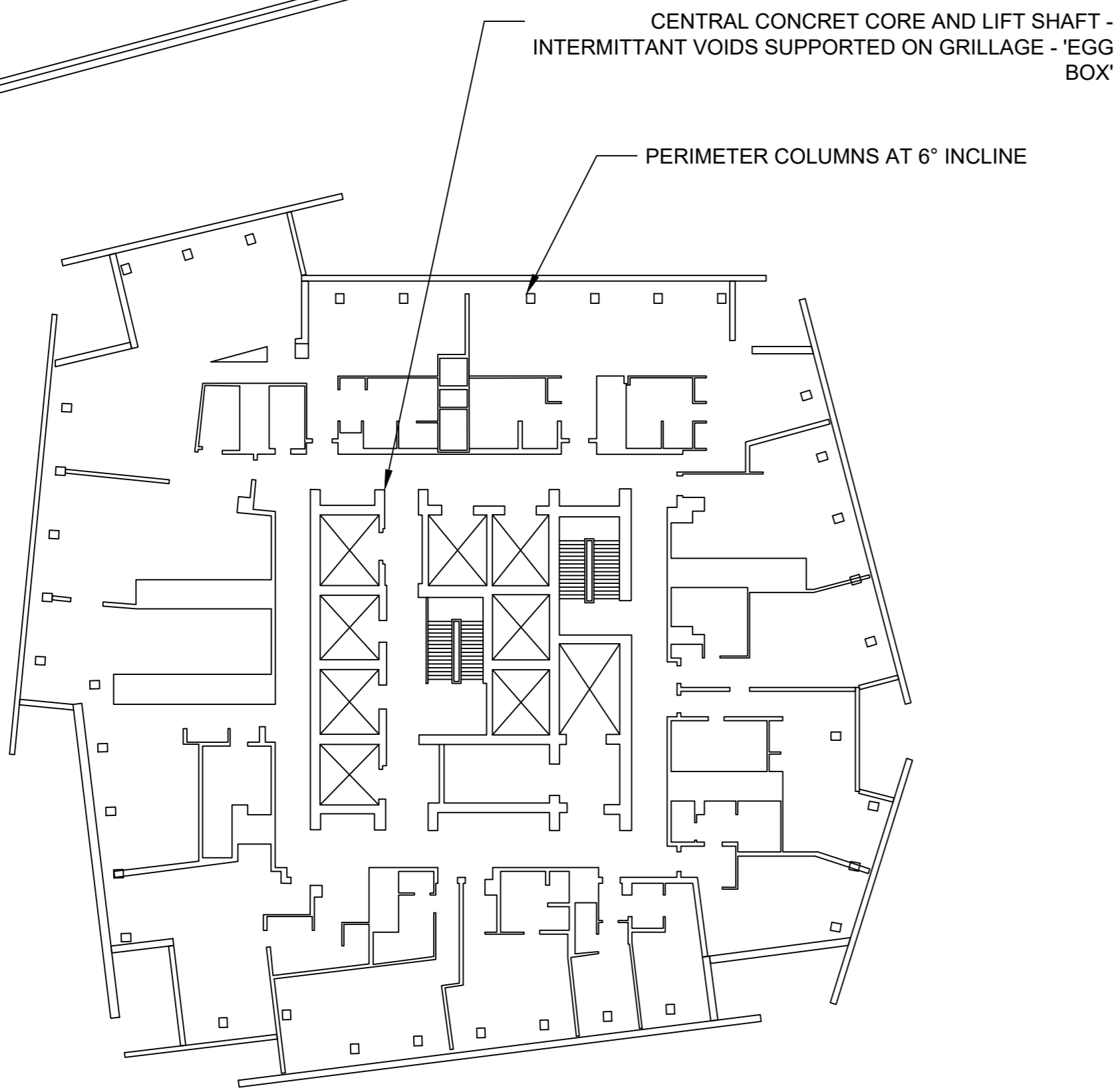
