

## Construction Cost Handbook

# CHINA & HONG KONG 2020

Arcadis Asia Limited  
Arcadis Hong Kong Limited



## Electronic Cost Handbook

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### Handbook Cover Photos:-

1. HKSAR Inland Revenue Tower in Kai Tak Development Area
2. China Life Finance Centre, Beijing
3. Cingleot Premium Logistics Centre, Hong Kong
4. Shanghai Magnolia Plaza
5. Qingmao Port Immigration Building, Macau

The following handbook of information relating to the construction industry has been compiled by:

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If advice concerning individual projects is required, we would be happy to assist.

Unless otherwise stated, costs reflected in this handbook are **Hong Kong costs at 4th Quarter 2019.**

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## 2019

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## 2020

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## 2021

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## 2022

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OCTOBER							NOVEMBER							DECEMBER						
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16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24
23/30	24/31	25	26	27	28	29	27	28	29	30				25	26	27	28	29	30	31

## ABOUT US

Arcadis is the leading global Design & Consultancy for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering and project management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. In Asia, we have over 4,000 people covering the multiple market across all sectors focused on improving quality of life.

Arcadis has a long history of leading expertise in providing Cost Management capabilities that ensure our clients' projects are delivered with a competitive advantage, exceed project requirements and deliver sustainable outcomes. Our Cost Management heritage is particularly strong in Greater China having set-up our first office in Hong Kong back in 1949. We entered the Mainland China market in 1984, introducing modern Cost Management techniques to its newly evolving construction market. Our initial commissions were from Hong Kong and foreign developers investing in China, however since then our client base has grown to include state-owned enterprises and local developers.

We are committed to further extending our professional expertise to include new areas like whole-life costing, and supporting the growing number of clients in Asia who are looking for high quality Cost Management solutions as they embark on projects in other parts of the world. Furthermore, we have aligned our operating models to facilitate innovation, ease knowledge transfer and enable the sharing of best practices. We work to ensure clients have access to our best resources, delivering the most appropriate solutions, at a cost that meets their requirements.





## OUR CORE VALUES



### People First

We care for each other and create a safe and respectful working environment where our people can grow, perform, and succeed.



### Integrity

We always work to the highest professional and ethical standards and establish trust by being open, honest and responsible.



### Client Success

We are passionate about our clients' success and bring insights, agility, and innovation to co-create value.



### Collaboration

We value the power of diversity and our global capabilities and deliver excellence by working as One Arcadis.



### Sustainability

We base our actions for clients and communities on environmental responsibility and social and economic advancement.





# CONSTRUCTION COST DATA

# 1

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Construction Costs for Hong Kong

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M&E Costs for Hong Kong

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ACMV Costs for Various Designs and  
Developments in Hong Kong

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Fit-out Costs for Hong Kong

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Unit Costs for Ancillary Facilities  
for Hong Kong

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Construction Costs for Selected Asian  
Cities

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M&E Costs for Selected Asian Cities

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Major Rates for Selected Asian Cities

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Construction Cost Specification

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## CONSTRUCTION COSTS FOR HONG KONG

### CONSTRUCTION COSTS FOR HONG KONG

BUILDING TYPE	HK\$/m <sup>2</sup> CFA		
	BUILDING	SERVICES	TOTAL
<b><u>DOMESTIC</u></b>			
Apartments, high rise, public authority standard	9,050 - 10,950	1,950 - 2,350	11,000 - 13,300
Apartments, high rise, average standard	19,700 - 21,700	3,900 - 5,600	23,600 - 27,300
Apartments, high rise, high end	25,730 - 29,000	4,870 - 6,600	30,600 - 35,600
Terraced houses, average standard	28,550 - 32,500	3,650 - 4,800	32,200 - 37,300
Detached houses, high end	41,200 up	6,000 up	47,200 up
<b><u>OFFICE / COMMERCIAL</u></b>			
Medium/high rise offices, average standard	17,550 - 19,750	5,550 - 6,950	23,100 - 26,700
High rise offices, prestige quality	21,650 - 24,450	6,150 - 7,750	27,800 - 32,200
Out-of-town shopping centre, average standard	17,050 - 20,200	5,950 - 6,800	23,000 - 27,000
Retail malls, high end	23,800 - 28,150	6,200 - 7,650	30,000 - 35,800

<b><u>HOTELS</u></b>				
Budget hotels - 3-star, mid market	22,750 - 23,150	6,950 - 8,450	29,700 - 31,600	
Business hotels - 4/5-star	23,150 - 26,250	7,650 - 9,550	30,800 - 35,800	
Luxury hotels - 5-star	28,150 - 31,650	7,650 - 9,550	35,800 - 41,200	
<b><u>INDUSTRIAL</u></b>				
Owner operated factories, low rise, light weight industry	15,690 - 19,480	2,210 - 3,020	17,900 - 22,500	
<b><u>OTHERS</u></b>				
Underground/basement car parks (<3 levels)	22,410 - 26,350	2,590 - 3,650	25,000 - 30,000	
Multi storey car parks, above ground(<4 levels)	13,000 - 14,720	2,000 - 3,080	15,000 - 17,800	
Schools (primary and secondary)	16,500 - 17,200	3,000 - 3,800	19,500 - 21,000	
Students' residences	17,650 - 19,550	4,750 - 5,850	22,400 - 25,400	
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	23,300 - 26,100	6,000 - 7,700	29,300 - 33,800	
General hospitals - public sector	29,000 - 31,050	8,500 - 10,750	37,500 - 41,800	

The above costs are at 4th Quarter 2019 levels.

## M&E COSTS FOR HONG KONG

### M&E COSTS FOR HONG KONG

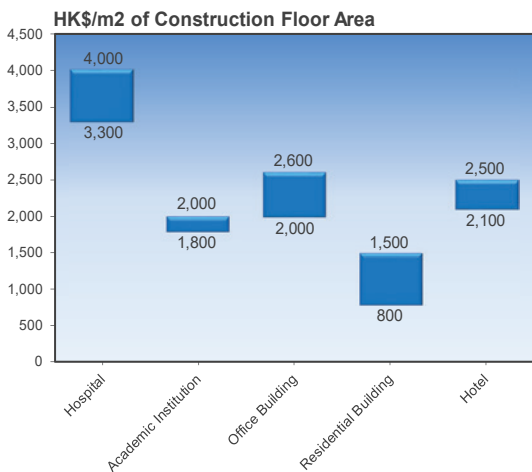
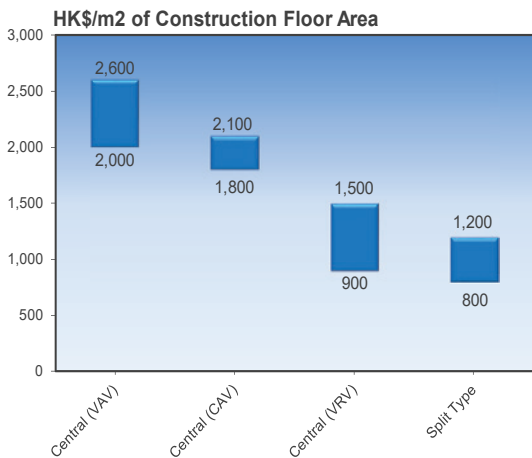
BUILDING TYPE	HK\$/m <sup>2</sup> CFA					
	MECHANICAL SERVICES	ELECTRICAL SERVICES	FIRE SERVICES	LIFTS/ ESCALATORS	HYDRAULIC SERVICES	TOTAL SERVICES
<b><u>DOMESTIC</u></b>						
Apartments, high rise, public authority standard	--	600 - 700	150 - 200	300 - 350	900 - 1,100	1,950 - 2,350
Apartments, high rise, average standard	850 - 1,000	1,050 - 1,350	200 - 600	450 - 750	1,350 - 1,900	3,900 - 5,600
Apartments, high rise, high end	1,250 - 1,500	1,270 - 1,550	200 - 600	550 - 850	1,600 - 2,100	4,870 - 6,600
Terraced houses, average standard	1,050 - 1,400	1,100 - 1,400	100 - 200	--	1,400 - 1,800	3,650 - 4,800
Detached houses, high end	2,000 up	2,100 up	100 up	--	1,800 up	6,000 up
<b><u>OFFICE / COMMERCIAL</u></b>						
Medium/high rise offices, average standard	1,880 - 2,300	1,720 - 2,200	550 - 700	700 - 900	700 - 850	5,550 - 6,950
High rise offices, prestige quality	2,050 - 2,650	2,000 - 2,400	550 - 700	850 - 1,150	700 - 850	6,150 - 7,750
Out-of-town shopping centre, average standard	2,100 - 2,350	1,750 - 1,950	550 - 700	850 - 950	700 - 850	5,950 - 6,800
Retail malls, high end	2,100 - 2,650	2,000 - 2,400	550 - 700	850 - 1,000	700 - 900	6,200 - 7,650



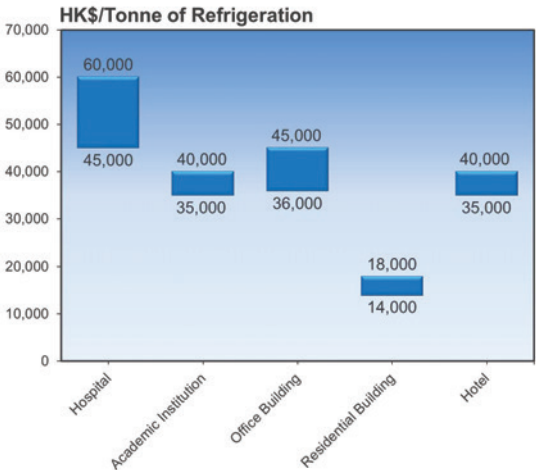
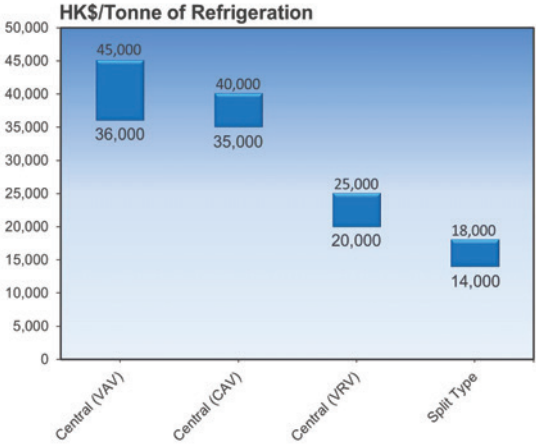
<b><u>HOTELS</u></b>						
Budget hotels - 3-star, mid market	2,100 - 2,350	1,900 - 2,200	600 - 850	550 - 750	1,800 - 2,300	6,950 - 8,450
Business hotels - 4/5-star	2,200 - 2,550	2,200 - 2,500	600 - 850	550 - 850	2,100 - 2,800	7,650 - 9,550
Luxury hotels - 5-star	2,200 - 2,550	2,200 - 2,500	600 - 850	550 - 850	2,100 - 2,800	7,650 - 9,550
<b><u>INDUSTRIAL</u></b>						
Owner operated factories, low rise, light weight industry	160 - 260	620 - 860	400 - 500	550 - 750	480 - 650	2,210 - 3,020
<b><u>OTHERS</u></b>						
Underground/basement car parks (<3 levels)	870 - 1,050	620 - 1,000	350 - 450	350 - 450	400 - 700	2,590 - 3,650
Multi storey car parks, above ground (<4 levels)	350 - 660	550 - 820	350 - 450	350 - 450	400 - 700	2,000 - 3,080
Schools (primary and secondary)	750 - 950	1,050 - 1,250	450 - 550	200 - 350	550 - 700	3,000 - 3,800
Students' residences	750 - 950	1,800 - 2,000	600 - 850	200 - 350	1,400 - 1,700	4,750 - 5,850
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	2,500 - 3,000	1,900 - 2,600	600 - 850	350 - 450	650 - 800	6,000 - 7,700
General hospitals - public sector	3,300 - 4,000	2,500 - 3,100	700 - 950	400 - 600	1,600 - 2,100	8,500 - 10,750

