

07 / COST MODEL FOR A 45-STOREY OFFICE TOWER IN CENTRAL LONDON

	Element cost (£)	Cost/m ² GIFA (£)	% total cost		Element cost (£)	Cost/m ² GIFA (£)	% total cost
SUBSTRUCTURE	24,381,000	294.81	7.6	connections and sundries (1 @ £400,000)			
Breaking out existing slabs, up-fill, piling matt and guide walls and pile probing (1 @ £1,100,000)	1,100,000			Secondary steelwork for cladding, embedment plates, temporary stability for hoists and cranes etc (1 @ £1,750,000)	1,750,000		
Secant pile wall to perimeter, including removal of arisings and sonic testing (200m @ £18,000)	3,600,000			Fire protection - 90 minutes intumescent (8,370t @ £650)	5,440,500		
New piled foundations, including mobilisation, coring, test pile, removal of arisings and sonic testing (2,200m ² @ £2,000)	4,400,000			Temporary works for tower cranes, access and edge protection etc (1 @ £1,700,000)	1,700,000		
Excavation to lowered formation levels (25,000m ³ @ £100)	2,500,000			Reinforced concrete core walls, including cast in connections, RC beams et. (29,300m ² @ £500)	14,650,000		
Temporary plunge columns, king posts to perimeter, site cross propping including connections, adaptations and removal (630t @ £5,100)	3,213,000			Upper floors	11,604,000	140.31	3.6
Raft Slab 1.5m thk, including pile caps, blinding beds, construction joints, worked finish, cast in base plates, waterproofing (2,200m ² @ £1,550)	3,410,000			Reinforced concrete slabs including metal profiled decking including stubs etc (60,700m ² @ £120)	7,284,000		
Reinforced concrete capping beam, including couplers for slabs, removal of guide walls, waterproofing and temporary work nibs and making good (200m @ £4,000)	800,000			Reinforced concrete slabs 200thk to cores (5,700m ² @ £200)	1,140,000		
Reinforced concrete liner walls to perimeter, 300thk including filling works, waterproofing and works to existing walls (2,800m ² @ £500)	1,400,000			Allowance for enhancing loading capacity of slabs to other core areas (1 @ £200,000)	200,000		
Reinforced concrete ground floor slab 350thk (1,600m ² @ £230)	368,000			Perimeter detail, down stand beams, soft spots, plinths, etc (1 @ £1,000,000)	1,000,000		
Extra over allowance for floor logistics slab 500thk, including temporary protection (500m ² @ £600)	300,000			Allowance for metal platforms to risers for temporary protection and permanent condition (1,780m ² @ £1,000)	1,780,000		
Reinforced concrete structures to basement levels 1, 2 and 3 (4,500m ² @ £400)	1,800,000			Allowance for lift and escalator pits etc (1 @ £200,000)	200,000		
Allowance for lift/escalator pits (1 @ £150,000)	150,000			Roof	3,075,000	37.18	1.0
Allowance for tower crane base to basement slab (1 @ £90k)	90,000			Allowance for cladding lift core overruns, cappings and the like (1 @ £200,000)	200,000		
Allowance for dewatering site (1 @ £200,000)	200,000			Allowance for insulation and waterproofing ground roof slab areas (620m ² @ £350)	217,000		
Allowance for movement monitoring (1 @ £250,000)	250,000			Inverted roof, including waterproofing, insulation, ballast, bluroof, natural stone paving, pitch pockets, drainage channels and sundries (2,600m ² @ £630)	1,638,000		
Allowance for below slab drainage (1 @ £300,000)	300,000			Allowance for landscape to viewing terrace, including planting, irrigation system, integrated seating, lighting and sundries (1 @ £800,000)	800,000		
Allowance for all other items and sundries (1 @ £500,000)	500,000			Allowance for waterproofing and insulation to internal plant areas including pavers (400m ² @ £300)	120,000		
				Allowance for roof service enclosures, roof hatch and sundries (1 @ £100,000)	100,000		
SUPERSTRUCTURE				Stairs	4,225,500	51.09	1.3