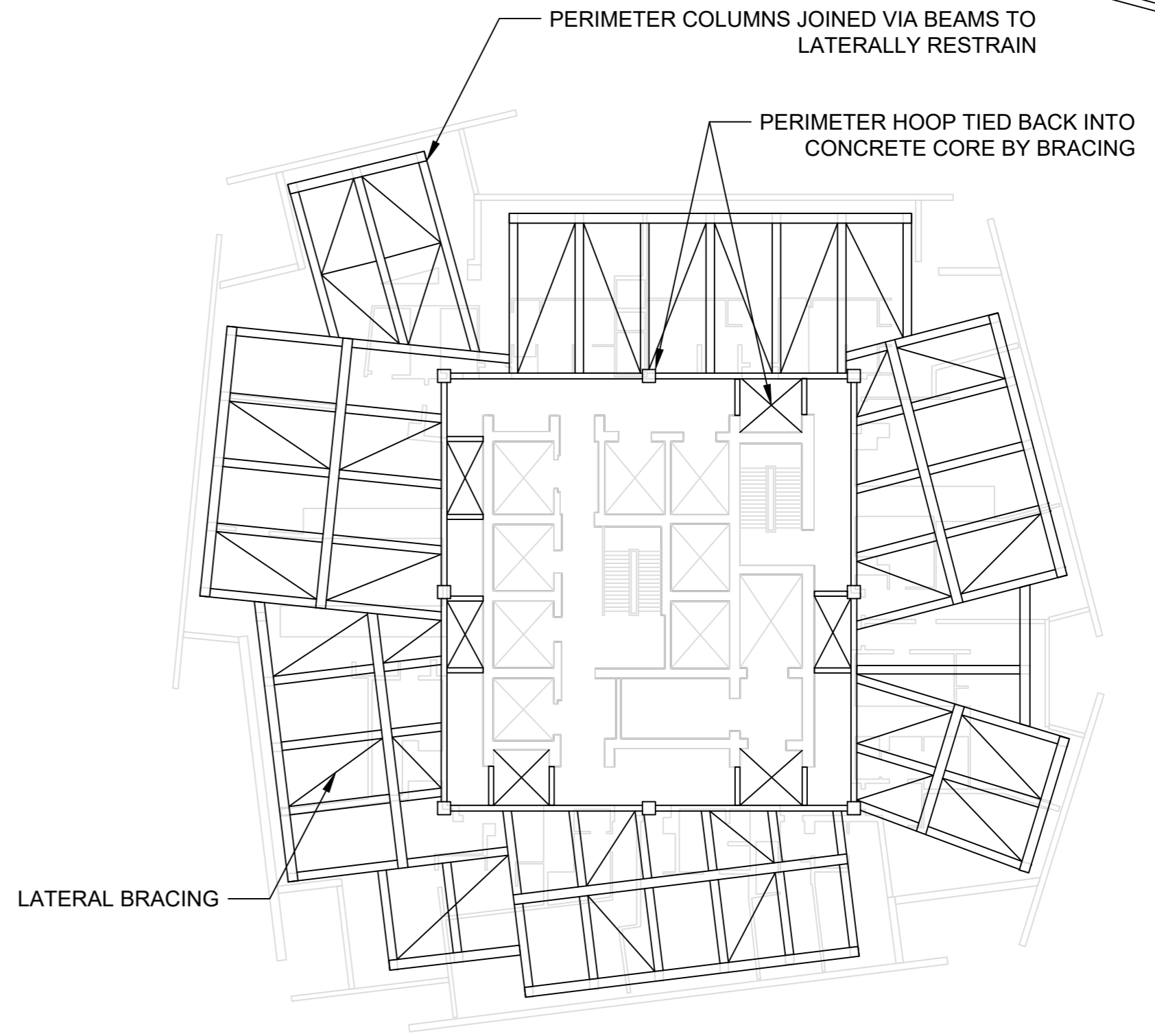


