pressures would act on the solid areas of the walls and roof. The standard also specifies that a building that meets both the "open" and "partially enclosed" definitions should be considered "open."

BUILDING AND OTHER STRUCTURE, FLEXIBLE: A building or other structure is considered flexible if it contains a significant dynamic resonant response. Resonant response depends on the gust structure contained in the approaching wind, on wind loading pressures generated by the wind flow about the building, and on the dynamic properties of the building or structure. Gust energy in the wind is smaller at frequencies above about 1 Hz. Therefore, the resonant response of most buildings and structures with lowest natural frequency above 1 Hz will be sufficiently small that resonant response can often be ignored. The natural frequency of buildings or other structures greater than 60 ft in height is determined in accordance with Sections 26.9.1 and 26.9.2. When buildings or other structures have a height exceeding four times the least horizontal dimension or when there is reason to believe that the natural frequency is less than 1 Hz (natural period greater than 1 s), the natural frequency of the structure should be investigated. Approximate equations for natural frequency or period for various building and structure types in addition to those given in Section 26.9.2 for buildings are contained in commentary Section C26.9.

BUILDING OR OTHER STRUCTURE, REGULAR-SHAPED: Defining the limits of applicability of the various procedures within the standard requires a balance between the practical need to use the provisions past the range for which data have been obtained and restricting use of the provisions past the range of realistic application. Wind load provisions are based primarily on wind-tunnel tests on shapes shown in Figs. 27.4-1, 27.4-2-2, 27.4-7, 28.4-1, and 30.4-1 to 30.4-7. Extensive wind-tunnel tests on actual structures under design show that relatively large changes from these shapes can, in many cases, have minor changes in wind load, while in other cases seemingly small changes can have relatively large effects, particularly on cladding pressures. Wind loads on complicated shapes are frequently smaller than those on the simpler shapes of Figs. 27.4-1, 27.4-2, 27.4-7, 28.4-1, and 30.4-1to 30.4-7, and so wind loads determined from these provisions are expected to envelop most structure shapes. Buildings or other structures that are clearly unusual should be designed using the Wind Tunnel Procedure of Chapter 31.

BUILDING OR OTHER STRUCTURES, RIGID: The defining criteria for rigid, in comparison to flexible, is that the natural frequency is greater than or equal to 1 Hz. A general guidance is that most rigid buildings and structures have height to minimum width less than 4. The provisions of Sections 26.9.1 and 26.9.2 provide methods for calculating natural frequency (period = 1/natural frequency), and Commentary Section C26.9 provides additional guidance.

COMPONENTS AND CLADDING: Components receive wind loads directly or from cladding and transfer the load to the MWFRS. Cladding receives wind loads directly. Examples of components include fasteners, purlins, girts, studs, roof decking, and roof trusses. Components can be part of the MWFRS when they act as shear walls or roof diaphragms, but they may also be loaded as individual components. The engineer needs to use appropriate loadings for design of components, which may require certain components to be designed for more than one type of loading, for example, long-span roof trusses should be designed for loads associated with MWFRS, and individual members of trusses should also be designed for component and cladding loads (Mehta and Marshall 1998). Examples of cladding include wall coverings, curtain walls, roof coverings, exterior windows (fixed and operable) and doors, and overhead doors.

DIAPHRAGM: A definition for diaphragms in wind load applications has been added in ASCE 7-10. This definition, for the case of untopped steel decks, differs somewhat from the definition used in Section 12.3 because diaphragms under wind loads are expected to remain essentially elastic.

EFFECTIVE WIND AREA, *A*: Effective wind area is the area of the building surface used to determine (GC_p). This area does not necessarily correspond to the area of the building surface contributing to the force being considered. Two cases arise. In the usual case, the effective wind area does correspond to the area tributary to the force component being considered. For example, for a cladding panel, the effective wind area may be equal to the total area of the panel. For a cladding fastener, the effective wind area is the area of cladding secured by a single fastener. A mullion may receive wind from several cladding panels. In this case, the effective wind area is the area associated with the wind load that is transferred to the mullion.

The second case arises where components such as roofing panels, wall studs, or roof trusses are spaced closely together. The area served by the component may become long and narrow. To better approximate the actual load distribution in such cases, the width of