

DISASTER RESISTANCE



Wind

PRECAST CONCRETE IS INHERENTLY RESILIENT and provides excellent protection against high winds and flying debris among many other high performance attributes. It is often used in FEMA shelters, residential, institutional, public, government and other structures providing protection and resiliency. (Reference PCI Designers Handbook.)

Fabcon buildings are designed per the IBC, or the governing local code, to meet the required design wind speed (typically 90 mph in non-hurricane zones, up to 120 mph in hurricane zones). Our concrete is also specified to a strength of 8,000–11,000 PSI.

Storm shelters have been provided by Fabcon, based on criteria from FEMA 361 and ICC-500, with wind speeds up to 250 mph. Modifications to standard panel cross sections may be required in order to meet debris impact requirements and stresses due to extreme winds. Fabcon panels have been tested to DOE-STD-1020 which uses a 15 lb. 2x4 at 150 mph and a 75 lb. steel pipe at 75 mph. FEMA 361 and ICC-500 require a 15 lb. 2x4 at 100 mph and no steel pipe.

Data centers not required to meet debris resistance criteria of storm shelters have been designed for wind speeds up to 200 mph. Panel height limitations based on product type and opening configuration will apply.

Available heights for panels may be limited by wind speeds higher than those provided for in the IBC.

Seismic Design

Fabcon’s panels can be used in seismic design categories A, B, C, and D. The seismic design category is determined by the EOR based on criteria including geographic location and jobsite soil conditions.

Current building codes no longer require precast concrete to be designed to emulate cast in place construction. Precast bearing wall systems are now their own category. Listed below are Response Modification Coefficients and panel height limitations for precast.

Seismic Design Category	Bearing Wall System (Shear)	Response Modification Factor, R	Structural Height Limit, h _n (ft)
A	Ordinary Precast	3	No Limit
B	Ordinary Precast	3	No Limit
C	Intermediate Precast	4	No Limit
D	Intermediate Precast	4	40