



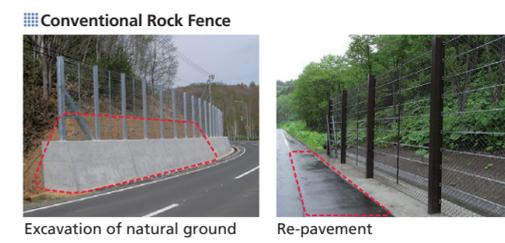
An economical and universal rockfall protection method, which keeps the environment as it is.

Tokyo Rope learned a lot from "Rock Fence", a general-purpose rockfall protection fence. Practfence is a small-scale universal rockfall protection fence developed by improving the economic efficiency, workability, and ease of maintenance of conventional protection fences while maintaining the existing protection functions. Practfence is an extremely eco-friendly and cost-effective rockfall protection method making use of the slope shape for installation and dispensing with concrete foundations, which make the slope unstable, and scaffolding works, which make the construction period longer.

Features of Practfence

Can be installed on the mountainside as well as on the roadside

The conventional Rock Fence requires concrete foundation works, and in some cases, also needs massive excavation and backfill of the natural ground and asphalt re-pavement for installation. Practfence dispenses with concrete foundation works by adopting anchor foundations, and therefore can be installed on a mountainside almost without damaging the natural ground. It has been confirmed that the deformation of Practfence does not exceed 1 m by full-size experiments applying rockfall energy of up to 60 kJ. So, it can also be installed on the roadside for the purposes of increasing the height of existing fences and replacing aging fences.



Practfence



Easy to install, maintain, and repair

In principle, Practfence can be installed quickly without using scaffolds or large construction machines. When members such as posts and nets are damaged by rockfall, they can easily be replaced.

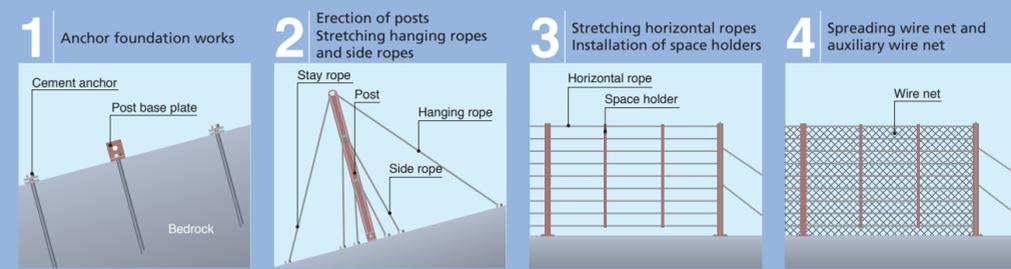


Also suitable for temporary installation in case of emergency

Practfence does not need concrete foundation works or curing period. Also, Practfence uses light members, and so members can be efficiently lifted and withdrawn using a monorail or the like. Practfence is suitable for temporary installation for disaster restoration in case of emergency.

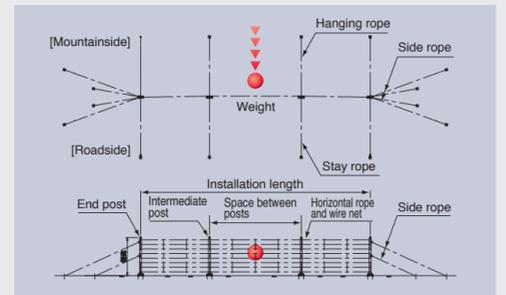


Construction procedure



Full-scale heavy weight collision experiments

We performed full-scale heavy weight collision experiments while varying the space between posts from 3.0 to 6.0 m and found that Practfence can absorb rockfall energy of up to 60 kJ and the maximum deformation does not exceed 1.0 m.



