

COST MODEL

| | QTY | UNIT | RATE (£) | TOTAL |
|--|--------|----------------|---------------|----------------------|
| MUSEUM (30,000m²) | | | | |
| CONVEYING SYSTEM | | | 155.00 | 4,650,000.00 |
| Passenger lifts; 1275kg, speed 0.63m/s; 3 stops | 2 | nr | 100,000.00 | 200,000.00 |
| VIP passenger lifts; double opening; 1275kg, speed 0.63m/s; 3 stops | 1 | nr | 250,000.00 | 250,000.00 |
| Passenger lifts; 1275kg, speed 1.0m/s; 2 stops | 2 | nr | 90,000.00 | 180,000.00 |
| Passenger lifts; 1600kg, speed 1.0m/s; 2 stops | 1 | nr | 105,000.00 | 105,000.00 |
| Passenger lifts; 1275kg, speed 0.63m/s; 2 stops | 2 | nr | 90,000.00 | 180,000.00 |
| Goods lifts; 10,000kg, speed 0.2m/s; 4 stops | 3 | nr | 750,000.00 | 2,250,000.00 |
| Goods lifts; 2,000kg, speed 1.0m/s; 4 stops | 3 | nr | 120,000.00 | 360,000.00 |
| Goods lifts; GL4; 1275kg, speed 1.0m/s; 4 stops | 1 | nr | 100,000.00 | 100,000.00 |
| Facade access lifts; 400kg, speed 1.0m/s | 5 | nr | 125,000.00 | 625,000.00 |
| Allowance for cooling to lift car | 20 | nr | 20,000.00 | 400,000.00 |
| PLUMBING | | | 39.76 | 1,192,750.00 |
| Sanitary appliances | | | | |
| Water closets, WHBs, urinals | 185 | nr | 500.00 | 92,500.00 |
| Cleaner sink | 8 | nr | 750.00 | 6,000.00 |
| Disabled toilet | 18 | nr | 1,500.00 | 27,000.00 |
| Extra over for IR taps to wash hand basin | 65 | item | 150.00 | 9,750.00 |
| Allowance for hand dryers | 50 | nr | 250.00 | 12,500.00 |
| Domestic water distribution | | | | |
| Domestic water supply to sanitary appliances | 250 | nr | 500.00 | 125,000.00 |
| Condensate water system | | item | | 200,000.00 |
| Reverse osmosis water treatment | | item | | 50,000.00 |
| Domestic hot water supply to sanitary appliances | 140 | points | 500.00 | 70,000.00 |
| DHWS calorifiers (500 litres) | 6 | nrs | 5,000.00 | 30,000.00 |
| Sanitary waste | | | | |
| Foul drainage to sanitary appliances | 250 | points | 500.00 | 125,000.00 |
| Allowance for plantroom drainage | | item | | 50,000.00 |
| Allowance for drainage at loading dock | | item | | 30,000.00 |
| Grease interceptors to restaurant | | item | | 15,000.00 |
| Rainwater drainage | | | | |
| Rainwater drainage installation | 30,000 | m ² | 5.00 | 150,000.00 |
| Other plumbing system | | | | |
| Allowance for concrete storage water tanks | | item | | 150,000.00 |
| Condensate tank | 2 | nr | | 50,000.00 |
| HVAC | | | 565.27 | 16,958,000.00 |
| Energy supply | | | | |
| Fuel oil supply distribution system including oil tank | | item | | 200,000.00 |
| Gas supply distribution system | | item | | 200,000.00 |