THE SHARD



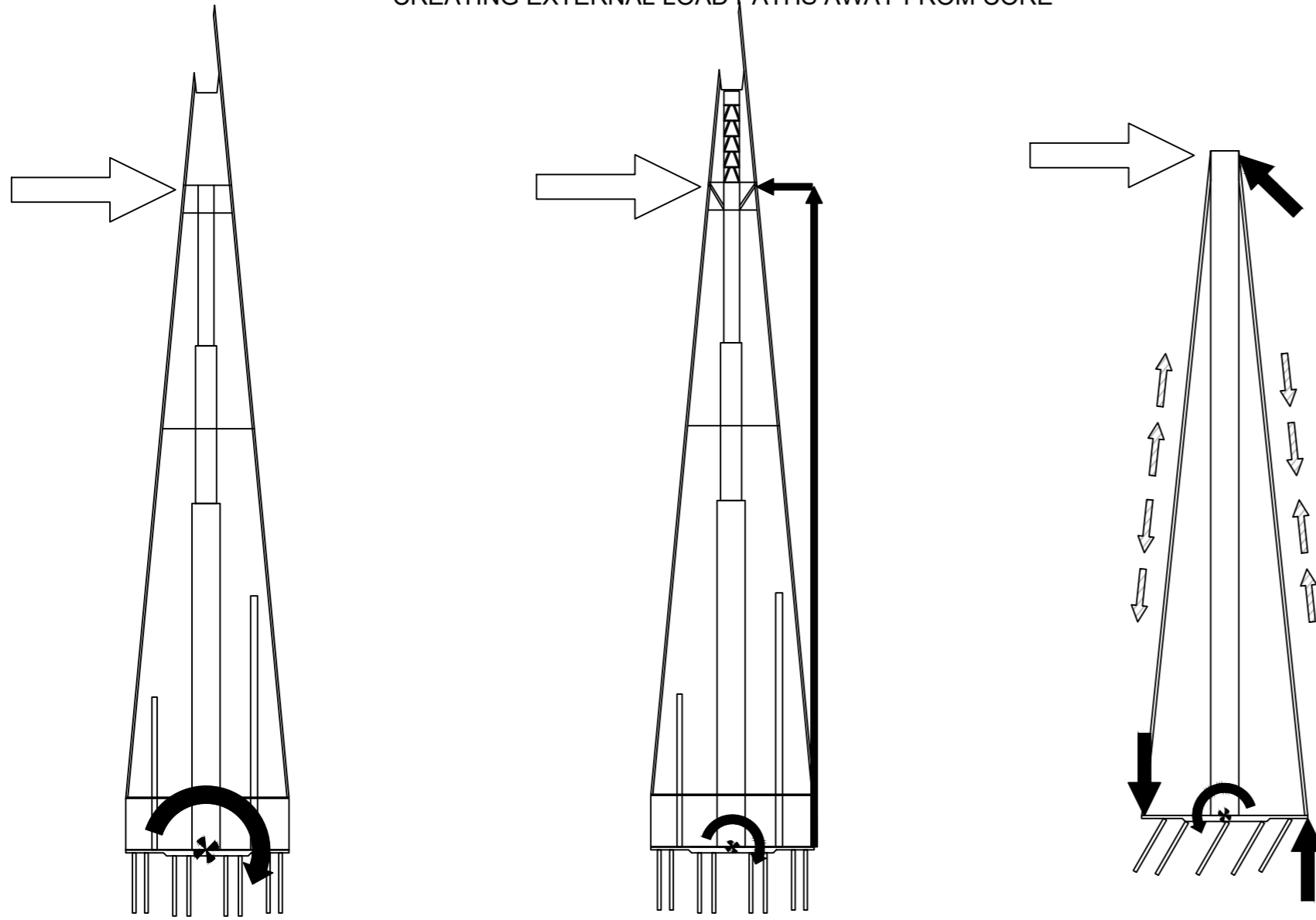
RESIDENTIAL / HOTEL FLOOR LAYOUT



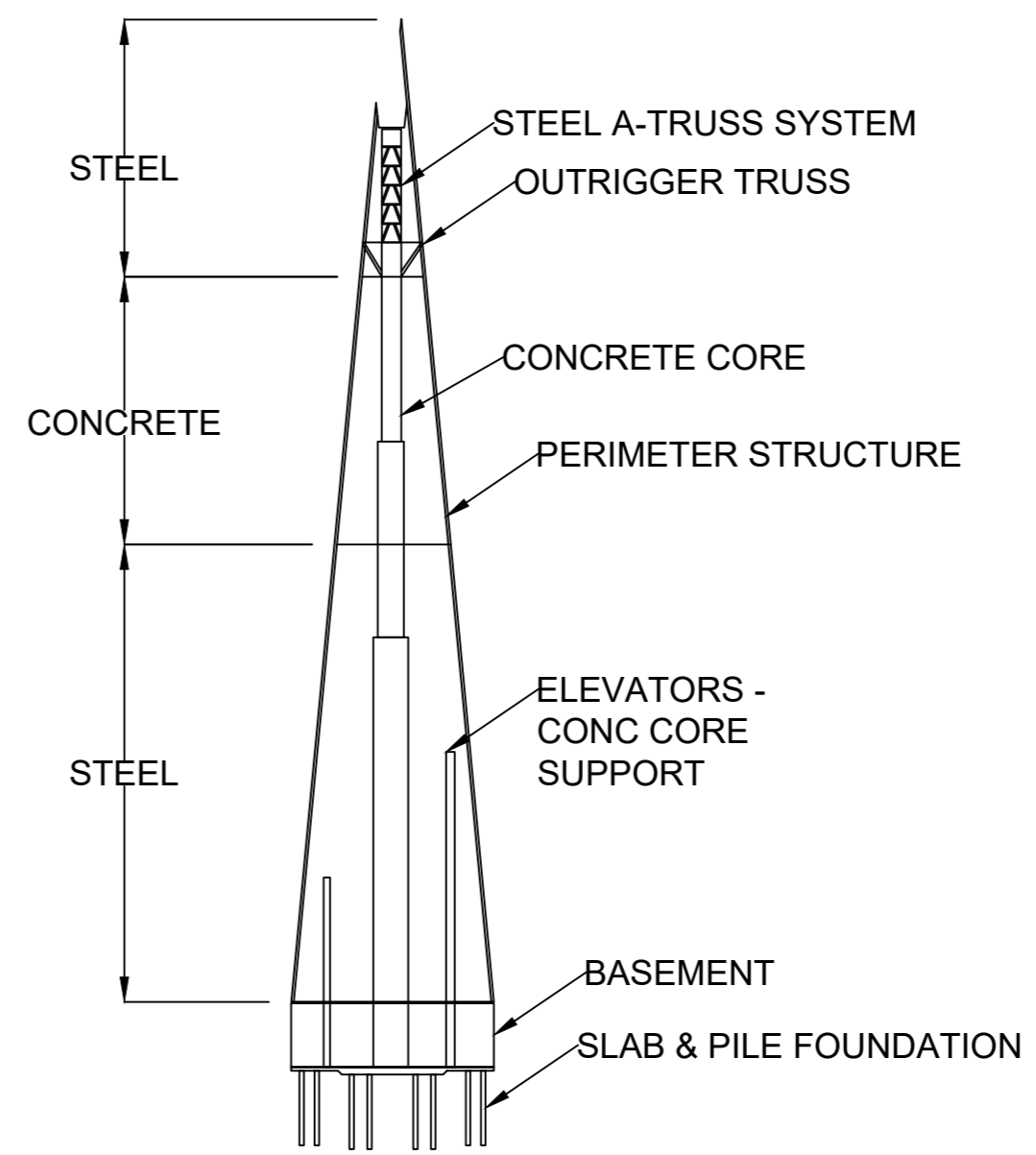
INDICATIVE LATERAL STRUCTURAL LAYOUT

HIGH-FLOOR FORCES (HIGH WIND ACTION) WOULD GENERATE LARGE MOMENT IN WHAT IS ESSENTIALLY A CANTILEVERED CORE.