The above costs are at **4th Quarter 2019** levels.

## ACMV COSTS FOR VARIOUS DESIGNS AND DEVELOPMENTS IN HONG KONG







## FIT-OUT COSTS FOR HONG KONG

BUILDING TYPE	HK\$/m <sup>2</sup>
<b>HOTELS</b>	
<b>Public Areas (Front of House) :</b>	
3-star Hotel	10,200 - 15,500
4-star Hotel	15,500 - 21,500
5-star Hotel	21,500 up
<b>Guest Rooms :</b>	
3-star Hotel	8,700 - 10,500
4-star Hotel	10,500 - 14,000
5-star Hotel	14,000 up
<b>Notes :</b>	
<ol style="list-style-type: none"> <li>1. Includes furniture, floor, wall and ceiling finishes, drapery, sanitary fittings and light fittings.</li> <li>2. Excludes partitioning, M&amp;E works, building shell, chandeliers, operational items and equipment (e.g. cutlery, crockery, linen, television, refrigerator etc.), opening expenses, stage equipment and computer systems.</li> </ol>	
<b>OFFICES</b>	
General office	6,200 - 9,700
Executive office	9,700 - 13,500
Prestige office	13,500 up
<b>Notes :</b>	
<ol style="list-style-type: none"> <li>1. Local/Taiwanese/PRC furniture allowed for general offices.</li> <li>2. Includes furniture, partitioning, electrical work, minor alteration to air-conditioning, fire services and suspended ceiling to suit layout.</li> <li>3. Excludes telephones, data cabling, office equipment (e.g. computers, photocopiers, fax machines, UPS, etc).</li> </ol>	

The above costs are at **4th Quarter 2019** levels.

BUILDING TYPE	HK\$/m <sup>2</sup>
<b>DEPARTMENT STORES</b>	
General department store	7,700 - 12,500
Prestige department store	12,500 up
<b>Notes :</b>	
<ol style="list-style-type: none"> <li>1. Includes electrical work, additional FCU and minor alteration of fire services to suit layout.</li> <li>2. Excludes facade modification, data cabling, operational items and equipment (e.g. computers, P.O.S., office equipment) and opening expenses.</li> </ol>	
<b>RESTAURANTS</b>	
General dining restaurant	11,500 - 20,000
Fine dining restaurant	23,000 up
<b>Notes :</b>	
<ol style="list-style-type: none"> <li>1. Includes furniture, floor, wall and ceiling finishes, electrical work, minor alteration to air-conditioning and fire services installation to suit layout, exhaust for kitchen.</li> <li>2. Excludes exhaust flue, operational items (e.g. cutlery, crockery, linen, utensils, etc.).</li> </ol>	

The costs per square meter are based on fit-out area measured to the inner face of the perimeter wall.

## UNIT COSTS FOR ANCILLARY FACILITIES FOR HONG KONG

DESCRIPTION	UNIT	HK\$
<p><b>SQUASH COURTS</b></p> <p>Single court with glass backwall including associated mechanical and electrical services but excluding any public facilities (enclosing structure not included).</p>	per court	700,000
<p><b>TENNIS COURTS</b></p> <p>Single court on grade with acrylic surfacing and complete with chain link fence.</p> <p>Single court on grade with artificial turf surfacing and complete with chain link fence.</p> <p>Extra for lighting.</p>	per court per court per court	1,500,000 1,700,000 600,000
<p><b>SWIMMING POOLS</b></p> <p>Half Olympic (25m x 10.50m) outdoor swimming pool built on-grade, fully tiled; complete with 5m wide deck and associated pool equipment and ozone system.</p>	per pool	10,000,000
<p><b>PLAYGROUND EQUIPMENT</b></p> <p>Outdoor playground equipment comprising various activities.</p>	per set	300,000 to 800,000

The above costs are at **4th Quarter 2019** levels.

DESCRIPTION	UNIT	HK\$
<b>SAUNAS</b>  Sauna room for 4-6 people complete with all accessories (enclosing structure not included).	per room	300,000
<b>STEAM BATHS</b>  Steam bath for 4-6 people complete with all accessories (enclosing structure not included).	per room	300,000
<b>GOLF COURSES</b>  (Based on average cost of an 18-hole golf course)  Excluding associated buildings and equipment.	per hole	8,000,000 to 14,000,000
<b>GREEN ROOF</b>  Proprietary lightweight green roof system; with automatic irrigation system (roofing and roof structure not included).	per m2	2,000 to 5,000
<b>VERTICAL GREEN</b>  Vertical green system; wire frame type, with automatic irrigation system (background supporting wall not included).	per m2	5,000 to 10,000

## CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m <sup>2</sup> CFA			
	SHANGHAI <sup>+</sup>	BEIJING <sup>+</sup>	GUANGZHOU/ SHENZHEN <sup>+</sup>	CHONGQING/ CHENGDU <sup>+</sup>
<b><u>DOMESTIC</u></b>				
Apartments, high rise, average standard	691 - 762	609 - 669	546 - 601	571 - 679
Apartments, high rise, high end	1,561 - 1,701	1,474 - 1,679	879 - 962	923 - 1,163
Terraced houses, average standard	473 - 504	871 - 944	410 - 450	465 - 560
Detached houses, high end	689 - 762	1,674 - 1,747	1,571 - 1,785	610 - 700
<b><u>OFFICE / COMMERCIAL</u></b>				
Medium/high rise offices, average standard	878 - 1,161	851 - 1,146	763 - 850	905 - 1,047
High rise offices, prestige quality	1,139 - 1,421	1,146 - 1,883	1,115 - 1,345	1,143 - 1,538
Out-of-town shopping centre, average standard	N/A	649 - 867	735 - 807	731 - 935
Retail malls, high end	1,208 - 1,558	1,173 - 1,615	1,068 - 1,493	1,089 - 1,523
<b><u>HOTELS</u></b>				
Budget hotels - 3-star, mid market	970 - 1,183	960 - 1,183	967 - 1,064	981 - 1,210
Business hotels - 4/5-star	1,563 - 2,116	1,604 - 2,118	1,563 - 2,231	1,763 - 2,200
Luxury hotels - 5-star	2,113 - 2,527	2,043 - 2,629	2,125 - 2,342	2,171 - 2,600

<b>INDUSTRIAL</b>							
Industrial units, shell only (Conventional single storey framed units)	273 - 334	268 - 327	488 - 537	446 - 561			
Owner operated factories, low rise, light weight industry	423 - 529	519 - 594	N/A	N/A			
<b>OTHERS</b>							
Underground/basement car parks (<3 levels)	725 - 1,010	741 - 815	504 - 805	433 - 608			
Multi storey car parks, above ground (<4 levels)	371 - 519	446 - 451	360 - 397	345 - 425			
Schools (primary and secondary)	554 - 699	517 - 667	400 - 440	458 - 506			
Students' residences	406 - 553	366 - 517	N/A	N/A			
Sports clubs, multi purpose sports/leisure centres (dry sports)	934 - 1,147	884 - 891	N/A	N/A			
General hospitals - public sector	1,427 - 1,841	1,162 - 1,455	N/A	N/A			
Exchange Rate Used : US\$1 =	RMB 7.00	RMB 7.00	RMB 7.00	RMB 7.00			

The above costs are at **4th Quarter 2019** levels, inclusive of preliminaries but exclusive of contingencies.

- + Houses are built to shell and core standard **ONLY**, where all tenant or occupant areas are unfurnished.
- Schools (primary and secondary) are of public authority standard, no a/c and complete with basic external works.