Frame	48,213,500	582.99	15	Painted mild steel escape stairs, including treads, perimeter handrail and central balustrade (197nr @ £18,000)			
Steel frame, beams columns and bracings (8,370t @ £2,900)	24,273,000			Ditto, allowance for basement stairs (23nr @ £16,500)	3,546,000		
Allowance for frame complexity in steel	400,000				379,500		

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Allowance for ladders, steps and catwalks to plant rooms (1 @ £200,000)	200,000			gates (1 @ £150,000)			
Allowance for stopovers, ladders and access platforms to external areas (1 @ £100,000)	100,000			Internal walls and partitions	5,526,000	66.82	1.7
External walls	40,869,000	494.18	12.8	Drywall partitions throughout, mix of 30mins to 120mins FR walls (13,200m ² @ £120)	1,584,000		
Allowance for facade PCSA, visual mock-ups (VMUs), prototype mock-ups (PMU's) and all other facade related testing (1 @ £1,000,000)	1,000,000			Shaft walls to risers throughout, range of 60mins to 120mins FR walls (9,800m ² @ £150)	1,470,000		
Main facades, assume double skin unitised curtain wall with integrated solar control blinds (21,820m ² @ £1,075)	23,456,500			Plasterboard lining throughout to face of cores (14,000m ² @ £50)	700,000		
Plant area facades, unitised curtain wall including louvres (1,700m ² @ £1,100)	1,870,000			Blockwork to plant areas throughout (5,500m ² @ £200)	1,100,000		
Allowance for aluminium plant room screens/enclosures (1 @ £400,000)	400,000			E/O for colt walls, acoustic enhancements, interfaces with steelwork (1 @ 600,000)	600,000		
Reception facades, steel stick system, double glazed low iron glass (1,000m ² @ £1,250)	1,250,000			Four hours brick wall to EDF enclosure and other areas (150m ² @ £480)	72,000		
Core facades, unitised curtain wall, solid aluminium panels, glazed where required (9,700m ² @ £775m ²)	7,517,500			Internal doors	4,503,700	54.46	1.4
Allowance for soffits (700m ² @ £1,100)	770,000			Single doors generally (240nr @ £2,500)	600,000		
Balustrades, copings and parapet flashings (350m @ £1,300)	455,000			Leaf and a half door generally (218nr @ £3,500)	763,000		
Allowance for facade penetrations, including aircraft warning lights, street lighting and CCTV (1 @ £100,000)	100,000			Double doors generally (20nr @ £4,000)	80,000		
Allowance for facade cleaning equipment (1 @ £1,500,000)	1,500,000			Glazed doors to lift lobbies with side screens (45nr @ £15,000)	675,000		
Allowance for enclosure to cleaning equipment and sundry fall protection systems (1 @ 500,000)	500,000			Riser doors, ranges from 30mins to 60mins FR (887nr @ £1,100)	975,700		
Allowance for external column cladding generally (1 @ £150,000)	150,000			Plant double doors, ranges from 60mins to 120mins FR (95nr @ £4,000)	380,000		
Allowance for external walls in loading bay (1 @ £200,000)	200,000			Allowance for access panels to walls generally (1 @ £100,000)	100,000		
Allowance for wind mitigation measures (1 @ £1,000,000)	1,000,000			Allowance for smoke and fire curtains throughout (1 @ £120,000)	120,000		
Allowance for facade blind control system to double skin facade (1 @ £700,000)	700,000			Allowance for doors to basement plant and circulation areas generally (1 @ £550,000)	550,000		
Windows and external doors	1,210,000	14.63	0.4	Doors to goods lifts (65nr @ £4,000)	260,000		
Main entrance revolving doors (5nr @ £120,000)	600,000			Wall finishes	2,070,000	25.03	0.6
Single leaf pass doors generally (5nr @ £10,000)	50,000			Feature wall finish to reception walls and detailing to doors (1,000m ² @ £650)	650,000		
Sliding doors to roof terraces (8nr @ £20,000)	160,000			Enhanced plasterboard wall to lift lobbies + lift architraves (2,900m ² @ £250)	725,000		
Sundry escape doors, roller shutters, external plant access doors and panels etc (1 @ £250,000)	250,000			Feature wall finish to public space (450m ² @ £500)	225,000		