CONNECTING TRUSS TRANSFERS LOAD ONTO PERIMETER COLUMNS INCREASING STIFFNESS AND CREATING EXTERNAL LOAD PATHS AWAY FROM CORE

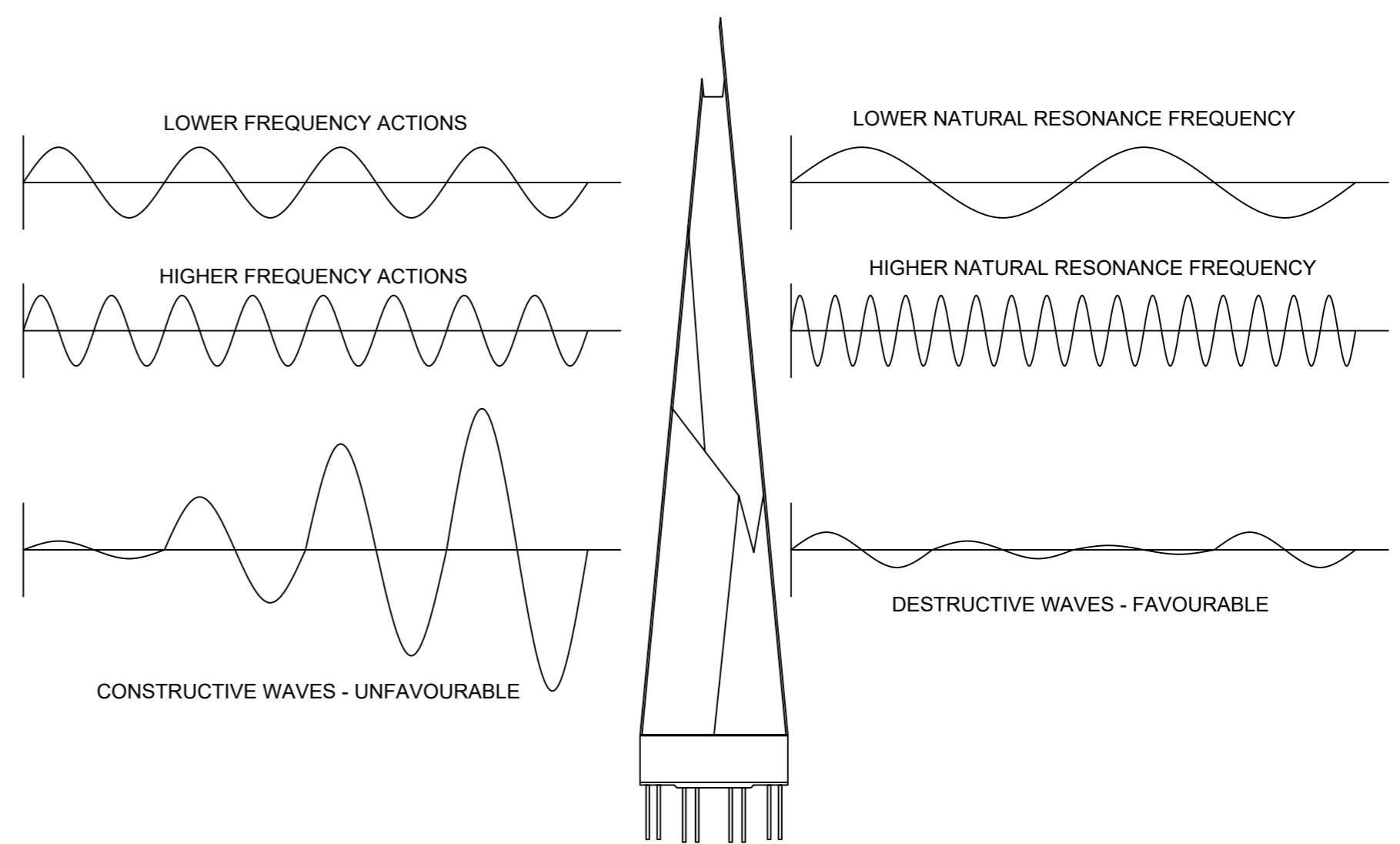


CENTRAL CORE SUPPORT

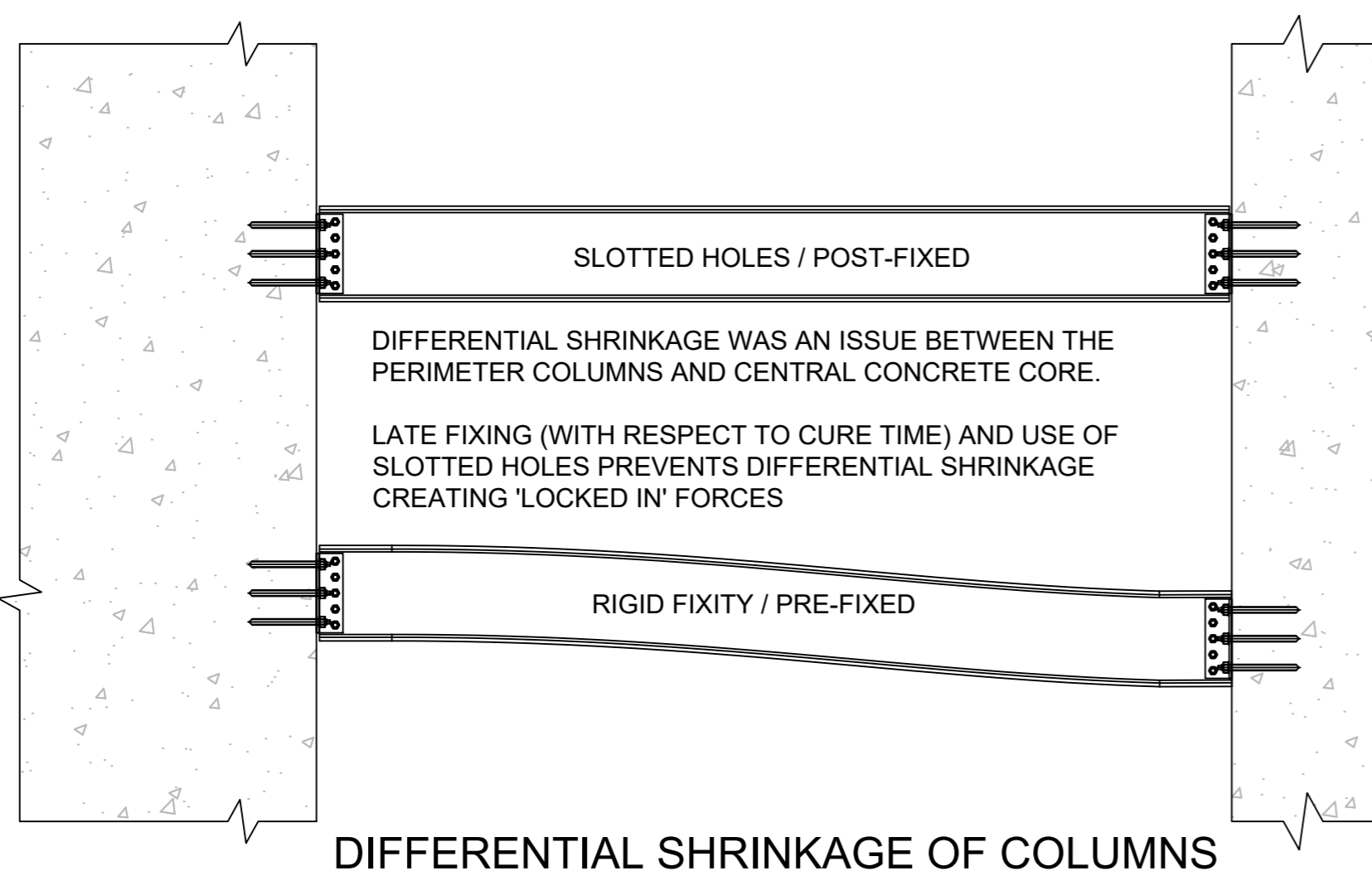


SHARD LAYOUT MATERIALS

WIND SPEEDS RECORDED AT 100mph AT TOP OF THE SHARD - HIGH WIND ACTION. (1.5kNm², 2.25kNm² AT EDGES)
INCREASE DAMPENING ACTION OF STRUCTURE (CONCRETE FLOORS) AND INCREASE STIFFNESS (HAT TRUSS)

