> The presence of a load carrying frame is desirable in a shear wall building because it may provide vertical stability to the building and prevent total collapse after damage is sustained by the shear walls. The frame also acts to tie the building together and redistribute the lateral force to undamaged elements of the bracing system (Seismology 1967, p. 46).

Walls and braced frames were understood to lack ductility (at least when compared with moment frames). If they were also counted on to carry significant gravity load, they were seen as potential collapse hazards. Code writers addressed this concern with a 33% increase in earthquake design loads for bearing wall systems (*K* of 1.33, as opposed to the default value of 1.00). The intent was to protect against collapse of the gravity system by encouraging robust, or "complete," gravity framing, or in its absence, by reducing the ductility demand on suspect bearing wall elements.

More recently, the distinction between bearing wall and building frame systems was somewhat reinterpreted. Although the code definitions of these two basic system types have scarcely changed since the earliest Blue Books, the distinction has been thought of as less about the completeness of the gravity system on its own than about the degree to which principal SFRS components carry both earthquake and gravity forces. Concentrically braced frames offer the most common example: If the diagonal braces carry gravity load in compression, the system has been deemed a "bearing wall" system (Seismology 1990, p. 12-C). Past Blue Books listed such systems specifically as "Braced Frames Where Bracing Carries Gravity Load" (Seismology 1990, Table 1-G), a distinction that persists in the 1997 UBC and the 1999 Blue Book (Seismology 1999, C104.6.2). Forthcoming codes, however, will list steel braced frames only as building frame systems, acknowledging that only one set of design parameters is needed for these systems (BSSC 2004a, Table 4.3-1), a position with which the Seismology Committee concurs. To clarify, the new position of the Seismology Committee is that braced frame systems need not be distinguished as bearing wall or building frame systems, and that the distinction made by past Blue Books may be discarded.

Indeed, the penalty in the code for bearing walls is no longer so great, nor is it the same for all systems. As Table 1 indicates in its comparison of bearing wall *R* values (labeled here R_{BW}) with building frame *R* values (R_{BF}), the benefit of going to a building frame system is an increase in *R* and a subsequent decrease in the design base shear. Depending on the system, the decrease is between 7% and 17% in ASCE 7-05, 15-21% in the 1997 UBC.

In practical terms, the original distinction between bearing wall and building frame systems has faded. Since good seismic performance at expected force levels is known to be a function of detailing and load path, the real effect of a small difference in the design base shear is negligible. Indeed, this difference in *R* is less than other potential code "penalties" for certain irregularities or low redundancy. Furthermore, current provisions for overstrength, deformation compatibility, capacity design of connections, and other factors account more directly for the likely ill effects of non-ductile failure in SFRS components that carry both earthquake and gravity forces. (See New Thinking below.)

Table 1. Comparison of *R* values in selected bearing wall and building frame systems

SFRS type[1]	ASCE 7-05			1997 UBC[1]		
	Bearing Wall *R*	Building Frame *R*	R_{BW} / R_{BF}	Bearing Wall *R*	Building Frame *R*	R_{BW} / R_{BF}
Ordinary steel concentrically braced frame	NA	3.25	NA	4.4	5.6	0.79
Special reinforced concrete shear walls	5.0	6.0	0.83	4.5	5.5	0.82
Special reinforced masonry shear walls	5.0	5.5	0.91	4.5	5.5	0.82
Light-framed walls with rated wood structural panels	6.5	7	0.93	5.5	6.5	0.85

[1] SFRS types per ASCE 7-05 Table 12.2-1. 1997 UBC SFRS type descriptions vary slightly from the ASCE 7-05 descriptions.