS Muri automatically generates the possible sliding surfaces and evaluates the corresponding safety factors.

The tiebacks verification is performed according to the method proposed and discussed by Bustamante and Doix, splitting, in the results section, the structural check of the steel from the geotechnical verification of the bond anchor.

The reinforcement design, automatically done by the software, can be exported in .dxf format; a specific window lets you see the wall, the reinforcement bars, the piles and the tiebacks (if they're present), in three dimensions.

The technical report contains all the project data, the choices you have made and the results with the reinforcement design. This report can be created in .rtf, .doc, .html and .txt format.