| Allowance for MEP services to basement | | item | | 50,000.00 |
| Heat generating system | | | | |
| Gas fired boiler plant (dual supply) incl pressurisation units (1,500kW) | 30,000 | m ² | 6.00 | 180,000.00 |
| Primary distribution pipework, heat exchangers and pumps | | item | | 75,000.00 |
| Solar panels for hot water generation | 5000 | m ² | 800.00 | 4,000,000.00 |
| Heat store (3000 litres) | 4 | nr | 5,000.00 | 20,000.00 |
| Cooling generating system | | | | |
| District cooling connection charge | | | | Excluded |
| Allowance for chilled water incoming mains | | | | Excluded |
| Primary heat exchangers (3.25MW) | 4 | nr | 50,000.00 | 200,000.00 |
| Ice storage heat exchangers (2.0MW) | 1 | nr | 25,000.00 | 25,000.00 |
| Vapour compression chillers including pumps and press units | 300 | kW | 200.00 | 60,000.00 |
| Cooling towers (2 x 975kW + 1 x 400kW) | 2350 | kW | 70.00 | 164,500.00 |
| Primary chilled water pipework and pumps | 6500 | kW | 40.00 | 260,000.00 |
| Allowance for condenser water pipework from chillers to cooling towers | 500 | m | 200.00 | 100,000.00 |
| Ice storage | 6 | nr | 100,000.00 | 600,000.00 |
| Distribution system | | | | |
| Air distribution system | | | | |
| Air handling units (Total 200m ³ /s) | | item | | 1,500,000.00 |
| Allowance for fresh air supply dehumidification (48m ³ /s) | | item | | 220,000.00 |
| Ductwork, grilles and diffusers | 30,000 | m ² | 120.00 | 3,600,000.00 |
| Exhaust ventilation system | | | | |
| Toilet extract system | 11 | nr | 10,000.00 | 110,000.00 |
| Kitchen extract system | | item | | 150,000.00 |
| Smoke extract system | 30,000 | item | 30.00 | 900,000.00 |
| Stair pressurisation system | 6 | nr | 100,000.00 | 600,000.00 |
| Loading bay extract system | | item | | 30,000.00 |
| Substation ventilation system | | item | | 30,000.00 |
| Chilled water distribution system | 30,000 | m ² | 30.00 | 900,000.00 |
| LTHW distribution system | 30,000 | m ² | 20.00 | 600,000.00 |
| Allowance for underfloor cooling | 10,500 | m ² | 40.00 | 420,000.00 |
| Terminal and package units | | | | |
| Fire control centre DX units | | item | | 30,000.00 |
| Plantrooms fan coil units | 4335 | m ² | 100.00 | 433,500.00 |
| Refuse stores DX units | | | | 50,000.00 |
| Allowance for comms room cooling | | item | | 70,000.00 |
| Allowance for lift machine rooms cooling | | item | | 50,000.00 |
| Controls and instrumentation | | | | |
| Allowance for BMS and controls | 30,000 | m ² | 35.00 | 1,050,000.00 |
| Allowance for gas detection system | | item | | 30,000.00 |
| Allowance for fuel oil leak system | | item | | 50,000.00 |

