A6 Additional Technical Requirements

A6.1. Use of Steel Special Moment Frames. Special Steel Moment Frames shall comply with all applicable provisions of AISC 341-10, including but not limited to connection design and lateral bracing of beams.
Exception: The "strong-column/weak-beam" provision of AISC 341-10, Section E3.4a is waived, provided that the columns carry no gravity load.

It is permitted to employ approved commercially available proprietary frame systems to achieve the Special Moment Frame classification.

A6.2. Use of Steel Ordinary Moment Frames or Steel Intermediate Moment Frames. IEBC Chapter A4 allows the use of any seismic force resisting system permitted in the building code, when the applicable *R* factor is employed. The building code (through reference to ASCE7) permits the use of steel moment frames other than Steel Special Moment Frames in light frame construction only when specific limitations regarding the building height and unit weights of floors and walls are met. These limitations are waived for buildings with no more than three stories above the highest Target Story. The *R,* Ω_0, and C_d factors employed shall be those applicable to the selected system.

A6.3 Use of Cantilevered Column Systems. Cantilevered column systems conforming to the following provisions may be considered as moment frame systems (Special, Intermediate, or Ordinary, as applicable, based on detailing) with regard to determination of the *R*, Ω_0, and C_d factors.

1. Columns shall not carry gravity load
2. Columns shall be configured in pairs (or larger groups) connected by a continuous foundation or grade beam.
3. The continuous foundation or grade beam shall be designed to resist the expected plastic moment at the base of each column, computed as R_yF_yZ, as defined in AISC 341-10.
4. The flexibility of the continuous foundation or grade beam, considering cracked section properties of reinforced concrete, shall be included in computing the deformation of the cantilevered column system.
5. Cantilevered columns shall be considered as twice their actual height when checking lateral torsional buckling.

A6.4 Values of *R* in Horizontal Combinations. IEBC Chapter A4 refers to the building code (and ASCE7, by reference) with regard to the value of *R* to be used when systems with differing *R* values are employed in the same direction. In an exception to Section 12.2.3.3, ASCE 7 allows independent lines of resistance to be designed with different values of R, for Risk Category I or II buildings of light-frame construction, only for buildings with no more than two stories above the grade plane. This exception shall be considered to apply to buildings with no more than three stories above the highest Target Story.