Allowance for loading bay entrance	150,000			Paint to drylining and blockwork above ground (1 @ £350,000)	350,000		
				Paint to blockwork below ground (1 @ £120,000)	120,000		
				Floor finishes	3,092,000	37.39	1.0
				Natural stone to the reception and lift cars including matwells and perimeter trench grills etc (2,300m ² @ £600)	1,380,000		

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Natural stone to lift lobbies (1,450m ² @ £400)	580,000			Allowance for other miscellaneous fittings, column guards, bollards to loading bay etc (1 @ £100,000)	100,000		
Natural stone to public space (780m ² @ £400)	312,000						
Epoxy finish to plant areas above ground incl. access (3,900m ² @ £70)	273,000			Lifts and escalators	16,500,000	199.52	5.1
Rubber sheet floor to Landlord areas above ground (980m ² @ £150)	147,000			Lift installations; double deck to low, medium and high rise passenger lifts; goods lifts (2nr); fire-fighting lifts; escalators to reception; basement access lift (1 @ £16,500,000)	16,500,000		
Allowance for plant and circulation area finish below ground (1 @ £350,000)	350,000						
Screeds, earthing to EDF and other plant areas (1 @ 50,000)	50,000			Disposal installations	1,820,250	22.01	0.6
				Rainwater installation including attenuation tank (82,700m ² @ £4.50)	372,150		
Ceiling finishes	1,504,000	18.19	0.5	Soil waste and vent to sanitary appliances including grey water collection, final run-outs in toilet fit-out (1 @ £1,200,000)	1,200,000		
Feature ceiling to reception (2,300m ² @ £350)	805,000			Condensate drainage (82,700m ² @ £3)	248,100		
Feature drylined ceiling to lift lobbies (1,450 @ £200)	290,000			Water installations	1,955,000	23.64	0.6
Feature ceiling to public space (780m ² @ £300)	234,000			Allowance for incoming MCWS, storage tank, booster, meter, water conditioner and distribution pipework (1 @ £400,000)	400,000		
Allowance for plant and circulation areas above ground (1 @ £115,000)	115,000			Cold water service to sanitary appliances to risers, run-outs in toilet fitout (1 @ £915,000)	915,000		
Allowance for plant and circulation area below ground (1 @ £60,000)	60,000			Central hot water generation and risers to fit-out area (1 @ £130,000)	130,000		
				Grey water installation incl all filtration and storage to WCs, run-outs in toilet fit-out (1 @ £450,000)	450,000		
Sanitary appliances and finishes fit-out	15,250,000	184.40	4.8	Non-potable water incl Cat 5 (1 @ £60,000)	60,000		
Allowance for WC fit out throughout, including finishes, sanitaryware, cubicles, fixtures and fittings etc (3,500m ² @ £3,700)	12,950,000			Heat source	566,000	6.84	0.2
Allowance for basement cycle shower fit out, including finishes, sanitaryware, cubicles, fixtures and fittings etc (600m ² @ £3,000)	1,800,000			Gas fired condensing boiler incl delivery and plant movement (5,000kw @ £70/kw)	350,000		
Allowance for landlord areas fit-out, showers, changing rooms etc (1 @ £500,000)	500,000			Heat pump, including delivery and plant movement (450kW @ £350/kW)	157,500		
				Flues from boilers to atmosphere (90m @ £650)	58,500		
Fittings, furnishings and equipment	1,800,000	21.77	0.6	Space heating and air treatment	20,018,500	242.06	6.2
Allowance for main entrance reception desk and security desks (1 @ £250,000)	250,000			Water cooled chillers (8,000kw @ £190/Kw)	1,520,000		
Allowance for internal signage throughout (1 @ £300,000)	300,000			Closed circuit cooling towers (9,500kw @ £205/kw)	1,947,500		
Allowance for external building signage (1 @ £50,000)	50,000			Condenser water installation incl water softening plant (82,700m ² @ £20)	1,654,000		
