Avoiding Low-Altitude Stalls

Exceeding a wing's critical angle of attack results in a stall, every time. According to the AOPA Air Safety Institute's *22nd Joseph T. Nall Report*, "the largest number of fatal accidents [in 2010] (31) occurred during low-altitude maneuvering." In fact, maneuvering accidents and accidents during descent and approach resulted in fatalities almost 50 percent of the time. The *Nall Report* notes that, "Fewer than 20 percent of the accidents in any of the other major categories were fatal."

The reasons for low-altitude maneuvering's lethality, according to the NTSB, is that it often results in an unrecoverable stall, resulting from inattention, relatively low airspeed, steep turns and lack of altitude in which to recover. The Safety Board recommends pilots consider the following steps to prevent low-altitude stalls:

- Seek training to fully understand stall phenomenon and AOA concepts;
- Remember that a stall can occur at any airspeed, in any attitude and at any engine power setting;
- Remember that maneuvering loads, other factors increase stall speed;
- Reduce AOA at first indication of stall—it's the most important immediate response;
- Manage distractions when maneuvering at low altitude;
- Resist temptation to "show off"; and
- Understand that stall characteristics can differ substantially between airplanes.

Stall Speed (KIAS) Vs. Bank Angle

Flap Setting	Angle of Bank (Degrees)			
	0	30	45	60
Up	50	54	59	71
20 Deg.	43	46	51	61
Full	39	42	46	55

The image at top is something you should have seen many times before: Flow separation as the wing reaches its critical angle of attack, which for many GA airplanes is at around 17 degrees. The table above reproduces stall speed data at various bank angles for a Cessna T206H.