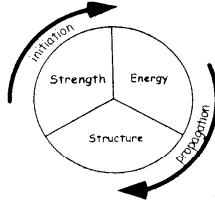


Fracture Character and Snowpack Stability



Recent research suggests integrating strength, energy, and structure into stability evaluation will help avalanche workers and recreationalists make better go-no go decisions.

Fracture Character	Code	Fracture Characteristics	Typical Shear Quality
Sudden Planar (pop, or clean and fast)	SP	Thin planar fracture suddenly crosses column in one loading step and the block slides easily on the weak layer	Q1
Sudden Collapse (drop)	SC	Fracture crosses column with single loading step and is associated with noticeable collapse of weak layer	Q1
Progressive Compression (indistinct)	PC	Fracture usually crosses column with single loading step, followed by additional compression of the layer with subsequent loading steps	Q2 or Q3
Resistant Planar	RP	Planar fracture requires more than one loading step to cross column and/or the block does not slide easily on the weak layer	Q2 or Q3
Non-planar Break	B	Non-planar fracture	Q3
No Fracture	NF	No fracture	

(Van Herwijen and Jamieson, 2003)

Fracture mechanics tells us that the higher the fracture-energy release rate, the greater potential the fracture has for propagation. Describing fracture character and shear quality is a way of quantifying elastic energy release. Fast and clean shears release their fracture energy quickly and are more frequently associated with unstable conditions.

McCammon, Ian and Don Sharaf, "Integrating Strength, Energy, and Structure into Stability decisions," *Avalanche Review*, Vol.23, No.3 February 2005.