(Cont'd)

## CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

### CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US\$/m <sup>2</sup> CFA			
	HONG KONG £	MACAU T <sup>b</sup>	SINGAPORE <sup>♣</sup>	KUALA LUMPUR
<b><u>DOMESTIC</u></b>				
Apartments, high rise, average standard	3,020 - 3,490	2,233 - 2,731	1,340 - 1,485	300 - 585 <sup>▶</sup>
Apartments, high rise, high end	3,910 - 4,550	3,118 - 4,765	2,065 - 3,045	700 - 1,375
Terraced houses, average standard	4,120 - 4,770	3,805 - 4,541	1,740 - 1,920	215 - 345 <sup>▲</sup>
Detached houses, high end	6,040 up	4,641 - 6,038	2,210 - 2,900	730 - 990
<b><u>OFFICE / COMMERCIAL</u></b>				
Medium/high rise offices, average standard	2,950 - 3,410	2,570 - 3,318	1,740 - 1,920 <sup>♣</sup>	570 - 750 <sup>▼</sup>
High rise offices, prestige quality	3,550 - 4,120	3,318 - 3,630	1,955 - 2,100 <sup>♣</sup>	855 - 1,265 <sup>▼</sup>
Out-of-town shopping centre, average standard	2,940 - 3,450	2,420 - 3,630	1,955 - 2,030	540 - 720
Retail malls, high end	3,840 - 4,580	3,805 - 4,591	2,065 - 2,245	670 - 1,005
<b><u>HOTELS</u></b>				
Budget hotels - 3-star, mid market	3,800 - 4,040	3,381 - 3,830	2,175 - 2,355	1,005 - 1,405
Business hotels - 4/5-star	3,940 - 4,580	4,591 - 5,488	2,790 - 3,115	1,325 - 2,190
Luxury hotels - 5-star	4,580 - 5,270	5,488 - 6,487	2,790 - 3,115	1,910 - 2,455



<b>INDUSTRIAL</b>						
Industrial units, shell only (Conventional single storey framed units)	N/A	N/A	760 - 930	315 - 435		
Owner operated factories, low rise, light weight industry	2,290 - 2,880	N/A	N/A	425 - 525		
<b>OTHERS</b>						
Underground/basement car parks (<3 levels)	3,200 - 3,840	2,008 - 2,944	940 - 1,255	310 - 535		
Multi storey car parks, above ground (<4 levels)	1,920 - 2,280	1,110 - 1,460	650 - 930 ▼	215 - 345		
Schools (primary and secondary)	2,490 - 2,690	2,220 - 2,570	N/A	245 - 310 ▲		
Students' residences	2,860 - 3,250	1,759 - 2,046	1,595 - 1,705	295 - 365 ◆		
Sports clubs, multi purpose sports/leisure centres (dry sports)	3,750 - 4,320	N/A	1,995 - 2,100	585 - 735		
General hospitals - public sector	4,800 - 5,350	N/A	2,790 - 2,900	840 - 1,160		
Exchange Rate Used : US\$1 =	HK\$ 7.82	MOP 8.06	S\$ 1.38	RM 4.15		

The above costs are at 4th Quarter 2019 levels, inclusive of preliminaries but exclusive of contingencies.

- £ Offices of average standard are built to the following provisions:
- (i) Curtain wall/window wall facade
  - (ii) Tenant areas include screeded floor, painted wall and ceiling
- Schools (primary and secondary) are of public authority standard, no a/c and complete with basic external works.
- ⌘ Rates are exclusive of any management contract fee.
- ▲ 6 - 12 units per floor, 46m<sup>2</sup> - 83m<sup>2</sup> per unit, exclude air-conditioning equipment, kitchen cabinets and home appliances.
- ▲ Terraced houses exclude air-conditioning.
- ▼ Offices are average standard and exclude tenant fitout.
- ▼ Schools (primary and secondary) are standard government provisions.
- ◆ Studenthostels to university standard.

(Cont'd)

## CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

### CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US\$/m <sup>2</sup> CFA			
	MANILA <sup>Ω</sup>	INDIA <sup>ϕ</sup>	BANGKOK <sup>œ</sup>	HO CHI MINH &
<b><u>DOMESTIC</u></b>				
Apartments, high rise, average standard	968 - 1,197	570 - 653	801 - 951	650 - 806
Apartments, high rise, high end	1,287 - 2,276	860 - 1,035	1,068 - 1,319	827 - 948
Terraced houses, average standard	942 - 1,153	394 - 414	501 - 618	438 - 514
Detached houses, high end	1,830 - 3,103	520 - 544	868 - 1,052	500 - 610
<b><u>OFFICE / COMMERCIAL</u></b>				
Medium/high rise offices, average standard	958 - 1,152	430 - 465	801 - 951	760 - 880
High rise offices, prestige quality	1,287 - 1,616	538 - 570	1,002 - 1,285	877 - 1,195
Out-of-town shopping centre, average standard	814 - 1,014	420 - 455	684 - 885	N/A
Retail malls, high end	1,112 - 1,558	585 - 632	918 - 968	710 - 930
<b><u>HOTELS</u></b>				
Budget hotels - 3-star, mid market	1,216 - 1,356	808 - 895	1,252 - 1,385	1,410 - 1,725
Business hotels - 4/5-star	1,371 - 2,290	1,258 - 1,491	1,602 - 1,836	N/A
Luxury hotels - 5-star	1,884 - 3,158	1,590 - 1,740	1,869 - 2,170	1,780 - 2,137

<b>INDUSTRIAL</b>					
Industrial units, shell only (Conventional single storey framed units)	519 - 584	336 - 394	534 - 668	312 - 393	
Owner operated factories, low rise, light weight industry	697 - 872	357 - 420	N/A	353 - 465	
<b>OTHERS</b>					
Underground/basement car parks (<3 levels)	502 - 750	285 - 305	601 - 801	645 - 770	
Multi storey car parks, above ground (<4 levels)	483 - 683	227 - 249	200 - 327	415 - 455	
Schools (primary and secondary)	713 - 984	282 - 320	N/A	545 - 595	
Students' residences	755 - 968	305 - 335	N/A	545 - 700	
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,207 - 1,756	595 - 620	N/A	806 - 862	
General hospitals - public sector	1,450 - 1,665	653 - 715	N/A	N/A	
Exchange Rate Used : US\$1 =	PHP 51.05	INR 71.11	BAHT 29.96	VND 23,300	

The above costs are at **4th Quarter 2019** levels, inclusive of preliminaries but exclusive of contingencies.

Ω Rates include 12% VAT. & Rates are nett of VAT and contingencies.

⊘ Rates are based on projects in Bangalore and are nett of GST. ♂ Rates exclude VAT.  
Mumbai costs are generally 8% higher.

## M&amp;E COSTS FOR SELECTED ASIAN CITIES

## M&amp;E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	SHANGHAI	BEIJING	GUANGZHOU/ SHENZHEN	CHONGQING/ CHENGDU
	RMB/m <sup>2</sup> CFA	RMB/m <sup>2</sup> CFA	RMB/m <sup>2</sup> CFA	RMB/m <sup>2</sup> CFA
<b><u>MECHANICAL SERVICES</u></b>				
Offices	814 - 1,035	775 - 1,200	775 - 1,150	750 - 1,020
Industrial *	181 - 304	170 - 280	155 - 285	145 - 240
Hotels	1,040 - 1,356	950 - 1,224	1,080 - 1,350	960 - 1,320
Shopping Centres	1,102 - 1,160	806 - 970	715 - 910	920 - 1,040
Apartment	330 - 436	143 - 459	152 - 410	155 - 310
<b><u>ELECTRICAL SERVICES</u></b>				
Offices	639 - 721	470 - 850	540 - 795	465 - 680
Industrial **	320 - 453	326 - 459	320 - 459	270 - 370
Hotels	697 - 890	719 - 962	715 - 980	600 - 855
Shopping Centres	556 - 697	490 - 690	500 - 690	525 - 680
Apartment	270 - 395	258 - 406	280 - 500	235 - 350
<b><u>HYDRAULIC SERVICES</u></b>				
Offices	115 - 171	97 - 143	128 - 184	88 - 125
Industrial	92 - 35	97 - 143	89 - 124	88 - 125
Hotels	386 - 613	377 - 490	390 - 500	340 - 465

Shopping Centres	144 - 194	143 - 204	114 - 168	105 - 155
Apartment	176 - 238	173 - 234	150 - 280	105 - 185
<b><u>FIRE SERVICES</u></b>				
Offices	239 - 335	184 - 270	230 - 350	248 - 300
Industrial	165 - 276	153 - 230	143 - 272	135 - 240
Hotels	303 - 408	224 - 383	285 - 425	260 - 360
Shopping Centres	271 - 403	224 - 383	248 - 383	260 - 380
Apartment	58 - 108	71 - 138	72 - 152	60 - 115
<b><u>LIFTS / ESCALATORS</u></b>				
Offices	294 - 578	294 - 577	295 - 517	310 - 570
Industrial	142 - 410	145 - 400	150 - 440	155 - 360
Hotels	230 - 520	232 - 520	250 - 480	288 - 445
Shopping Centres	342 - 520	327 - 520	325 - 470	300 - 455
Apartment	173 - 306	175 - 289	130 - 500	145 - 250

The above costs are at **4th Quarter 2019** levels, exclusive of contingencies.

\* Generally without A/C.

\*\* Excludes special power supply.

(Cont'd)

## M&amp;E COSTS FOR SELECTED ASIAN CITIES

## M&amp;E COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	HONG KONG		MACAU	SINGAPORE *	KUALA LUMPUR
	HK\$/m <sup>2</sup> CFA		MOP/m <sup>2</sup> CFA	S\$/m <sup>2</sup> CFA	RM/m <sup>2</sup> CFA
<b><u>MECHANICAL SERVICES</u></b>					
Offices	1,880 - 2,650		N/A	153 - 249	320 - 490
Industrial *	160 - 260		N/A	34 - 117	85 - 190
Hotels	2,100 - 2,550		2,590 - 2,990	215 - 278	300 - 590
Shopping Centres	2,100 - 2,650		2,350 - 2,940	147 - 246	300 - 475
Apartment	850 - 2,000 up		900 - 1,200	90 - 170	120 - 210
<b><u>ELECTRICAL SERVICES</u></b>					
Offices	1,720 - 2,400		N/A	158 - 258	290 - 460
Industrial **	620 - 860		N/A	55 - 136	145 - 190
Hotels	1,900 - 2,500		2,590 - 3,090	277 - 367	295 - 550
Shopping Centres	1,750 - 2,400		2,590 - 2,940	160 - 304	295 - 460
Apartment	1,050 - 2,100up		1,000 - 1,290	109 - 236	105 - 210
<b><u>HYDRAULIC SERVICES</u></b>					
Offices	700 - 850		N/A	26 - 55	35 - 65
Industrial	480 - 650		N/A	18 - 36	40 - 50
Hotels	1,800 - 2,800		1,790 - 2,190	122 - 172	175 - 270

Shopping Centres	700 - 900	600 - 790	46 - 80	30 - 35
Apartment	1,350 - 2,100	1,490 - 1,990	79 - 143	50 - 100
<b><u>FIRE SERVICES</u></b>				
Offices	550 - 700	N/A	33 - 56	60 - 80
Industrial	400 - 500	N/A	23 - 51	45 - 65
Hotels	600 - 850	910 - 1,120	28 - 55	65 - 90
Shopping Centres	550 - 700	610 - 810	37 - 56	55 - 80
Apartment	100 - 600	250 - 300	25 - 51	15 - 30
<b><u>LIFTS / ESCALATORS</u></b>				
Offices	700 - 1,150	N/A	63 - 162	125 - 350
Industrial	550 - 750	N/A	41 - 104	55 - 180
Hotels	550 - 850	610 - 810	49 - 82	100 - 285
Shopping Centres	850 - 1,000	460 - 710	56 - 90	95 - 120
Apartment	450 - 850	460 - 610	41 - 113	65 - 110

The above costs are at **4th Quarter 2019** levels, exclusive of contingencies.