Allowance for high quality balustrades, security lines and handrails throughout (1 @ £250,000)	250,000			Chilled water including pumps, pressurisation units, pipework, risers, valves and fittings (82,700m ² @ £45)	3,721,500		
Allowance for cycle racks (1 @ £200,000)	200,000			LTHW water including pumps, pressurisation units, pipework, risers, valves and fittings (82,700m ² @ £40)	3,308,000		
Security turnstiles to reception (20nr @ £25,000)	500,000						
Security bag scanners - reception and basement (2nr @ £50,000)	100,000						
Allowance for rubbish compactor (1 @ £50,000)	50,000						

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On-floor supply and extraction AHUs (1 @ £4,650,000)	4,650,000			(82,700m ² @ £2.50)			
Supply and extract ductwork for AHUs to office floors, including dampers (82,700m ² @ £25)	2,067,500			Protective installations	2,722,500	32.92	0.8
Air-conditioning to entrance area (1 @ £500,000)	500,000			Wet riser installation: permanent and temporary (65 landings @ £7,000)	455,000		
Supplementary DX cooling systems (1 @ £650,000)	650,000			Sprinkler installations, complete with tanks, pumps, risers and coverage to landlord areas (82,700m ² @ £25)	2,067,500		
				Gas suppression in communications rooms; protection to generator room (1 @ £100,000)	100,000		
Ventilation systems	3,680,000	44.50	1.1	Lightning protection (1 @ £100,000)	100,000		
Onfloor WC supply and extract system (1 @ £700,000)	700,000			Communications, security and controls installations	7,288,200	88.13	2.3
Supply and extraction AHU and distribution serving basement shower area (1 @ £350,000)	350,000			Fire detection and fire alarm system (82,700m ² @ £18)	1,488,600		
Basement ventilation systems (1 @ £1,850,000)	1,850,000			Voice alarm system (82,700m ² @ £8)	661,600		
Fire fighting lobby vent, mechanically assisted BRE type system (65 landings @ £12,000)	780,000			Landlord's CNS - landlord's mobile boosting and wifi coverage excluded (1 @ £1,250,000)	1,250,000		
				Security/CCTV installations (1 @ £430,000)	430,000		
Electrical installation	16,364,000	197.87	5.1	Disabled alarm, refuge and fire telephone installations (1 @ £150,000)	150,000		
HV distribution: 11kV incoming mains; distribution through building (82,700m ² @ £15)	1,240,500			Building management and energy management system (82,700m ² @ £40)	3,308,000		
LV distribution, including switchgear, cables, rising busbars, etc (82,700m ² @ £50)	4,135,000			Builders' work	2,200,000	26.60	0.7
Full building back-up generation, including flues and oil storage (9,600KVA @ £490Kva)	4,704,000			Builders' work in connection with services installations, fire stopping etc (1 @ £2,200,000)	2,200,000		
Power management system SCADA (1 @ £500,000)	500,000			Preliminaries and contingencies	79,818,000	965.16	24.9
Power to mechanical services (82,700m ² @ £5)	413,500			Main contractor preliminaries costs and OH&P approx. 22%	53,358,000		
Landlord's small power installations (82,700m ² @ £5)	413,500			Risk transfer at 4% and construction contingency at 5%	26,460,000		
Lighting to landlord areas, circulation, lift lobbies, shower areas, lighting control, etc (1 @ £1,500,000)	1,500,000			Total shell and core (excluding demolition, external works, external services, category-A fit out, tenant enhancement, professional fees and VAT)	320,462,900	3,875.00	100.0
Lighting Control (82,700m ² @ £6)	496,200						
Feature lighting to reception (1 @ £750,000)	750,000						
Aircraft warning lights (1 @ £40,000)	40,000						
Allowance for feature external lighting (1 @ £500,000)	500,000						
Containment for security/ CCTV/fire alarms/ communications (82,700m ² @ £14)	1,157,800						
Earthing and bonding (82,700m ² @ £5)	413,500						
Allowance for PV installations (1 @ £100,000)	100,000						
Gas installation	206,750	2.50	0.1				
Gas installation to boilers	206,750						