

Simplified Field Version of Rough Snow Strength/Stability Test Correlations. This preliminary and **very rough** correlation guide is presented as a possible tool for comparing and applying field tests results only if energy and structure information is part of the stability assessment (see fracture mechanics figure).

Rough Strength Test Correlations

[Moore, 2006 — www.nwac.us/education]

Test	Rutschblock	Compression / tap	Stuffblock	Shovel
Stability				
More unstable	RB≤3	CT ≤12	SB ≤20	ST ≤E
Marginally stable	RB4-5	CT13-24	SB30-40	STM-MH
More stable	RB6-7	CT≥25	SB ≥50	ST ≥H

Structure [lemons ≥4 help concentrate stresses]:

- Depth of fracture plane** (≤1m)
- Weak layer thickness** (≤ 10cm)
- Hardness change across fracture plane** (≥1 step)
- Persistent grain type** (facets, surface or depth hoar)
- Grain size change at fracture plane** (≥1.0 mm)

Shear Quality [nature of the fracture]

- Q1— Unusually clean, planar, smooth and fast shear surface:** weak layer may collapse during fracture and slab may slide into pit on slopes angles > 35°
- Q2— "Average" shear, mostly smooth,** but slab does not slide as readily as Q1; fracture occurs throughout most of slab but some small irregularities possible—not as many as Q3
- Q3— non-planar shear surface, uneven, irregular and rough;** shear fracture typically not through the whole slab / weak layer interface. Slab may experience only slight movement

The author is extremely interested in input and feedback regarding these strength test correlations. Please send your comments to mark.moore@noaa.gov. See also www.nwac.us/education for complete ISSW paper and more detailed color version of this chart.

Avalanche Release— Fracture Mechanics Simplified

[after McCammon & Sharaf, 2005]

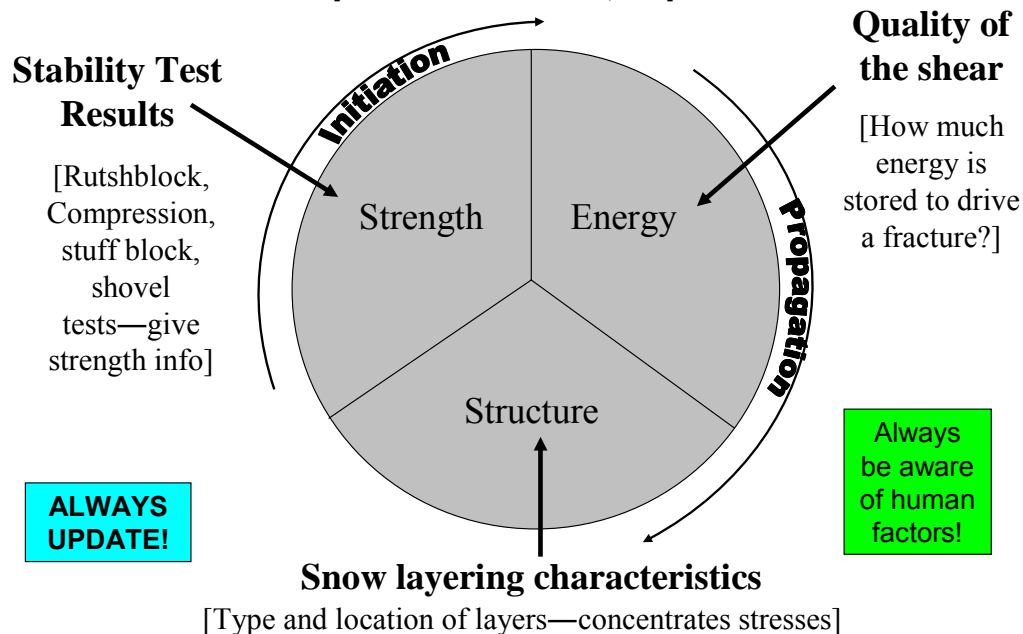


Figure 1. Primary snowpack components affecting avalanche release. Adapted from McCammon and Sharaf, 2005. *Integrating strength, energy and structure into stability decisions, Avalanche Review, 23 (3): 18–19*

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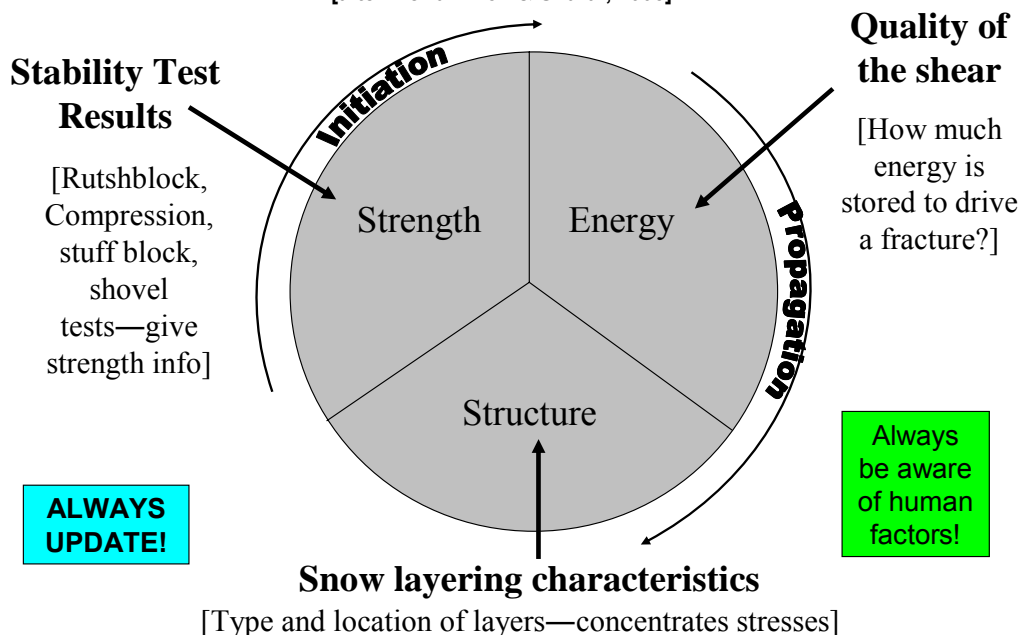


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