

than 15 percent from the average maximum and minimum forces at zero displacement as calculated from all cycles in that test at a specific frequency and temperature.

3. For Tests 2 and 3, the maximum force and minimum force at maximum device displacement for a damping device for any one cycle does not differ by more than 15 percent from the average maximum and minimum forces at the maximum device displacement as calculated from all cycles in that test at a specific frequency and temperature.
4. For Tests 2 and 3, the area of hysteresis loop (E_{loop}) of a damping device for any one cycle does not differ by more than 15 percent from the average area of the hysteresis loop as calculated from all cycles in that test at a specific frequency and temperature.
5. The average maximum and minimum forces at zero displacement and maximum displacement, and the average area of the hysteresis loop (E_{loop}), calculated for each test in the sequence of Tests 2 and 3, shall not differ by more than 15 percent from the target values specified by the registered design professional responsible for the design of the structure.

18.9.1.5.2 Velocity-Dependent Damping Devices The performance of the prototype velocity-dependent damping devices shall be deemed adequate if the following conditions, based on tests specified in Section 18.9.1.2, are satisfied:

1. For Test 1, no signs of damage including leakage, yielding, or breakage.
2. For velocity-dependent damping devices with stiffness, the effective stiffness of a damping

device in any one cycle of Tests 2 and 3 does not differ by more than 15 percent from the average effective stiffness as calculated from all cycles in that test at a specific frequency and temperature.

3. For Tests 2 and 3, the maximum force and minimum force at zero displacement for a damping device for any one cycle does not differ by more than 15 percent from the average maximum and minimum forces at zero displacement as calculated from all cycles in that test at a specific frequency and temperature.
4. For Tests 2 and 3, the area of hysteresis loop (E_{loop}) of a damping device for any one cycle does not differ by more than 15 percent from the average area of the hysteresis loop as calculated from all cycles in that test at a specific frequency and temperature.
5. The average maximum and minimum forces at zero displacement, effective stiffness (for damping devices with stiffness only), and average area of the hysteresis loop (E_{loop}) calculated for each test in the sequence of Tests 2 and 3, does not differ by more than 15 percent from the target values specified by the registered design professional responsible for the design of the structure.

18.9.2 Production Testing

Prior to installation in a building, damping devices shall be tested to ensure that their force-velocity-displacement characteristics fall within the limits set by the registered design professional responsible for the design of the structure. The scope and frequency of the production-testing program shall be determined by the registered design professional responsible for the design of the structure.