- \* Generally without A/C.
- \*\* Excludes special power supply.
- ♣ Rates are nett of GST and excluding BAS.

(Cont'd)

## M&E COSTS FOR SELECTED ASIAN CITIES

### M&E COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	MANILA <sup>o</sup>	INDIA <sup>φ</sup>	BANGKOK <sup>ω</sup>	HO CHI MINH
	PHP/m <sup>2</sup> CFA	INR/m <sup>2</sup> CFA	BAHT/m <sup>2</sup> CFA	VND/m <sup>2</sup> CFA
<b><u>MECHANICAL SERVICES</u></b>				
Offices	4,000 - 6,800	4,750 - 6,730	4,400 - 4,800	2,090,000 - 2,975,000
Industrial *	800 - 1,600	2,185 - 3,880	1,550 - 1,600	N/A
Hotels	3,500 - 11,190	5,815 - 6,350	4,600 - 5,200	N/A
Shopping Centres	2,890 - 7,070	4,535 - 5,940	4,600 - 4,800	N/A
Apartment	1,360 - 4,450	2,590 - 3,210	4,300 - 4,500	1,570,000 - 2,150,000
<b><u>ELECTRICAL SERVICES</u></b>				
Offices	3,500 - 7,200	4,200 - 5,775	3,400 - 3,800	2,320,000 - 2,780,000
Industrial **	2,000 - 3,500	2,470 - 4,105	1,950 - 2,200	N/A
Hotels	4,900 - 10,200	4,660 - 6,355	3,800 - 4,500	N/A
Shopping Centres	3,060 - 6,600	4,005 - 5,360	2,800 - 3,200	N/A
Apartment	3,600 - 6,300	2,120 - 2,775	2,800 - 3,350	2,040,000 - 2,572,000
<b><u>HYDRAULIC SERVICES</u></b>				
Offices	1,230 - 2,200	730 - 1,120	780 - 900	340,000 - 630,000
Industrial	800 - 1,400	505 - 880	750 - 790	N/A
Hotels	2,250 - 6,820	3,825 - 5,760	1,400 - 1,650	N/A



Shopping Centres Apartment	1,220 - 1,650 2,250 - 4,100	1,090 - 1,970 1,725 - 2,385	790 - 950 1,200 - 1,400	N/A 660,000 - 770,000
<b><u>FIRE SERVICES</u></b>				
Offices	980 - 1,560	1,170 - 1,530	780 - 850	720,000 - 1,185,000
Industrial	1,000 - 2,500	535 - 735	730 - 750	N/A
Hotels	1,100 - 2,030	1,360 - 1,740	780 - 890	N/A
Shopping Centres Apartment	1,090 - 1,730 980 - 1,350	1,120 - 1,295 625 - 745	780 - 820 750 - 850	N/A 490,000 - 615,000
<b><u>LIFTS / ESCALATORS</u></b>				
Offices	1,800 - 4,930	975 - 1,240	1,100 - 1,400	680,000 - 1,300,000
Industrial	0 - 590	638 - 815	N/A	N/A
Hotels	1,800 - 3,500	1,415 - 2,060	1,100 - 1,400	N/A
Shopping Centres Apartment	1,600 - 3,010 850 - 3,440	1,655 - 2,120 880 - 1,140	350 - 450 600 - 800	1,390,000 - 1,960,000 770,000 - 1,120,000

The above costs are at **4th Quarter 2019** levels, exclusive of contingencies.

\* Generally without A/C.      ϕ Based upon nett enclosed area and nett of VAT.

\*\* Excludes special power supply.

Ω Transformer, included in Electrical Services.

₹ Rates are based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

(Cont'd)

## MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	SHANGHAI	BEIJING	GUANGZHOU/ SHENZHEN	CHONGQING/ CHENGDU
		RMB	RMB	RMB	RMB
1. Excavating basement ≤2.00m deep	m <sup>3</sup>	30	30	30	30
2. Excavating for footings ≤ 1.50m deep	m <sup>3</sup>	30	33	30	30
3. Remove excavated materials off site	m <sup>3</sup>	135	100	110	65
4. Hardcore bed blinded with fine materials	m <sup>3</sup>	190	180	190	180
5. Mass concrete grade 15	m <sup>3</sup>	740	595	740	550
6. Reinforced concrete grade 30	m <sup>3</sup>	780	615	805	580
7. Mild steel rod reinforcement	kg	5.6	5.6	6	6.1
8. High tensile rod reinforcement	kg	5.6	5.6	6	6.1
9. Sawn formwork to soffits of suspended slabs	m <sup>2</sup>	95	90	90	65
10. Sawn formwork to columns and walls	m <sup>2</sup>	90	85	85	60
11. 112.5mm thick brick walls	m <sup>2</sup>	90	80	80	80
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m <sup>2</sup>	N/A	N/A	N/A	N/A

13. Aluminium casement windows, single glazed	m <sup>2</sup>	700	815*	700	670*
14. Structural steelwork - beams, stanchions and the like	kg	10	11	12.5	11.5
15. Steelwork - angles, channels, flats and the like	kg	8.5	9.5	11.5	10
16. 25mm cement and sand (1:3) paving	m <sup>2</sup>	35	32	35	30
17. 20mm cement and sand (1:4) plaster to walls	m <sup>2</sup>	35	32	30	28
18. Ceramic tiles bedded to floor screed (measured separately)	m <sup>2</sup>	160	145	155	140
19. 12mm fibrous plasterboard ceiling lining	m <sup>2</sup>	160	162	190	150
20. Two coats of emulsion paint to plastered surfaces	m <sup>2</sup>	40	32	35	35
Average expected preliminaries	%	6 - 12	7 - 12	7 - 10	6 - 12

The above costs are at **4th Quarter 2019** levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

\* Rates for double glazed window.

(Cont'd)

## MAJOR RATES FOR SELECTED ASIAN CITIES

## MAJOR RATES FOR SELECTED ASIAN CITIES (Cont'd)

DESCRIPTION	UNIT	HONG KONG				MACAU		SINGAPORE ₪		KUALA LUMPUR	
		HK\$		MOP		S\$		RM			
1. Excavating basement ≤ 2.00m deep	m <sup>3</sup>	220		150		20		15 - 25			
2. Excavating for footings ≤ 1.50m deep	m <sup>3</sup>	200		180		20		15 - 25			
3. Remove excavated materials off site	m <sup>3</sup>	300 <sup>e</sup>		150		15 - 20		18 - 30			
4. Hardcore bed blinded with fine materials	m <sup>3</sup>	950		1,300		50		72 - 100			
5. Mass concrete grade 15	m <sup>3</sup>	1,100		1,500		177 -187**		220 - 295			
6. Reinforced concrete grade 30	m <sup>3</sup>	1,200		1,400		117 -122		240 - 300			
7. Mild steel rod reinforcement	kg	9.7		9		1.25 - 1.35		3.25 - 3.7			
8. High tensile rod reinforcement	kg	9.7		9		1.25 - 1.35		3.25 - 3.7			
9. Sawn formwork to soffits of suspended slabs	m <sup>2</sup>	410		280		40		36 - 46			
10. Sawn formwork to columns and walls	m <sup>2</sup>	410		280		40		36 - 46			
11. 112.5mm thick brick walls	m <sup>2</sup>	400		450		35 - 40		42 - 50			
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m <sup>2</sup>	1,000		N/A		43		70 - 85			

13. Aluminium casement windows, single glazed	m <sup>2</sup>	3,800	4,000	290	380 - 600
14. Structural steelwork - beams, stanchions and the like	kg	35	35	4 - 4.5	6 - 9
15. Steelwork - angles, channels, flats and the like	kg	42	40	4 - 4.5	6 - 9
16. 25mm cement and sand (1:3) paving	m <sup>2</sup>	155	120	21	17 - 26
17. 20mm cement and sand (1:4) plaster to walls	m <sup>2</sup>	160	150	22	18 - 26
18. Ceramic tiles bedded to floor screed (measured separately)	m <sup>2</sup>	400	450	74	50 - 75
19. 12mm fibrous plasterboard ceiling lining	m <sup>2</sup>	580	650	30	35 - 45
20. Two coats of emulsion paint to plastered surfaces	m <sup>2</sup>	90	200	3.5 - 4	3.4 - 5.0
Average expected preliminaries	%	10 - 15	10	12 - 15	6 - 15

The above costs are at **4th Quarter 2019** levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

♣ Rates are nett of GST.

♣♣ Rate for lean concrete blinding.

♣ Rates including dumping charges.

(Cont'd)

## MAJOR RATES FOR SELECTED ASIAN CITIES

## MAJOR RATES FOR SELECTED ASIAN CITIES (Cont'd)

DESCRIPTION	UNIT	MANILA		INDIA <sup>6</sup>		BANGKOK <sup>α</sup>		HO CHI MINH #	
		PHP	INR	BAHT	VND				
1. Excavating basement ≤ 2.00m deep	m <sup>3</sup>	270	197	120 - 140	92,400				
2. Excavating for footings ≤ 1.50m deep	m <sup>3</sup>	538	223	120 - 140	92,400				
3. Remove excavated materials off site	m <sup>3</sup>	350	N/A	120 - 150	84,700				
4. Hardcore bed blinded with fine materials	m <sup>3</sup>	1,400 - 1,600	4,570	650 - 750	280,900				
5. Mass concrete grade 15	m <sup>3</sup>	4,400	6,180	2,300 - 2,500	1,696,400				
6. Reinforced concrete grade 30	m <sup>3</sup>	4,899	7,735	2,800 - 3,200	1,912,291				
7. Mild steel rod reinforcement	kg	51 - 55	70	25 - 28	19,764				
8. High tensile rod reinforcement	kg	52 - 55	71	24 - 27	19,908				
9. Sawn formwork to soffits of suspended slabs	m <sup>2</sup>	950 - 1,200	700	450 - 500	225,750				
10. Sawn formwork to columns and walls	m <sup>2</sup>	1,200	753	450 - 500	257,250				
11. 112.5mm thick brick walls	m <sup>2</sup>	N/A	1,140	650 - 750	312,780				
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m <sup>2</sup>	1,500	1,765	1,200	401,110 - 597,600				

13. Aluminium casement windows, single glazed	m <sup>2</sup>	12,500 <sup>Ω</sup>	6,230	7,000	6,315,000
14. Structural steelwork - beams, stanchions and the like	kg	180	125	60 - 75	52,650
15. Steelwork - angles, channels, flats and the like	kg	160	125	60 - 75	52,650
16. 25mm cement and sand (1:3) paving	m <sup>2</sup>	650	493	200 - 240	94,000
17. 20mm cement and sand (1:4) plaster to walls	m <sup>2</sup>	500 - 700	405	220 - 260	144,000
18. Ceramic tiles bedded to floor screed (measured separately)	m <sup>2</sup>	1,800	1,765	1,200	674,180
19. 12mm fibrous plasterboard ceiling lining	m <sup>2</sup>	1,400 - 1,645	1,400	750 - 850	245,700
20. Two coats of emulsion paint to plastered surfaces	m <sup>2</sup>	500 - 800	250	140 - 180	88,900
Average expected preliminaries	%	12 - 18	9 - 13	12 - 18	8 - 12

The above costs are at **4th Quarter 2019** levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

Ω Rate for aluminium with anodized finish; 6mm thick.