The design is based on external design condition of 46Cdb, 31Cwb. Internal design conditions are broadly:
 ■ Non-collection areas (both public and non-public) – 22Cdb ± 2Cdb (higher for circulation areas), 60%RH max (generally not controlled in circulation areas).

■ Collection areas (public and non-public) – 22Cdb ± 0.5Cdb, 50% ± 5%RH max.
 ■ Total area of 35,500m², of which the galleries comprise 5500m².

| | QTY | UNIT | RATE (£) | TOTAL |
|---|---------------|----------------------|---------------|----------------------|
| FIRE PROTECTION SYSTEM | | | 55.00 | 1,650,000.00 |
| Sprinkler | | | | |
| Sprinkler system installation | 30,000 | m ² | 35.00 | 1,050,000.00 |
| Standpipe system | 30,000 | m ² | 5.00 | 150,000.00 |
| Allowance for fire hose reels | 50 | nr | 3,000.00 | 150,000.00 |
| Allowance for fire extinguishing system | | item | | 200,000.00 |
| Sprinkler tanks and pumps | | item | | 100,000.00 |
| ELECTRICAL | | | 427.50 | 12,825,000.00 |
| Electrical service and distribution | | | | |
| HV cables and transformers including containment | | | | Excluded |
| LV switchgear and sub mains distribution | 30,000 | m ² | 55.00 | 1,650,000.00 |
| Allowance for sub-metering | | item | | 50,000.00 |
| General ladder rack, tray and trunking containment system | 30,000 | m ² | 30.00 | 900,000.00 |
| Electrical services in connection with mechanical plant | 30,000 | m ² | 10.00 | 300,000.00 |
| Power supplies to lifts | 20 | nr | 5,000.00 | 100,000.00 |
| Standby power supplies (2 x 1.5MVA gen set) | | item | | 850,000.00 |
| Small power installation | 30,000 | m ² | 25.00 | 750,000.00 |
| Allowance for UPS system to comms room and security equipment | | item | | 100,000.00 |
| Lighting installation | | | | |
| General lighting | 30,000 | m ² | 55.00 | 1,650,000.00 |
| Emergency lighting | 30,000 | m ² | 15.00 | 450,000.00 |
| Feature lighting | | item | | 1,500,000.00 |
| Lighting control installation | 30,000 | m ² | 15.00 | 450,000.00 |
| Communication and security | | | | |
| Public address and voice alarm | 30,000 | m ² | 20.00 | 600,000.00 |
| Telephone system | | item | | 150,000.00 |
| Disabled toilet and refuge alarms | | item | | 75,000.00 |
| Television system | | item | | 100,000.00 |
| Fire alarm system | 30,000 | m ² | 25.00 | 750,000.00 |
| Security and detection system; CCTV, access controls, intruder alarm; including containment | 30,000 | m ² | 55.00 | 1,650,000.00 |
| Local area networks (inc fibre backbone) | 30,000 | m ² | 20.00 | 600,000.00 |
| Other electrical systems | | | | |
| Earthing and bonding | 30,000 | m ² | 2.00 | 60,000.00 |
| Lightning protection system | 30,000 | m ² | 3.00 | 90,000.00 |
| SUB TOTAL FOR MUSEUM | 30,000 | GIA | 1243 | 37,275,750.00 |
| GALLERIES | 5500 | m² | | |
| PLUMBING | | | 5.00 | 27,500.00 |
| Rainwater drainage | | | | |
| Rainwater drainage installation | 5500 | m ² | 5.00 | 27,500.00 |
| HVAC | | | 428.64 | 2,357,500.00 |
| Distribution system | | | | |
| Air distribution dystem | | | | |
| Air-handling units (Total 120m ³ /s) | | item | | 900,000.00 |
| Allowance for fresh air supply dehumidification | | item | | 200,000.00 |
| Ductwork, grilles and diffusers | 55000 | m ² | 100.00 | 550,000.00 |
| Allowance for sound attenuation | | item | | 75,000.00 |
| Exhaust ventilation system | | | | |
| Smoke extract system | 5500 | item | 30.00 | 165,000.00 |
| Chilled water distribution system | 5500 | m ² | 30.00 | 165,000.00 |
| LTHW distribution system | 5500 | m ² | 20.00 | 110,000.00 |
| Controls and instrumentation | | | | |
| Allowance for BMS and controls | 5500 | m ² | 35.00 | 192,500.00 |
| FIRE PROTECTION SYSTEM | | | 5.00 | 27,500.00 |
| Sprinkler | | | | |
| Standpipe system | 5500 | m ² | 5.00 | 27,500.00 |
| ELECTRICAL | | | 414.55 | 2,280,000.00 |
| Electrical service and distribution | | | | |
| LV switchgear and sub mains distribution | 5500 | m ² | 30.00 | 165,000.00 |
| Allowance for sub-metering | | item | | 15,000.00 |
| General ladder rack, tray and trunking containment system | 5500 | m ² | 10.00 | 55,000.00 |
| Electrical services in connection with mechanical plant | 5500 | m ² | 15.00 | 82,500.00 |
| Small power installation | 5500 | m ² | 25.00 | 137,500.00 |
| Lighting installation | | | | |
| General lighting | 5500 | m ² | 30.00 | 165,000.00 |
| Emergency lighting | 5500 | m ² | 10.00 | 55,000.00 |
| Feature lighting | | item | | 500,000.00 |
| Lighting control installation | 5500 | m ² | 15.00 | 82,500.00 |
| Communication and security | | | | |
| Public address and voice alarm | 5500 | m ² | 20.00 | 110,000.00 |
| Disabled refuge alarms | | item | | 10,000.00 |
| Television system | | item | | 50,000.00 |
| Fire alarm system | 5500 | m ² | 25.00 | 137,500.00 |
| Security and detection system; CCTV, access controls, intruder alarm; including containment | 5500 | m ² | 105.00 | 577,500.00 |
| Local area networks (inc fibre backbone) | 5500 | m ² | 20.00 | 110,000.00 |
| Other electrical system | | | | |
| Earthing and bonding | 5500 | m ² | 2.00 | 11,000.00 |
| Lightning protection system | 5500 | m ² | 3.00 | 16,500.00 |
| SUB TOTAL FOR GALLERIES | 5500 | GIA | 853 | 4,692,500.00 |
| TOTAL | | GIA | | 41,968,250.00 |