A.3 POLYSTEEL FORMS PRODUCE STRONGER WALLS

Walls constructed of PolySteel Forms can easily be designed to provide shear wall strength of up to 3,000 to 10,000 pounds per linear foot. This shear wall strength offers significant advantages in severe-weather and high-seismic areas, as outlined on the following page. Properly designed PolySteel walls are also capable of withstanding winds in excess of 300 miles per hour and the impact of flying debris from an F5 tornado.

A.3.1 POLYSTEEL FORMS AS SHEAR WALLS

A shear wall is a wall designed to resist lateral (side) forces that are parallel to the plane of the shear wall. In a house or commercial building, each wall can act as a shear wall that braces the adjacent perpendicular walls from the forces of wind, earthquakes, etc. For example, if a west wind is blowing against the west wall of a house, the two adjacent perpendicular walls help brace the west wall to keep it from blowing over (See Figure 1.3 below). The two "bracing walls" are acting as shear walls. In a wood frame structure, for example, walls are braced against wind forces by nailing plywood to the frame of the exterior perpendicular walls for added strength (In reality, every wall in a structure can act as a shear wall to brace the perpendicular walls).

The extraordinary strength of PolySteel walls allows them to perform exceptionally well as shear walls. If more shear strength is required, additional horizontal rebar can be placed within the wall for reinforcement. As a result, PolySteel walls can be easily designed to provide shear wall strength of 3,000 to 10,000 pounds per lineal foot of wall. This makes PolySteel an ideal product for buildings in severe weather areas and safe rooms integrated into the design of structures where life-threatening weather conditions, such as hurricanes, tornadoes, or earthquakes, present a threat. A good example of the shear strength performance of a PolySteel building is a five-story beach front condominium, built on the edge of the Atlantic Ocean in Daytona, Beach, Florida. Constructed in 1981, this structure has successfully withstood the force of numerous major hurricanes, while providing its occupants with safety and security.

Figure 1.2 SHEAR WALLS