Experiment figure

Scene of experiment

Experiment with an energy of 30 kJ and spacing of 3.0 m



Experiment with an energy of 30 kJ and spacing of 6.0 m



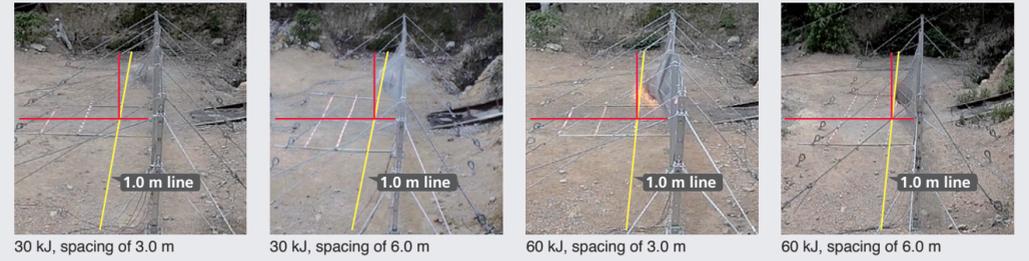
Experiment with an energy of 60 kJ and spacing of 3.0 m



Experiment with an energy of 60 kJ and spacing of 6.0 m



Maximum deformation





Gojo City, Nara Prefecture (Model PFS-25)



Hamamatsu City, Shizuoka Prefecture (Model PFS-25)



Shiiba Village, Higashi Usuki District, Miyazaki Prefecture (Model PFS-20)

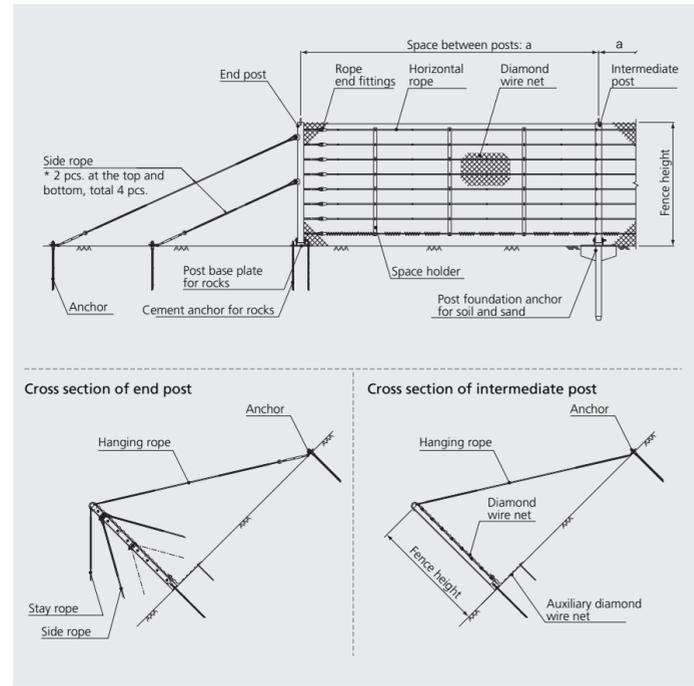


Okazaki City, Aichi Prefecture (Model PFM-20)

Models and specifications

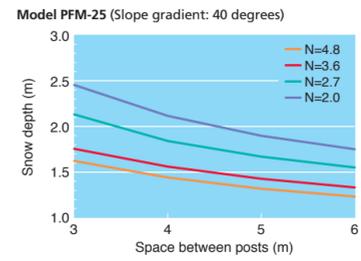
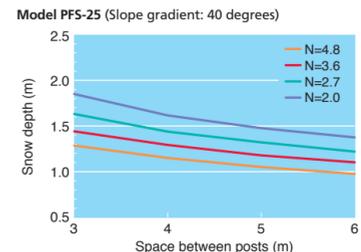
Model	Fence height (m)	Number and specifications of horizontal ropes	Specifications of hanging rope	Wire net (mm)	Spacing between posts (m)	Cross-sectional dimensions		Withstand rockfall energy
						Intermediate and end posts	Space holder	
PFS-20	2.0	18φ·7	16φ	3.2φ×50×50	6.0 (Standard)	H-100×100×6×8	4.5t×65	30kJ
PFS-25	2.5	18φ·8						
PFS-30	3.0	18φ·10	18φ	4.0φ×50×50		H-125×125×6.5×9	60kJ	
PFM-20	2.0	18φ·7						
PFM-25	2.5	18φ·8						
PFM-30	3.0	18φ·10						

Structural diagram



Consideration of snow load

In snowy areas, it is necessary to consider snow load in addition to rockfall. The protection performance of Practfence is confirmed more precisely by examining each member. The figures below show the relation between the allowable snow depth of a 2.5 m high fence and the glide factor (though it slightly depends on the type of anchor).



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PRACTFENCE

Displacement Suppression Type
 Rockfall Protection Fence