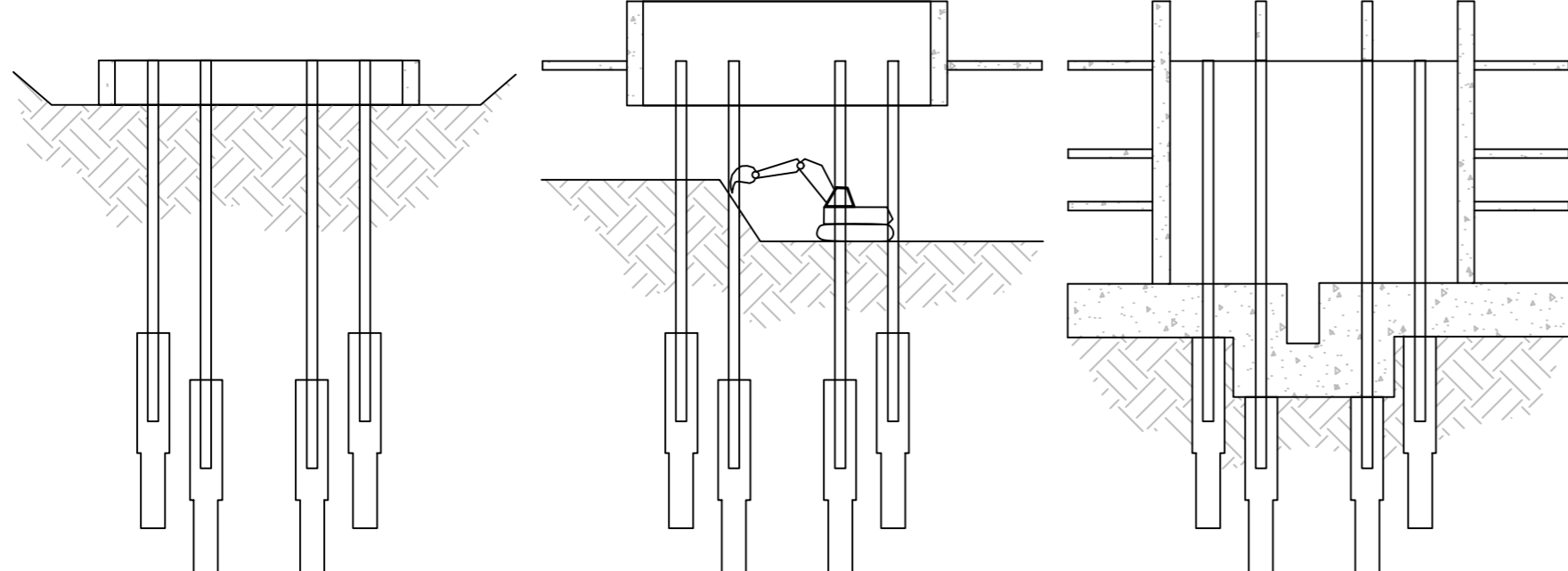


WIND & OSCILLATION



DIFFERENTIAL SHRINKAGE OF COLUMNS

CONSTRUCTION SEQUENCE - TOP-DOWN FOUNDATION



1. INSTALL BEARING PILES - SOME CIRCA Ø1.8m AND UP TO 53m DEEP TO CARRY 24mn.
 2. INSTALL PLUNGE COLUMNS - CIRCA 1000kg/m
 3. CONSTRUCT THE CORE (BOTTOM-UP) AND THE FOUNDATION (TOP-DOWN) IN PARALLEL - EXCAVATE BELOW THE CORE BENEATH B2 LEVEL, SLIPFORM CORE IS NOW AT FLOOR 21
 4. POUR RAFT SLAB IN A SINGLE 5,500m³ POUR - 32 HOURS AND 700 TRUCKLOADS.
 5. CONTINUE SUPERSTRUCTURE CONSTRUCTION
- WORLDS FIRST TOP-DOWN FOUNDATION CONSTRUCTION
 - WAS UK'S LARGEST CONCRETE POUR - BEATEN BY HINKLEY POINT AT 9,000m³ AND 5000T OF STEEL.