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Our Ref: 6243-CC/31994

7 April 2017

Davis Langdon KPK (Singapore) Pte Ltd
300 Beach Road
The Concourse #23-00
Singapore 199555

CONFIDENTIAL

Attention: Ms Phan Lay Eng

Dear Sirs

PROPOSED CONDOMINIUM AT 45 AMBER ROAD
M&E COST ESTIMATES (REVISION 2)

We refer to our M&E Cost Estimates (Revision 1) submitted on 5 April 2017. The client has commented that this cost estimate is high and has requested that we review our estimates to achieve a target cost of $50/sq ft for all the M&E services, excluding the cost of the smart home management system which is an optional provision. We have scrutinised our estimates and are able to lower it to a total cost of $8,540,000 or $58.21/sq ft. excluding the smart home management system.

Please incorporate this M&E cost estimates into your overall cost plan for the project which is based on ADDP Architects' architectural scheme for 140 units, forwarded to us via email on 30 March 2017.

Yours faithfully
ALPHA CONSULTING ENGINEERS PTE LTD

LOH FOOK YUEN

cc UOL Ventures Pte Ltd – Ms See Wai Ming] with
cc ADDP Architects LLP – Mr Markus Cheng] enc

enc

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Alpha
Consulting Engineers Pte Ltd

PROPOSED CONDOMINIUM AT 45 AMBER ROAD

FOR

UOL VENTURES PTE LTD

MECHANICAL & ELECTRICAL INSTALLATIONS
COST ESTIMATES

7 APRIL 2017
REVISION 2

PROPOSED CONDOMINIUM AT 45 AMBER ROAD

M&E COST ESTIMATES (REVISION 2)

1.0 SUMMARY OF M&E COST ESTIMATES

1.1 The M&E cost estimates are summarised below:

Services	Cost (S$)
Electrical Installation	2,400,000
Air Conditioning & Mechanical Ventilation Installation	2,500,000
Lift Installation	560,000
Fire Fighting & Alarm Installation	480,000
Plumbing & Sanitary Installation	2,400,000
Swimming Pool Filtration Installation	200,000
Smart Home Management System	370,000
TOTAL	**8,910,000**

1.2 All the above cost estimates exclude GST and are based on current market prices without accounting for future inflation.

1.3 For estimate of utilities services provider connection charges and diversion of existing services, please refer to items 3.6 and 3.7 respectively.

2.0 PROJECT DATA

2.1 1 block of 21-storey residential building with a total of 140 apartment units, Basement Car Parks, swimming pools, Function Room, Gymnasium and other amenities..

2.2 Gross floor area of 13,629.35m^2.

2.3 Based on Architectural drawings from ADDP Architects LLP received via email on 30 March 2017.

3.0 EXCLUSIONS

The following items are excluded from the above M&E costs but should be included by the Consultant Quantity Surveyor in the overall project cost plan, where appropriate:

3.1 Preliminaries and contingencies (to be provided in the overall project cost plan).

3.2 All Builder's works related to M&E Services such as formations of openings, construction of trenches, plinths, pipe sleeves, underground pipes, etc. including lead-in pipes and road crossing pipes, inspection chambers, manholes, drawpits, RC domestic water transfer tank, RC water storage tank for rainwater/retention system,

sprinkler/wet riser system, RC balancing tank for swimming pool filtration system, etc. (to be provided under civil/structural work).

3.3 Sanitary wares and fittings (to be provided under architectural work).

3.4 Rain water/retention system (to be provided under architectural/civil work).

3.5 Minor sewers (to be provided under civil work).

3.6 Service providers' connection charges for electricity, cable vision, gas and water (suggest a sum of $200,000 to be allowed for these purposes, pending inputs from the utility companies).

3.7 Diversion/removable of existing public utilities (suggest a sum of $200,000 to be allowed for these purposes, pending input from utility companies excluding diversion of existing sewer pipeworks).

3.8 Gondola (to be provided under architectural work, if required).

3.9 Water features, underwater lightings and filtration systems for decorative pools (to be provided under landscaping work).

3.10 Luminaires within all apartment units (to be provided by the respective Purchaser at his own cost).

3.11 Electrical appliance, kitchen equipment and pelmet lights for kitchen cabinets (to be advised by the Consultant Quantity Surveyor).

3.12 Landscape luminaires (to be advised by the Landscape Consultant).

3.13 Swimming pool accessories (to be advised by the Consultant Quantity Surveyor).

3.14 Pneumatic waste collection system (to be advised by the Consultant Quantity Surveyor).

4.0 M&E PROVISIONS AND ASSUMPTIONS

The cost estimates are generally based on the M&E provisions and assumptions as outlined in the M&E Owner's requirements and some of the more salient points are summarised here below together with other pertinent items:

4.1 Electrical Installation

(a) Electricity supply will be taken from SP PowerGrid Substation at low voltage, i.e. 400/230 volts 3phase via a PowerGrid 22kV/LV substation.

(b) LT switchboards and distribution network.