⊠ Rate for 9mm gypsum board.

⊞ All rates above are Supply and Fix, based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

⊡ Rates are nett of VAT.

## CONSTRUCTION COST SPECIFICATION

### CONSTRUCTION COST SPECIFICATION

BUILDING TYPE	OUTLINE SPECIFICATION
<b><u>DOMESTIC</u></b>	
Apartments, high rise, average standard	Apartment units with fit-out, including air-conditioning, kitchen cabinets and home appliances, but <b>excluding</b> decorative light fittings and loose furniture
Apartments, high rise, high end	Apartment units with good quality fit-out, including air-conditioning, kitchen cabinets and home appliances, but <b>excluding</b> decorative light fittings and loose furniture
Terraced houses, average standard	Houses with fit-out, including air-conditioning, kitchen cabinets and home appliances, but <b>excluding</b> decorative light fittings, loose furniture, garden and parking
Detached houses, high end	Houses with good quality fit-out, including air-conditioning, kitchen cabinets and home appliances, but <b>excluding</b> decorative light fittings, loose furniture, garden and parking
<b><u>OFFICE / COMMERCIAL</u></b>	
Medium/high rise offices, average standard	RC structure, curtain wall, including public area fit-out, tenant area with raised floor/ carpet, painted wall and false ceiling
High rise offices, prestige quality	



Out-of-town shopping centre, average standard	Including public area fit-out and M&E, but <b>excluding</b> shop fit-out
Retail malls, high end	
<b><u>HOTELS</u></b>	
Budget hotels - 3-star, mid market	1) Interior decoration 2) Furniture (fixed and movable) 3) Special light fittings (chandeliers, etc.) 4) Operating Supplies and Equipment (OS&E) <b>excluded</b> .
Business hotels - 4/5-star	
Luxury hotels - 5-star	
<b><u>INDUSTRIAL</u></b>	
Industrial units, shell only (Conventional single storey framed units)	RC structure with steel roof and M&E to main distribution, but <b>excluding</b> a/c, heating and lighting
Owner operated factories, low rise, light weight industry	RC structure, including small office with simple fit-out and M&E, but <b>excluding</b> a/c and heating

(Cont'd)

## CONSTRUCTION COST SPECIFICATION

### CONSTRUCTION COST SPECIFICATION (Cont'd)

BUILDING TYPE	OUTLINE SPECIFICATION
<b><u>OTHERS</u></b>	
Underground/basement car parks (<3 levels)	RC structure
Multi storey car parks, above ground (<4 levels)	RC structure, natural ventilaion, no facade enclosure
Schools (primary and secondary)	Including fit-out and a/c, but <b>excluding</b> educational equipment
Students' residences	Including fit-out, loose furniture and a/c
Sports clubs, multi purpose sports/leisure centres (dry sports)	Dry sports (no swimming pool) and are for 'leisure centre' type schemes including main sports hall, ancillary sports facilities, changing and showers, restaurant / cafe, bar, etc. Costs include a/c, Furniture, Fittings and Equipment (FF&E).
General hospitals - public sector	Excluding medical and operating equipment



**Notes:**

1. The costs for the respective categories given above are averages based on fixed price competitive tenders. It must be understood that the actual cost of a building will depend upon the design and many other factors and may vary from the figures shown.
2. The costs per square metre are based on Construction Floor Areas (CFA) measured to the outside face of the external walls / external perimeter including lift shafts, stairwells, balconies, plant rooms, water tanks and the like.
3. All buildings are assumed to have no basements (except otherwise stated) and are built on flat ground, with normal soil and site condition. The cost excludes site formation works, external works, land cost, professional fees, finance and legal expenses.
4. The standard for each category of building varies from region to region and do not necessary follow that of each other.
5. All costs are in US\$/m<sup>2</sup> CFA. Fluctuation in exchange rates may lead to changes in construction costs expressed in U.S. dollars.





## GENERAL CONSTRUCTION DATA

# 2

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2020 Outlook

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Building Cost Trends in Hong Kong

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Material Prices in Hong Kong

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Labour Index in Hong Kong

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Labour Wages in Hong Kong

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Estimating Rules of Thumb and Design  
Norms

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Construction Activity in Hong Kong

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Construction Value in Hong Kong

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Hong Kong General Construction Insurance

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Specified Forms for Buildings Ordinance  
or Regulations for Hong Kong

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Summary of Building Regulations  
for Hong Kong

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Percentage Site Coverage and Plot Ratios  
for Hong Kong

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Evolving Regulations for Green Building  
in China

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Procurement Strategies and Form  
of Contracts

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Construction Workdone Forecast

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### 2020 OUTLOOK

#### CHINA

In 2019, China's economy saw GDP growth of (+)6.2%, Year-on-Year (YoY) up to Q3 2019. This is the lowest growth since the statistics of China GDP commenced from 1992. Inflation was mild, with the composite Consumer Price Index (CPI) increasing gradually by (+)2.5% YoY in the first three quarters of 2019.

The Chinese government recorded significant annual reduction of (-)20.2% in land sales in the first three quarters of 2019. However, the completed construction area and new commencement area increased (+)8.7% and (+)8.6% respectively. This has resulted in a reduction of Chinese developers' land stock. The construction market is anticipated to slowdown next year.

Developers saw high levels of turnover in the first three quarters of 2019, which accumulated in revenue reaching RMB11,149.13 billion, a (+)7.1% increase YoY. However, growth has significantly dropped compared with the (+)13.3% growth of the same time last year.

Further to the reduction of the VAT rate in May 2018, the Chinese government announced the second VAT reduction in March 2019, implemented from 1st April 2019. The VAT of construction and real estate reduced from 10% to 9%, and VAT of fabrication, including fabrication of major construction materials, reduced from 16% to 13%. This policy was designed to help the local manufactories benefit from the relief of taxation. However, the profit of the manufactory industry was still reduced (-)2.1% YoY in the first three quarters of 2019, compared with growth of (+)14.7% at the same time of last year. The continuous decline of GDP growth indicated that the impact of insufficient demand has been transmitted to the production side.



In November 2016, China's state council published a plan to improve resource recycling and renovation in design and construction in the 13th Five-Year Period (2016-2020). The Ministry of Housing and Urban-Rural Development published an action plan to impel the development of prefabricated construction in March 2017, which stated that the percentage of prefabricated building should reach 15% countrywide by 2020. Therefore, the prefabrication % became a compulsory design criterion from 2019.

Instead of the cast-in-place reinforced concrete structure, precast structure is widely promoted as one of the major prefabrication products. The implementation of a precast structure can reduce the waste and improve the noise and dust control at the construction site. However, the precast manufactories are at the beginning stage of development and due to the limited productivity for reinforced concrete structure buildings, the structural cost rises at 50~300 per construction area.

In the first three quarters of 2019, construction wages increased by 4.2% YoY. Up until October 2019, basic construction product costs fluctuated in price with rebar (-)15%, steel (-)14%, concrete (+)9% and cement (+)2%, YoY. The substantial decrease in rebar and steel were due to excess supply. The tender price recorded an increase of 3% in 2019.

Construction wages are anticipated to grow between 3% and 5% in the coming year. While the prices of major material will remain stable. We anticipate that construction costs will rise by 3% per annum in the next two years.

(Cont'd)

### 2020 OUTLOOK

#### HONG KONG

2019 was a challenging year for Hong Kong's construction industry. After enjoying a decade of busy years, the construction industry was relatively quiet in 2019. Construction output returned to 2016's level based on the gross value of construction works performed during the first three quarters of 2019. With the continuing tension of the China-US trade war and weakened consumer demand in Hong Kong, the GDP growth rate has recorded a negative growth rate of (-)2.9% Year-on-Year (YOY) based on Q3 2019 which is the first time since Q3 2009. Inflation was moderate, with the overall Composite Consumer Price Index (CPI) increasing steadily by 3.1% YOY based on October 2019.

#### **Reduced construction activity and delay in funding approval for capital works**

The gross value of construction works performed dropped by 3.0% YOY based on Q3 2019. The decline was due to the reduction in both the public and private sectors spending. The decline was especially significant in the public sector, which reduced by 8.3% YOY based on Q3 2019. Moreover, Hong Kong's Legislative Council (LegCo) approved funding for major capital works in 2018/19 has decreased by 30% when compared with the previous year. Such trends of decreasing rates of approval funding are expected to continue in 2019/20, which can be seen in the limited number of approved projects by the LegCo Finance Committee after its resumption of the funding approval process for capital works in October 2019.

However, several major civil projects, including the Trunk Road T2, infrastructure works for the Kai Tak Development and the construction of the desalination plant in Tseung Kwan O, have commenced in late 2019. Funding has also been granted for hospital projects, including Kwai Chung Hospital and Prince of Wales Hospital, as the ten-year Hospital Development Plan progresses.

#### **Public housing and land supply**

The completion of public housing production by the Hong Kong Housing Authority and the Hong Kong Housing Society is around 19,000 flats in 2019/20, which is slightly below the targeted yearly supply average of 20,140 flats as set by the latest Long-Term Housing Strategy Annual Progress Report 2019. That means the number of public housing projects would need to be increased





to make up the shortfall in production or to uplift the production target in the coming years.

As mentioned in the 2019 Policy Address, the government has promised to increase land supply by invoking the Lands Resumption Ordinance and implementing the Land Sharing Pilot Scheme. However, a detailed technical study and thorough consultation must be undergone before such measures can be fully implemented to increase land supply in the future. It is unlikely the construction industry can benefit from increased land supply in 2020.

