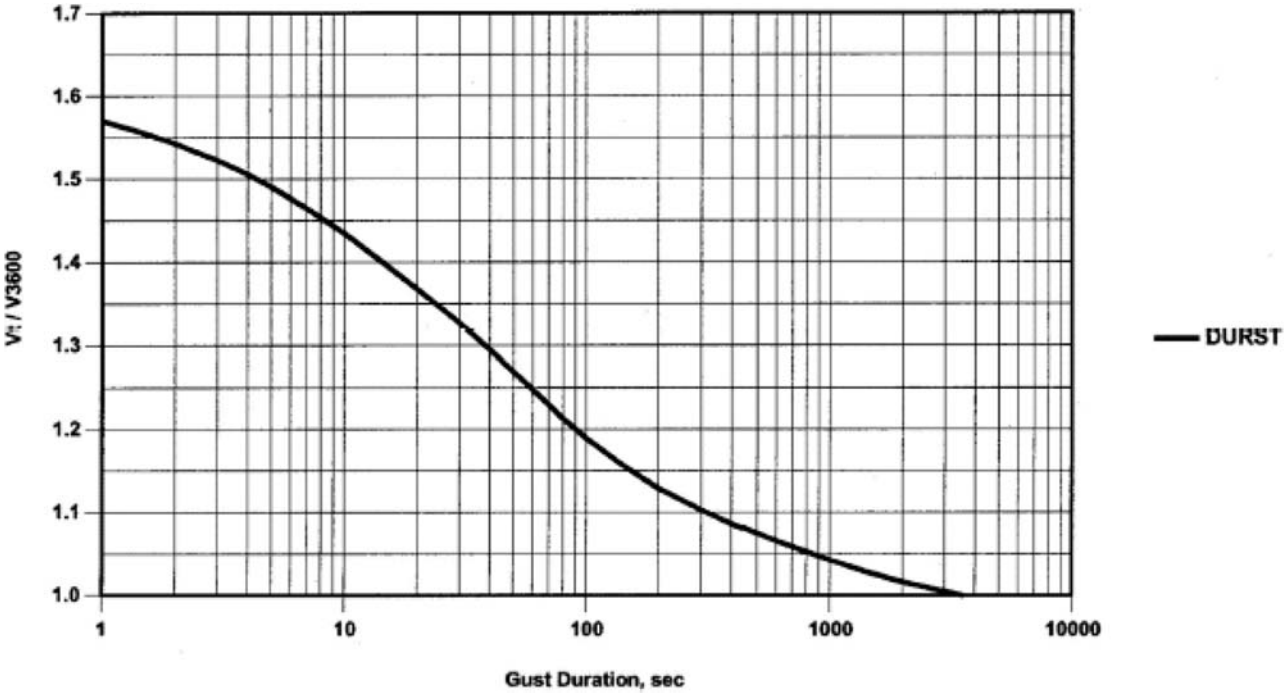

FIGURE C26.5-1 Maximum Speed Averaged over *t* s to Hourly Mean Speed.

iii. The new maps establish uniformity in the return period for the design-basis winds, and they more clearly convey that information.
iv. The new maps, by providing the design wind speed directly, more clearly inform owners and their consultants about the storm intensities for which designs are performed.

Selection of Return Periods. In the development of the design wind speed map used in ASCE 7-98 through 7-05, the Wind Load Subcommittee (WLSC) evaluated the hurricane importance factor, I_H, that had been in use in the U.S. standards since 1982. The task committee recognized that using a uniform value of the hurricane importance factor probably was not appropriate because risk varies with location along the coast.

To determine the return periods to be used in the new mapping approach, the task committee needed to evaluate representative return periods for wind speeds determined in accordance with ASCE 7-05 and earlier, wherein determination of pressures appropriate for strength design started with mapped wind speeds, but involved multiplication by importance factors and a wind load factor to achieve pressures that were appropriate for strength design. Furthermore, it was assumed that the variability of the wind speed dominates the calculation of the wind load factor. The strength design wind load, W_T, is given as

$$W_T = C_F(V_{50}I)^2 W_{LF} \qquad \text{(C26.5-1)}$$

where C_F is a building, component, or structure specific coefficient that includes the effects of things like building height, building geometry, terrain, and gust factor as computed using the procedures outlined in ASCE 7. V_{50} is the 50-year return period design wind speed, W_{LF} is the wind load factor, and I is the importance factor.

The task committee reasoned that the annual probability of exceeding the strength design wind load in the hurricane and non-hurricane regions of the United States should be the same. To accomplish this, the task committee sought to determine the return period associated with the wind speed producing the strength design load in a representative nonhurricane-prone region. Starting with the nominal return period of 50 years, over most of the nonhurricane-prone region of the United States, for the maps defined in ASCE 7-98 through ASCE 7-05, the ratio of the wind speed for any return period to the 50-year return period wind speed can be computed from Peterka and Shahid (1998):

$$V_T/V_{50} = [0.36 + 0.1\ln(12T)] \qquad \text{(C26.5-2)}$$