Federal Aviation Administration, DOT

§ 27.562 Emergency landing dynamic conditions.

(a) The rotorcraft, although it may be damaged in an emergency crash landing, must be designed to reasonably protect each occupant when—

(1) The occupant properly uses the seats, safety belts, and shoulder harnesses provided in the design; and

(2) The wheels are retracted (where applicable); and

(3) Each occupant and each item of mass inside the cabin that could injure an occupant is restrained when subjected to the following ultimate inertial load factors relative to the surrounding structure:

(i) Upward—4g.
(ii) Forward—16g.
(iii) Sideward—8g.
(iv) Downward—20g, after intended displacement of the seat device.
(v) Rearward—1.5g.

(c) The supporting structure must be designed to restrain, under any ultimate inertial load up to those specified in this paragraph, any item of mass above and/or behind the crew and passenger compartment that could injure an occupant if it came loose in an emergency landing. Items of mass to be considered include, but are not limited to, rotors, transmissions, and engines. The items of mass must be restrained for the following ultimate inertial load factors:

(1) Upward—1.5g.
(2) Forward—12g.
(3) Sideward—6g.
(4) Downward—12g.
(5) Rearward—1.5g.

(d) Any fuselage structure in the area of internal fuel tanks below the passenger floor level must be designed to resist the following ultimate inertial factors and loads and to protect the fuel tanks from rupture when those loads are applied to that area:

(i) Upward—1.5g.
(ii) Forward—4.0g.
(iii) Sideward—2.0g.
(iv) Downward—4.0g.