### Cost of materials and labour

The Tender Price Index (TPI) decreased by 3.6% YOY based on Q4 2019. Steel price decreased by 6% YOY based on Q3 2019, while Portland cement, concrete blocks and diesel fuel increased by 4% YOY based on Q3 2019. The price of sand remained stable at a high level. However, the price of ready mixed concrete remains stable after the drop at the end of last year and early this year.

Construction workers' wages are stable overall. Wages of carpenter and steel bar benders increased by 7% and 9% YOY respectively, based on Q3 2019, while the declining trend of wages of bricklayers can be seen, dropping by 18% since mid-2017. The Composite Labour Wages Index increased by 2% YOY based on Q3 2019. However, the Hong Kong Construction Industry Employees General Union recommended a pay freeze in October 2019, which covered 15 different trades, for 12 months. This was the first time in 12 years that the Union had made the recommendation and came after the unemployment rate for builders grew.

### Looking forward

Looking forward to 2020, Arcadis expects that the level of construction activities will be relatively low yet stable compared with 2017 and 2018. Furthermore, it is likely that the China-US trade war and local social unrest will have a continuous effect on the local property market. The potential increase in land supply through the Lands Resumption Ordinance and the Land Sharing Pilot Scheme may have a noticeable impact on market sentiment. However, the impact of increasing land supply on construction costs will take at least a few years to become prominent. With all these in mind, it is anticipated that construction costs will drop by 3% in 2020 and remain stable in 2021.

(Cont'd)

### 2020 OUTLOOK

#### MACAU

With the opening of the Hong Kong-Zhuhai-Macao Bridge in October 2018, the total number of visitor arrivals in Macau rose by 20.6 % in the first half of 2019 with year-on-year to 20.29 million as reported by the Macau Government Economic Bureau. While visitor arrivals continued to grow, slowdown in China's economic growth means that China visitors spending in Macao, particularly on the gaming activities, has weakened. According to University of Macao Release for the second quarter of 2019, the nominal gross gaming revenue was 73.4 billion MOP, dropping by 0.5% year on year and by 3.7% quarter-on quarter.

The hotel sector experienced stable development. The number of hotels as at end of June 2019 was 83, providing 38,000 guest rooms. The general hotel occupancy rate in the first half of 2019 was 91.1%, which has increased by 1.1 percentage year-on year. The total number of guests was 6.91 million, representing a rise of 1.5% year-on year.

In the first half of 2019, the Gross Domestic Product (GDP) of Macau was amounted to MOP 214.92 billion and was dropped by 2.5% year-on-year, according to the Macau Government Economic Bureau. The China-US trade war, the depreciation of RMB and the ongoing social movement in Hong Kong also had negative impacts on Macao's economy in 2019.

Inflation remained steady and the Composite Consumer Price Index rose by 2.8% year-on-year in the first half of 2019, due to the rise in dining out expenses and housing rent.

Looking into the construction industry, Casinos and hotel resorts still drive the construction market in Macau. The Hotel and Gaming Alteration and Additions (A&A) development on various large-scale Hotel and Casino Resorts played an important role in the 2019 construction market and is expected to grow in the coming years. On the government side, a number of public housing projects

and infrastructure tunnels projects are progressing. The Qingmao Port is under construction and is anticipated to be completed by 3rd Quarter 2020.

With reference to the statistical data provided by DSEC (Government of Macao Special Administrative Region – Statistics and Census Service), the price of construction materials has increased by 1.6% year-on-year as of the 3rd Quarter 2019, while labour costs have dropped significantly by 10%. This is mainly due to fewer large scale casino and hotel resort new construction sites. The overall construction costs in 2019 dropped by around 2.8 %.

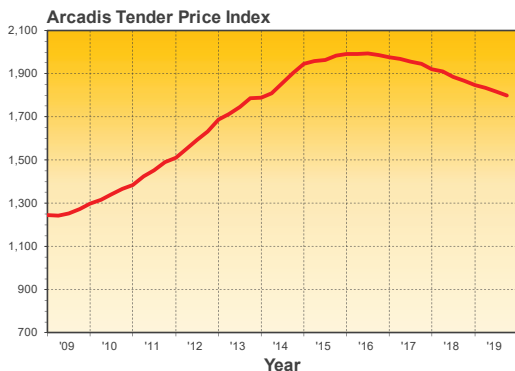
Looking forward to 2020 and 2021, the challenges facing Macau will be the uncertainty of the China-US trade war and the ongoing social movement in Hong Kong which will indirectly affect visitors coming to Macau. Both of these factors may have a significant impact to Macau's economy in 2020.

Yet there are also several opportunities ahead, including the renewal of Macau's gaming license in 2022, which may give rise to more competition in the casino market. Tourism and casino visitation is expected to increase following the opening of the Qingmao Port and more opportunities for hotels and commercial development are expected in the Guangdong-Hong Kong-Macau Greater Bay Area.

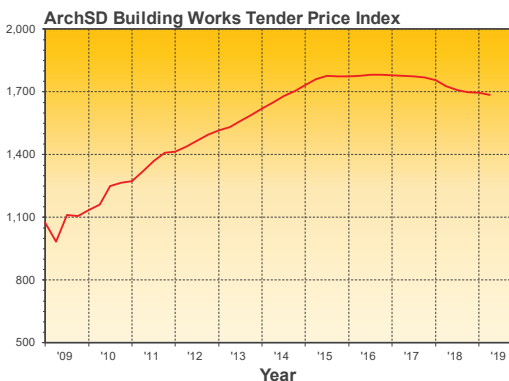
We anticipate that the construction costs will drop by 2% per annum in 2020 and 1% per annum in 2021, mainly due to the risk of the uncertainty of the China-US trade war and the ongoing social movement in Hong Kong.

<b>CONSTRUCTION COST TREND PREDICTION</b>			
<b>REGION</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
China	(+)3%	(+)3%	(+)3%
Hong Kong	(-)3.5%	(-)3%	Flat
Macau	(-)3%	(-)2%	(-)1%

### BUILDING COST TRENDS IN HONG KONG



YEAR	INDEX (Base = 100, at Year 1970)			
	Q1	Q2	Q3	Q4
2009	1,245	1,242	1,253	1,273
2010	1,297	1,315	1,342	1,367
2011	1,385	1,425	1,452	1,491
2012	1,511	1,552	1,595	1,632
2013	1,688	1,713	1,747	1,786
2014	1,789	1,808	1,857	1,903
2015	1,946	1,958	1,963	1,984
2016	1,992	1,992	1,993	1,986
2017	1,975	1,968	1,957	1,946
2018	1,920	1,910	1,885	1,868
2019	1,848	1,835	1,818	1,800



YEAR	INDEX (Base = 100, at Year 1970)			
	Q1	Q2	Q3	Q4
2009	1,074	983	1,111	1,107
2010	1,134	1,161	1,249	1,266
2011	1,273	1,320	1,369	1,408
2012	1,414	1,438	1,467	1,496
2013	1,516	1,532	1,559	1,590
2014	1,621	1,648	1,679	1,703
2015	1,732	1,761	1,777	1,775
2016	1,775	1,776	1,783	1,781
2017	1,779	1,776	1,773	1,768
2018	1,755	1,727	1,708	1,698
2019*	1,695	1,686		

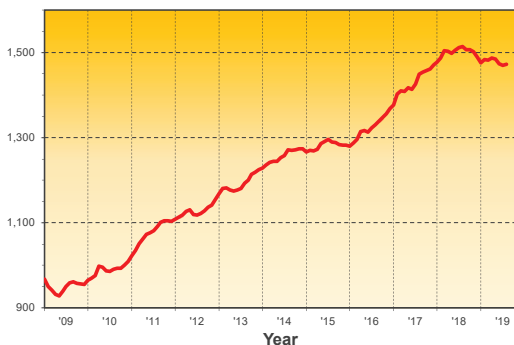
\* Up to Q2 only

Source: Architectural Services Department, Hong Kong, SAR  
Refer to [www.archsd.gov.hk](http://www.archsd.gov.hk) for further information.

(Cont'd)

### BUILDING COST TRENDS IN HONG KONG

Highways Department Construction Cost Index



YEAR	HyD CONST. COST INDEX (Nov. 1975 Value = 100)
2009	950
2010	989
2011	1,075
2012	1,127
2013	1,191
2014	1,256
2015	1,282
2016	1,323
2017	1,429
2018	1,501
2019*	1,479

\* 1/19 to 8/19 only

Source: Civil Engineering and Development Department, Hong Kong, SAR  
Refer to [www.cedd.gov.hk/eng/publications/standards-spec-handbooks-cost/index.html](http://www.cedd.gov.hk/eng/publications/standards-spec-handbooks-cost/index.html) for further information.

## BUILDING COST TRENDS IN HONG KONG

CEDD Civil Engineering Works Tender Price Index



YEAR	CEDD CIVIL ENGINEERING WORKS TENDER PRICE INDEX (2010 Q1 = 100)			
	Q1	Q2	Q3	Q4
2009	120	107	107	100
2010	100	105	110	117
2011	129	129	111	104
2012	132	133	131	148
2013	134	135	140	137
2014	143	142	146	154
2015	161	146	143	133
2016	142	136	122	128
2017	127	129	122	122
2018	118	100	117	94
2019*	94	98#	98#	

\* up to Q3 only

# provisional

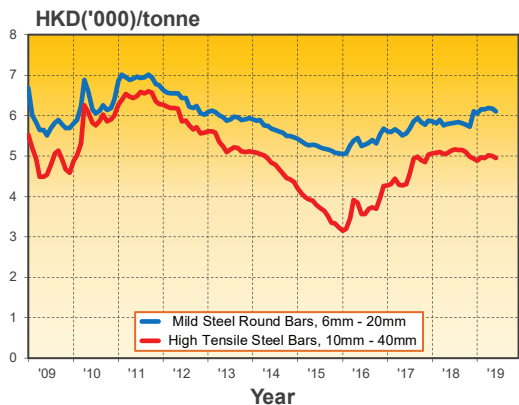
Source: Civil Engineering and Development Department, Hong Kong, SAR  
Refer to [www.cedd.gov.hk/eng/publications/standards-spec-handbooks-cost/index.html](http://www.cedd.gov.hk/eng/publications/standards-spec-handbooks-cost/index.html) for further information.