(c) Provisions of lighting points (wirings only) and standard range of electrical accessories (e.g. power socket outlets for TV, cooker hob and hood, washing machine, air conditioning units, telephone outlets, gas water heaters, switches, etc.) in each apartment unit.

(d) Lighting installation including wirings and luminaires at public/common areas, basement carparks and M&E plantrooms.

(e) Cable TV System.

(f) Lightning protection system for compliance with SS 555.

(g) Emergency standby generator to meet only statutory requirements.

(h) Telephone wiring distribution system including pre-wiring to all telephone points in each apartment unit.

(i) Mobile enhancement system and wifi hotspot provision to common amenities areas at 1st storey.

(j) Infrastructural provision for telecommunication cable system from telecom riser to each apartment unit, i.e., (1 conduit for fibre optic cable system and 1 empty spare conduit) inclusive of cabling, draw wires, fibre termination panel, etc.

(k) Infrastructural provision for broadband coaxial cable system from MDF room to each apartment unit inclusive of amplifiers, splitters, cabling, conduits, etc.

(l) CCTV cameras at basement and 1st storey lift lobbies where access is applicable from common area, side gates, perimeter of the development, Substation and Bin Centre.

(m) Audio video intercom system for communication between visitor call panels at lift lobbies and guard porter unit at guardhouse.

(n) Card access control for the passenger lifts.

(o) Carpark barrier system utilizing EPS type controls.

(p) Guard Tour System.

4.2 Air Conditioning & Mechanical Ventilation Installation

(a) Air-cooled multi-split inverter controlled type using environmentally friendly refrigerant R410a with concealed ceiling ducted fan coil units will be provided for living and dining of apartment units. All bedrooms and utility room of apartment units will be provided with wall mounted fan coil units.

(b) Air-cooled multi-split inverter controlled type using environmentally friendly refrigerant R410a with ceiling cassette fan coil units (1-way) will be provided for the lift lobbies at basement and 1st storey.

(c) Air-cooled multi-split inverter controlled type using environmentally friendly refrigerant R410a with concealed ceiling ducted fan coil units will be provided for the Gymnasium room and Function Room.

(d) Air-cooled multi-split inverter controlled type using environmentally friendly refrigerant R410a with wall mounted fan coil units will be provided for Guardhouse, MDF Room and Management Office.

(e) Mechanical ventilation system will be provided for areas like M&E plant rooms, communal toilets and staircase storey shelter.

(f) All apartment unit bathrooms will be naturally ventilated except those apartment unit bathrooms that cannot meet naturally ventilated will be mechanically ventilated.

(g) All apartment unit kitchens will be naturally ventilated except those apartment unit kitchens that cannot meet naturally ventilated will be mechanically ventilated.

(h) The basement car park will be provided with ductless mechanical ventilation system comprising mini jet fans and exhaust air fans to provide 6 air changes per hour during normal mode condition and serve as a smoke purging system at a purging rate of 12 air changes per hours during fire mode.

Ventilation openings of not less than 2.5% of the basement car park floor areas shall be evenly provided for natural intake of fresh air.

4.3 Lift Installation

A total of 2 private, 1 passenger & 1 fireman machine-roomless lift of 15-persons capacity and speed of 120 mpm will be provided. The lifts will serve Basement to 21st storey. One (1) no. 13-persons, 60 mpm passenger lift will be provided for the clubhouse. This lift will serve Basement to 1st storey. Each lift will be provided with lift finishes, as specified by the interior design consultant and the estimated cost of the ID lift finishes is $10,000 per lift excluding the clubhouse lift which will be provided with only stainless steel finishes.

4.4 Fire Fighting & Alarm Installation

(a) Fire sprinkler protection system for all areas will be provided for the basement car park areas, M&E plantrooms, and common amenities. However, the substation, transformer room, cable chamber room, electrical switchroom and MDF rooms will be provided with automatic fire alarm system.

(b) Automatic fire alarm system.

(c) Hosereel system.

(d) Wet riser system.

(e) Dry riser system.

(f) Fire extinguishers.

4.5 Plumbing, Sanitary & Gas Installation

(a) Cold & hot water reticulation system.

(b) Electric hot water storage heaters for all bathrooms and kitchens of apartment units (excluding maid toilet).

(c) Sanitary drainage system.

(d) Town gas for gas cooker hob will be piped to the apartment units with naturally ventilated kitchen via the PowerGas mains.

4.6 Swimming Pool Filtration Plant Installation

(a) DE filters complete with circulation pumps.

(b) Piping, valves and accessories for the filtration system.

(c) Chemical feed pumps and tank.

(d) Underwater light fittings.

4.7 Smart Home Management System

(a) Mobile application

(b) Smart home hub

(c) Infrared controller for air conditioners

(d) Digital door lock

(e) Card access control for the passenger & private lift

(f) Intercom system for communication between visitor call panels at common and private lift lobbies at basement & 1st storey respectively and guard porter unit at guardhouse.

(g) Provision of 3 access cards per unit.