

multiplied by the wall area of the building and 8 lb/ft<sup>2</sup> (0.38 kN/m<sup>2</sup>) multiplied by the roof area of the building projected onto a vertical plane normal to the assumed wind direction.

## PART 2: ENCLOSED SIMPLE DIAPHRAGM LOW-RISE BUILDINGS

### 28.5 GENERAL REQUIREMENTS

The steps required for the determination of MWFRS wind loads on enclosed simple diaphragm buildings are shown in Table 28.5-1.

**User Note:** Part 2 of Chapter 28 is a simplified method to determine the wind pressure on the MWFRS of enclosed simple diaphragm *low-rise buildings* having a flat, gable or hip roof. The wind pressures are *obtained directly from a table* and applied on horizontal and vertical projected surfaces of the building. This method is a simplification of the Envelope Procedure contained in Part 1 of Chapter 28.

#### 28.5.1 Wind Load Parameters Specified in Chapter 26

The following wind load parameters are specified in Chapter 26:

- Basic Wind Speed  $V$  (Section 26.5)
- Exposure category (Section 26.7)
- Topographic factor  $K_{zt}$  (Section 26.8)
- Enclosure classification (Section 26.10)

**Table 28.5-1 Steps to Determine Wind Loads on MWFRS Simple Diaphragm Low-Rise Buildings**

<b>Step 1:</b> Determine risk category of building or other structure, see Table 1.5-1
<b>Step 2:</b> Determine the basic wind speed, $V$ , for applicable risk category, see Fig. 26.5-1A, B or C
<b>Step 3:</b> Determine wind load parameters: <ul style="list-style-type: none"> <li>➤ Exposure category B, C or D, see Section 26.7</li> <li>➤ Topographic factor, <math>K_{zt}</math>, see Section 26.8 and Fig. 26.8-1</li> </ul>
<b>Step 4:</b> Enter figure to determine wind pressures for $h = 30$ ft (9.1 m), $p_{s30}$ , see Fig. 28.6-1
<b>Step 5:</b> Enter figure to determine adjustment for building height and exposure, $\lambda$ , see Fig. 28.6-1
<b>Step 6:</b> Determine adjusted wind pressures, $p_s$ , see Eq. 28.6-1

### 28.6 WIND LOADS—MAIN WIND-FORCE RESISTING SYSTEM

#### 28.6.1 Scope

A building whose design wind loads are determined in accordance with this section shall meet all the conditions of Section 28.6.2. If a building does not meet all of the conditions of Section 28.6.2, then its MWFRS wind loads shall be determined by Part 1 of this chapter, by the Directional Procedure of Chapter 27, or by the Wind Tunnel Procedure of Chapter 31.

#### 28.6.2 Conditions

For the design of MWFRS the building shall comply with all of the following conditions:

1. The building is a simple diaphragm building as defined in Section 26.2.
2. The building is a low-rise building as defined in Section 26.2.
3. The building is enclosed as defined in Section 26.2 and conforms to the wind-borne debris provisions of Section 26.10.3.
4. The building is a regular-shaped building or structure as defined in Section 26.2.
5. The building is not classified as a flexible building as defined in Section 26.2.
6. The building does not have response characteristics making it subject to across wind loading, vortex shedding, instability due to galloping or flutter; and it does not have a site location for which channeling effects or buffeting in the wake of upwind obstructions warrant special consideration.
7. The building has an approximately symmetrical cross-section in each direction with either a flat roof or a gable or hip roof with  $\theta \leq 45^\circ$ .
8. The building is exempted from torsional load cases as indicated in Note 5 of Fig. 28.4-1, or the torsional load cases defined in Note 5 do not control the design of any of the MWFRS of the building.

#### 28.6.3 Design Wind Loads

Simplified design wind pressures,  $p_s$ , for the MWFRS of low-rise simple diaphragm buildings represent the net pressures (sum of internal and external) to be applied to the horizontal and vertical projections of building surfaces as shown in Fig. 28.6-1. For the horizontal pressures (Zones A, B, C, D),  $p_s$  is the combination of the windward and