

What should you know about riprap on a dam?



Riprap is a common cover material for embankment dams. This rock cover prevents erosion of dams' upstream faces and may protect during dam overtopping.

Rock riprap consists of a mix of irregular shaped rocks placed over gravel or geotextile fabric. It absorbs and deflects wave action from the dam. Smaller rocks fill in the spaces between the larger pieces, and a filter prevents soil particles on the embankment surface from washing out between the rock spaces.



Larger rocks have to be big enough to break the maximum anticipated wave action and also hold the smaller stones. If too small, the rocks will be washed away by waves. If insufficient, the filter material will wash out causing the embankment to erode.

Freezing and thawing, wetting and drying, waves, and other natural processes will eventually break down the riprap, which will then have to be replaced.



For optimum endurance, use dense riprap stone. In Kansas, limestone and hard sandstone are acceptable for riprap. But most sandstone and shale found in Kansas do not provide the long-term protection needed on dams.

Vegetative growth can displace stone and can disturb the filter material. If a dam has severe erosion or reoccurring riprap problems, contact a registered professional engineer to design more effective slope protection.