Claims

1. A precast concrete floor panel suitable for being interconnected and supported on a wall or column in a multi-storey building, comprising a reinforced precast concrete slab (10), having a substantially flat upper floor surface (12), and integral downstands (18, 20) at or adjacent a perimeter of the panel, the downstands providing a continuous enclosure beneath the floor surface, wherein voids (44, 58) are preformed into the upper and lower surface of the downstands for receiving connectors (54, 56, 57 or 60, 62, 66 and 50, 52) for connecting adjacent panels, and longitudinal recesses (19) are formed in the outer vertical downstand faces so that abutting recesses create a shear key void (59) that can be grouted after assembly to form grouted shear key joints, such that
   where connected adjacent downstands create integral beams, and enable interconnected panels to transmit vertical loads to walls or columns only.

2. A panel as claimed in claim 1, wherein the downstands contain cast-in double headed studs (68) in both horizontal and vertical orientations.

3. A panel as claimed in claim 1 wherein at least some of the voids are internally grooved.

4. A panel as claimed in claim 1, wherein at least some of the voids (44, 58) are surrounded by recesses (42, 43) sized to receive plates of a connector for interconnecting the panels.

5. A panel as claimed in any one of the preceding claims, wherein notches (24) are formed along the edge of the panel to locate vertical column or wall reinforcement (26).

6. A full diaphragm floor for a multi-storey building comprising an array of panels as claimed in claim 1, and connectors (54, 56, 57 or 60, 62, 66 and 50, 52), wherein the connected adjacent panels in combination with grouted shear key joints (59), enable the full diaphragm floor to be created without the need of cast *in-situ* structural topping.