### MATERIAL PRICES IN HONG KONG

#### GALVANIZED MILD STEEL ANGLE



#### REBAR

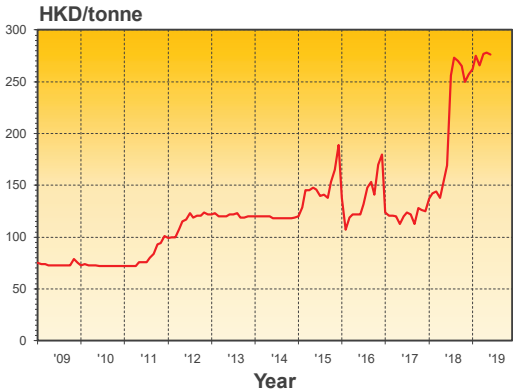


Source: Census and Statistics Department, Hong Kong, SAR  
Refer to [www.censtatd.gov.hk](http://www.censtatd.gov.hk) for further information.

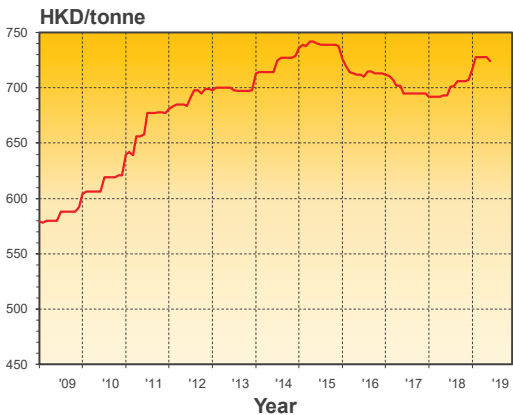




## SAND



## ORDINARY PORTLAND CEMENT



Source : Census and Statistics Department, Hong Kong, SAR  
Refer to [www.e-nbstd.gov.hk](http://www.e-nbstd.gov.hk) for further information.

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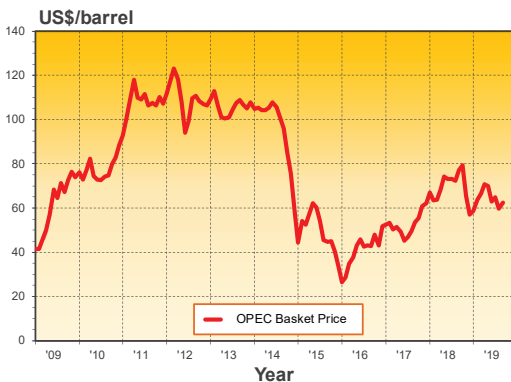
### MATERIAL PRICES IN HONG KONG

#### COPPER GRADE A



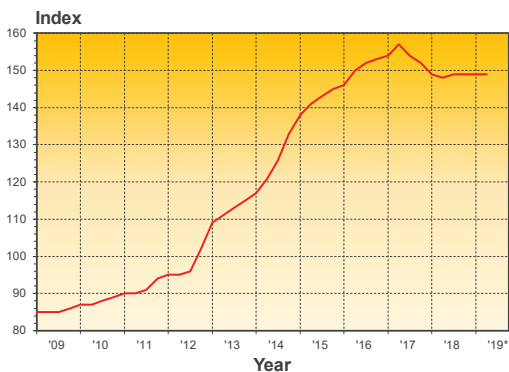
Source: International Monetary Fund  
Refer to [www.imf.org](http://www.imf.org) for further information.

#### CRUDE OIL



Source: Organization of the Petroleum Exporting Countries (OPEC)  
Refer to [www.opec.org](http://www.opec.org) for further information.

## LABOUR INDEX IN HONG KONG



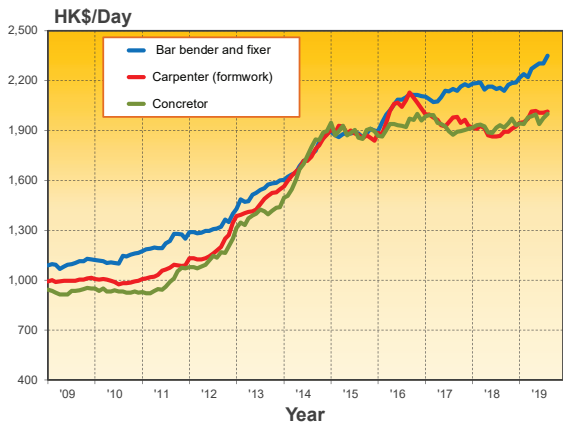
YEAR	INDEX (Base = 100, at April 2003)			
	Q1	Q2	Q3	Q4
2009	85	85	85	86
2010	87	87	88	89
2011	90	90	91	94
2012	95	95	96	102
2013	109	111	113	115
2014	117	121	126	133
2015	138	141	143	145
2016	146	150	152	153
2017	154	157	154	152
2018	149	148	149	149
2019*	149	149		

Figures above are the quarterly average of the monthly indices \* 1/19 to 6/19 only

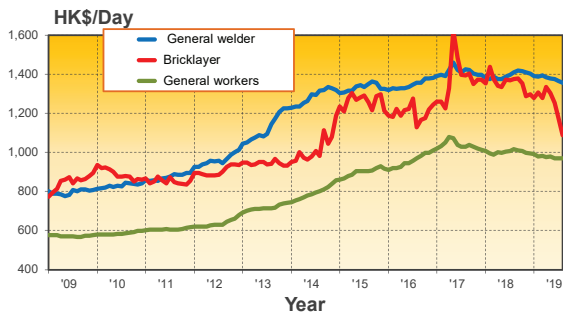
Source: Census and Statistics Department, Hong Kong, SAR  
Refer to [www.censtatd.gov.hk](http://www.censtatd.gov.hk) for further information.

### LABOUR WAGES IN HONG KONG

#### STRUCTURAL



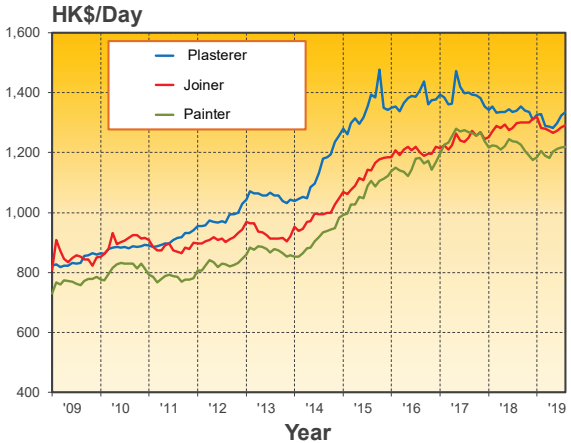
#### ARCHITECTURAL - BASIC WORKS



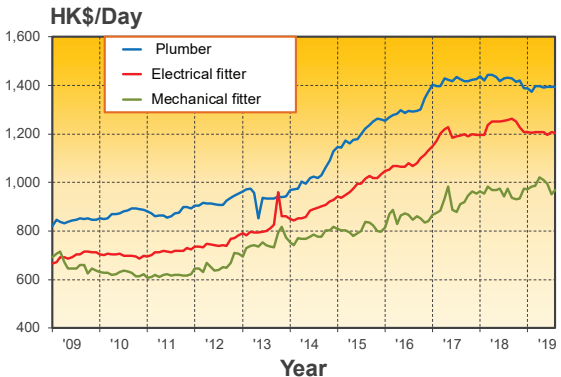
Source: Census and Statistics Department, Hong Kong, SAR  
Refer to [www.censtatd.gov.hk](http://www.censtatd.gov.hk) for further information.



## ARCHITECTURAL - DECORATIVE WORKS



## M&E



Source : Census and Statistics Department, Hong Kong, SAR  
Refer to [www.e-nsrtd.gov.hk](http://www.e-nsrtd.gov.hk) for further information.

(Cont'd)

### ESTIMATING RULES OF THUMB AND DESIGN NORMS

#### HONG KONG

##### CFA To GFA Ratio

Building Type	CFA : GFA
Residential	1.15 to 1.25 : 1
Office / Commercial	1.15 to 1.25 : 1
Hotel	1.30 to 1.45 : 1

The above ratios do not include any associated car parking area.

##### Functional Area Distribution in 5-Star Hotels

Functional Area	% of Total Hotel CFA
Front of House	15 - 20%
Guestroom Floors	50 - 60%
Back of House	25 - 30%

##### Dimensions of Typical Grade A Office Space

Component	Dimension
Distance from curtain wall to core wall	9 - 13 m
Population	9 m <sup>2</sup> usable floor area/person
Average waiting interval for lifts	30 - 40 seconds

##### Density of Basic Materials for Structure

Material	Density
Concrete	2,400 kg/m <sup>3</sup>
Cement	1,450 kg/m <sup>3</sup>
Sand	1,600 kg/m <sup>3</sup>
Aggregate	1,600 kg/m <sup>3</sup>
Steel	7,843 kg/m <sup>3</sup>

##### Average Loads Volume

Lorry (24 ton)	10.0 m <sup>3</sup>
Concrete truck (24 ton)	5.5 m <sup>3</sup>
Barge	200 - 1,450 m <sup>3</sup>

## HONG KONG (Cont'd)

### Average Piling Ratio - Bored Piles

Building Type	m <sup>2</sup> CFA / m <sup>2</sup> cross section area of piles
Residential	200 - 330
Office / Commercial	200 - 300
Hotel	200 - 330

### Average Piling Ratio - Driven H-Piles

Building Type	m <sup>2</sup> CFA / No. of piles
Residential	60 - 120
Office / Commercial	60 - 110
Hotel	60 - 120

### Average Piling Ratio - Pre-Bored H-Piles

Building Type	m <sup>2</sup> CFA / No. of piles
Residential	70 - 150
Office / Commercial	70 - 140
Hotel	70 - 150

All pile ratios are for high-rise buildings with normal soil conditions.

### Building Structure - Concrete Ratio

Concrete/floor area	0.4 m <sup>3</sup> /m <sup>2</sup> to 0.5 m <sup>3</sup> /m <sup>2</sup>
Formwork/floor area	2.2 m <sup>2</sup> /m <sup>2</sup> to 3.0 m <sup>2</sup> /m <sup>2</sup>
Reinforcement	160 kg/m <sup>3</sup> to 250 kg/m <sup>3</sup>

### Average External Wall/Floor Ratio

Residential Apartments	1.2 m <sup>2</sup> /m <sup>2</sup>
Office, Hotel	0.4 m <sup>2</sup> /m <sup>2</sup>
Industrial	0.4 m <sup>2</sup> /m <sup>2</sup>

(Cont'd)

### ESTIMATING RULES OF THUMB AND DESIGN NORMS

#### HONG KONG (Cont'd)

##### Average Internal Wall/Floor Ratio

Residential Apartments	1.0 m <sup>2</sup> /m <sup>2</sup>
Office	0.5 m <sup>2</sup> /m <sup>2</sup>
Hotel	1.5 m <sup>2</sup> /m <sup>2</sup>

The above ratios are indicative and for reference purposes only. They do not account for buildings with special shapes, configurations or particularly small foot prints.

