precipitation, temperature, storm cells and microbursts, turbulence, and intermediate and high altitude wind speed and direction.

4.d. The simulator must provide the instructor or evaluator the ability to present ground and air hazards.

5. **Motion System.**

5.a. The simulator must have motion (force) cues perceptible to the pilot that are representative of the motion in an airplane.

5.b. The simulator must have a motion (force cueing) system with a minimum of three degrees of freedom (at least pitch, roll, and heave).

An SOC is required.

5.c. The simulator must have a motion (force cueing) system that produces cues at least equivalent to those of a six-degrees-of-freedom, synergistic platform motion system (i.e., pitch, roll, yaw, heave, sway, and surge).

An SOC is required.

5.d. The simulator must provide for the recording of the motion system response time.

An SOC is required.

5.e. The simulator must provide motion effects programming to include:

5.e.1. (1) Thrust effect with brakes set;
(2) Runway rumble, oleo deflections, effects of ground speed, uneven runway, centerline lights, and taxiway characteristics;
(3) Buffets on the ground due to spoiler/speedbrake extension and thrust reversal;
(4) Bumps associated with the landing gear;

If there are known flight conditions where buffet is the first indication of the stall, or where no stall buffet occurs, this characteristic should be included in the model.