



Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804:A1
 EPD reg no: EPD-Kiwa-EE-00384-EN
 www.kiwa.com

RIVERBANK PROTECTION

TRADITIONAL RIVERBANK PROTECTION USING LOOSE STONES (RIP-RAP) REQUIRES A THICK LAYER OF MATERIAL TO BE EFFECTIVE. THIS IS DUE TO THE LACK OF CONFINEMENT IN THE RIP-RAP STONES, MAKING IT DIFFICULT TO PLACE THE LAYERS ACCURATELY, WHICH LEADS TO HIGHER STONE USAGE AND A GREATER ENVIRONMENTAL IMPACT.

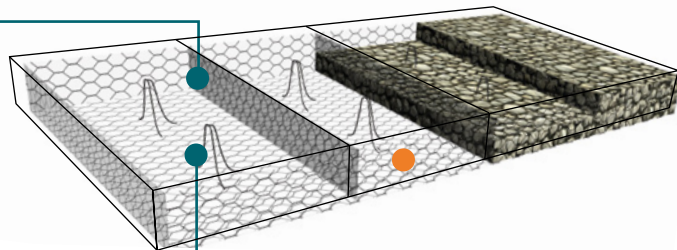
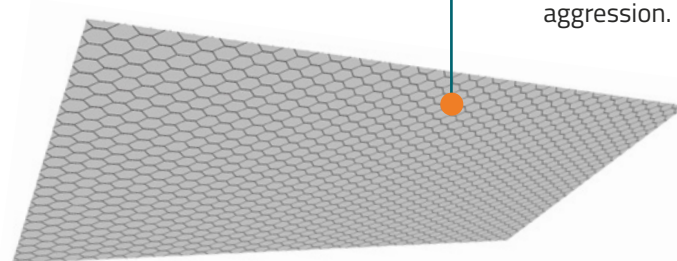
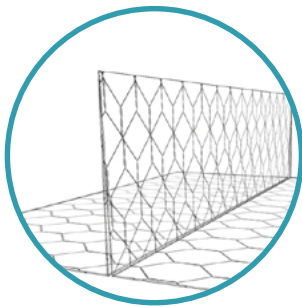
FOR OVER 100 YEARS, SINCE MACCAFERRI FIRST INTRODUCED MATTRESSES, TRADITIONAL RENO MATTRESSES HAVE OFFERED AN EXCELLENT ALTERNATIVE TO RIP-RAP. THE MESH'S CONFINING EFFECT ALLOWS FOR SIGNIFICANTLY FEWER STONES TO BE USED WHILE STILL PROVIDING THE SAME LEVEL OF PROTECTION AS RIP-RAP.

+ Reno Mattress Plus with X-Ties

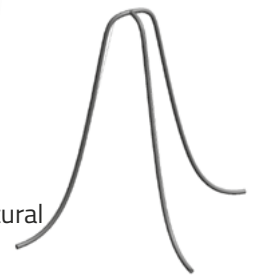


The **PoliMac**® coating gives outstanding protection against mechanical loads and chemical aggression.

Vertical standing double diaphragm make filling operation easier.



X-Tie is the experimentally developed and patented tie to maximise the structural resistance of the mattress.



Download BIM from maccaferri.com/BIM or on **bimstore**

LESS MATERIALS

Less Reno Mattress steel and aggregate mean savings in terms of materials, emissions to the environment and money!



QUICKER INSTALLATION

Optimised solutions and material reduction mean easier and faster installation.



TOTAL COST OF OWNERSHIP



GREENER RESULTS

Less emissions and better integration into the natural environment mean less environmental burden.



RENO MATTRESS PLUS HYDRAULIC BANK PROTECTION

✗ HYDRAULIC BANK PROTECTION RIP-RAP

Traditional river bank protection constructed with **loose boulders** (rip-rap) require thick layers of materials to be effective. This is because the boulders are not confined and cannot be accurately placed resulting in the use of more stone and, consequently, an increase in environmental burden.

✓ HYDRAULIC BANK PROTECTION STANDARD MATTRESS

Standard Mattresses are over designed river bank protection compared to the actual load they are subjected to.

M HYDRAULIC BANK PROTECTION OPTIMISED WITH TEST RESULTS

Reno Mattress Plus is the result of experimental tests at Colorado State University. A deeper understanding of the performance of the mattress enables us to make more cost-effective designs that will give to our solutions an increased competitiveness in comparison to equivalent and alternative (traditionals) systems.

OVER 70% OF STONE SAVINGS VS RIP-RAP

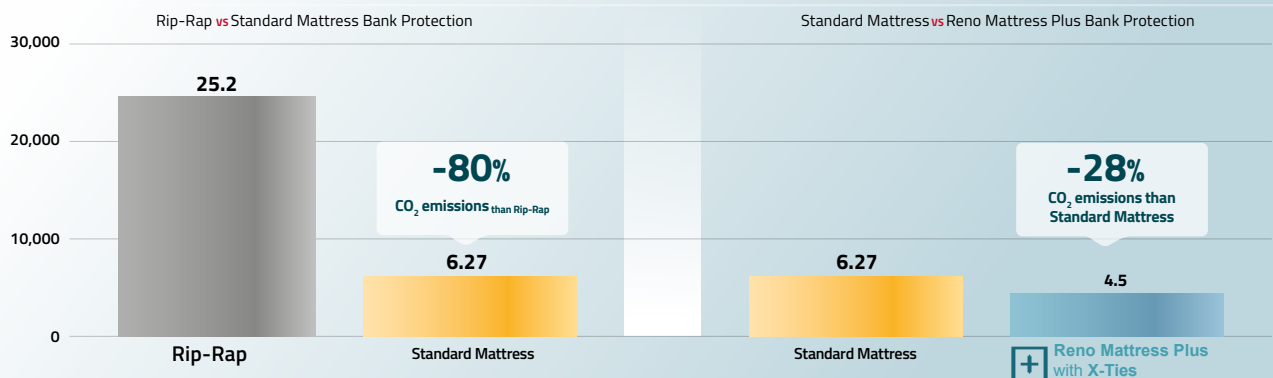
OVER 50% OF STONE SAVINGS VS STANDARD MATTRESS*

+ Reno Mattress Plus with X-Ties

*Figures based on experimental campaign run at Colorado State University (1984; 2019)

A GREEN THOUGHT DRIVES OUR SOLUTIONS

CO₂ (KgCO₂eq) emission for the construction of 1 sqm of river bank protection.



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