LIFT VINE ELEVATORS LTD — CIVIL & STRUCTURAL ENGINEERING DESK

ARCHITECTURAL ELEVATOR SHAFT PLANNING & CIVIL STANDARDS GUIDE

Technical guidelines for Architects, Structural Engineers, and Civil Contractors in Nigeria constructing hoistways under EN 81-20:2020.

1. Critical Spatial Tolerances & Safety Refuge Spaces

Structural Element	Required Minimum Dimension	Standard Basis (EN 81-20)	Engineering Impact if Compromised
Pit Depth	1,100 mm – 1,400 mm	EN 81-20 § 5.2.5.7	Compromises buffer stroke & pit technician survival refuge cuboid
Overhead (Headroom)	3,400 mm – 3,800 mm	EN 81-20 § 5.2.5.8	Compromises car roof safety survival volume; risk of ceiling crush
Shaft Plumbness	±15 mm over total travel	ISO 7465 Guide Rail Spec	Excessive rail shimming required; induces cabin vibration & noise
Wall Tie Beams	Every 2,000 – 2,500 mm	Structural Anchor Rules	Required in blockwork shafts to anchor guide rail brackets firmly.
Ventilation Vent	1.0% – 2.5% shaft plan area	EN 81-20 § 5.2.3	Dissipates heat from motors/drives; exhausts smoke during fire.

2. Coastal Pit Waterproofing Protocol (Lagos & Niger Delta)

In high-water-table regions (Lekki, Victoria Island, Banana Island, Eko Atlantic, Port Harcourt), elevator pits must be constructed with monolithic crystalline-treated concrete (Penetron/Xypex) combined with external self-adhesive bituminous tanking. Civil contractors must cast a 300 x 300 x 300 mm sump pit in one corner connected to building drainage with an automatic submersible pump to prevent electrical short-circuits and buffer rust.

ARCHITECTURAL ADVICE: *Request certified CAD shop drawings (.DWG) and structural overhead beam reaction load tables from Lift Vine before casting concrete slabs. Email: technical@liftvineelevatorsltd.com*