##### Average Lighting Level

Building Type	Lux
Residential	300
Office	500
Retail	400
Hotel	300
School	300 - 500

##### Average Power Density

Building Type	VA/m <sup>2</sup> CFA
Residential	80 - 100
Office	70
Retail	300 - 400
Hotel - Accommodation	30
Hotel - F&B Area	550
School	50

##### Average Cooling Load

Building Type	m <sup>2</sup> Cooling Area/RT
Residential	18 - 23
Office	14 - 18
Retail	12-14
Hotel	23
School	23



## **HONG KONG** (Cont'd)

### **Dimensions of Parking Spaces**

<b>Type of Vehicle</b>	<b>Length</b>	<b>Width</b>	<b>Minimum Headroom</b>
Private Cars and Taxis	5 m	2.5 m	2.4 m
Light Goods Vehicles	7 m	3.5 m	3.6 m
Medium/Heavy Goods Vehicle	11 m	3.5 m	4.7 m
Container Vehicles	16 m	3.5 m	4.7 m
Coaches and Buses	12 m	3.5 m	3.8 m
Light buses	8 m	3 m	3.3 m

Minimum headroom means the clearance between the floor and the lower most projection from the ceiling including any lighting units, ventilation ducts, conduits or similar.

### **Indicative Dimensions for Sports Grounds**

	<b>Length</b>	<b>Width</b>
Tennis Court	40 m	20 m
Squash Court	10 m	6.4 m
Basketball Court	34 m	20 m
Volleyball Court	36 m	20 m
Badminton Court	20 m	10 m
Ice Rink	61 m	26 m
Soccer Pitch	120 m	90 m

The above dimensions are for a single court with appropriate clearance. No spectator seating or support area has been allowed.

(Cont'd)

### ESTIMATING RULES OF THUMB AND DESIGN NORMS

#### CHINA & HONG KONG

#### Minimum Imposed Loads (kPa) for Building Design

Building Type	China <sup>@</sup>	Hong Kong <sup>*</sup>
<b><u>DOMESTIC</u></b>		
Apartments	2.0	2.0
<b><u>OFFICE / COMMERCIAL</u></b>		
Office	2.0	3.0
Shopping Arcade	3.5	5.0
<b><u>HOTELS</u></b>		
Hotel	2.0	2.0
<b><u>INDUSTRIAL</u></b>		
Industrial, light duty	4.0	5.0
<b><u>OTHERS</u></b>		
Carpark, private cars	2.5	3.0
School	2.5	3.0
Theatre, Sports Hall, etc.	4.0	5.0
Hospital	2.0	2.5

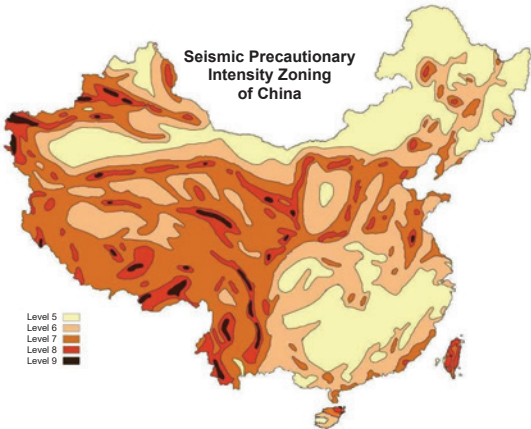
Source :

- <sup>@</sup> *Load Code for the Design of Building Structures, GB 50009-2012, Ministry of Housing and Urban-Rural Development, PRC*
- <sup>\*</sup> *Code of Practice for Dead and Imposed Loads 2011, Buildings Department, HKSAR*

## CHINA

### Seismic Precautionary Intensity Zoning

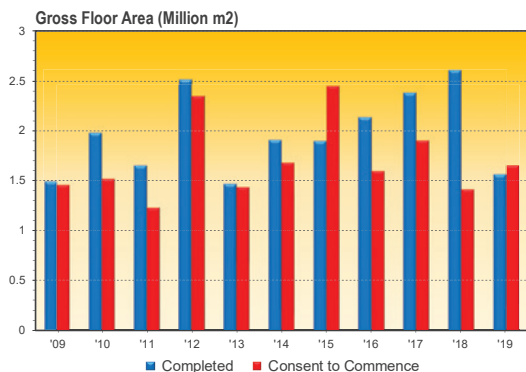
As stipulated in PRC National Standard GB 50011-2010 (Code for Seismic Design of Buildings) 2016, geographic regions which are classified as Level 6 or above in Seismic Precautionary Intensity Classification should incorporate seismic measures in the design of the structure and foundations.



Geographic Regions	Intensity Level	Geographic Regions	Intensity Level
Beijing	7 - 8	Hong Kong	7
Changsha	6	Macau	7
Chengdu	7 - 8	Qingdao	6 - 7
Chongqing	6 - 7	Shanghai	7
Dalian	6 - 8	Shenyang	7
Foshan	7	Shenzhen	6 - 7
Guangzhou	6 - 7	Suzhou	6 - 7
Haikou	8	Tianjin	7 - 8
Hangzhou	6 - 7	Wuhan	6 - 7
Hengqin	7	Xi'an	8

Source : China Earthquake Data Center (data.earthquake .o )

### CONSTRUCTION ACTIVITY IN HONG KONG



YEAR	COMPLETED m <sup>2</sup>	CONSENT TO COMMENCE m <sup>2</sup> #
2009	1,489,000	1,456,000
2010	1,978,000	1,518,000
2011	1,650,000	1,232,000
2012	2,507,000	2,343,000
2013	1,472,000	1,437,000
2014	1,908,000	1,679,000
2015	1,897,000	2,445,000
2016	2,134,000	1,597,000
2017	2,379,000	1,900,000
2018	2,600,000	1,414,000
2019*	1,563,000	1,653,000

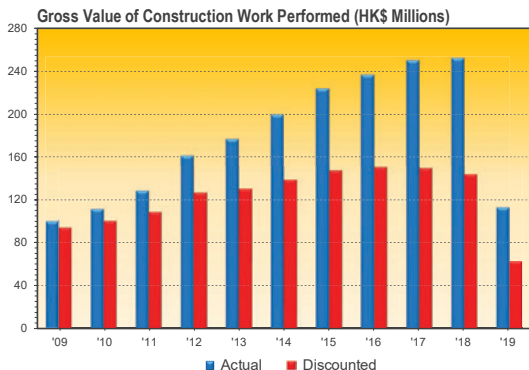
\* 1/19 to 9/19 only

# First Submission only

Source: Census and Statistics Department, Hong Kong, SAR  
Buildings Department, Hong Kong, SAR

Refer to [www.censtatd.gov.hk](http://www.censtatd.gov.hk) and [www.bd.gov.hk](http://www.bd.gov.hk) for further information.

## CONSTRUCTION VALUE IN HONG KONG



YEAR	VALUE IN NOMINAL TERMS HK\$ MILLIONS	VALUE IN CONSTANT (2000) MARKET PRICE HK\$ MILLIONS
2009	100,944	93,683
2010	111,274	100,278
2011	128,535	108,263
2012	161,449	126,414
2013	176,575	129,868
2014	199,737	138,285
2015	223,947	146,978
2016	236,491	149,973
2017	249,919	148,943
2018	252,176	143,136
2019*	112,987	63,025

\* Up to Q2 figures and are provisional only

Source : Census and Statistics Department, Hong Kong, SAR  
Refer to [www.e-nb.atd.gov.hk](http://www.e-nb.atd.gov.hk) for further information.

### HONG KONG GENERAL CONSTRUCTION INSURANCE

This section provides general information regarding construction insurance arrangements in Hong Kong.

It is common place for Hong Kong construction contracts to contain provisions as to insurances such as Employees Compensation Insurance, Third Party Liability Insurance, Works Insurance and, on occasion, Professional Liability Indemnity Insurance. For employers, the insurance placement ensures that the contractual indemnities are backed by a financial institution that can afford to pay. For contractors, it provides a certain degree of protection to ensure that he has the means to pay in the event of mishaps.

The insurances may be effected by the contractor (Contractor Controlled Insurance Programme or CCIP) or be taken out by the employer (Employer Controlled Insurance Programme or ECIP). CCIP tends to be the most common insurance arrangement in Hong Kong, since the contractor is in control of all site operations and in a better position to manage its own site safety / risk. As a poor safety record will count against the contractor in premiums negotiation in the procurement of insurance, CCIP provides an incentive for better safety / risk management. On the other hand, ECIP placement leaves the control of the insurance programme in the hands of the employer, thereby offering the advantage of providing comprehensive insurance coverage on a project-wide basis and hence minimizing overlaps and gaps in insurance coverage.

#### Employees Compensation

Section 40(1) of the Employees Compensation Ordinance states that no employer shall employ any employee unless there is a policy of Employees Compensation Insurance in place. The maximum penalty for failing to comply with this provision is two years in jail and a maximum fine of HK\$100,000.



Under the Ordinance, the principal contractor shall take out insurance for his employees and all of the employees of subcontractors with a limit of indemnity of HK\$200 million per event (or HK\$100 million if the number of employees is less than 200).

Since an injured worker could attempt to sue the employer, the employer will want to ensure the contractor has taken out insurance in joint names with the employer.

### **Contractors' All Risks Insurance**

A Contractors' All Risks policy generally comprises (i) Third Party Insurance which covers injury to persons (excluding the Contractor's own workmen) or damage to property (other than the Works), due to the carrying out of the Works which may or may not be caused by a default of the contractor. The policy is normally subject to a maximum reimbursement per incident but unlimited in the number of incidents, (ii) Contract Works Insurance which covers damage caused to the Works itself by risks not excluded from the policy and (iii) Plant & Equipment Insurance which covers the contractor's plant and equipment used in the Works. Plant & Equipment Insurance is not normally required under the contract conditions and is voluntarily purchased by the contractor.

### **Professional Indemnity Insurance**

For construction contracts involving contractor's design, it is not uncommon for the employer to require the contractor and his design consultants and independent checking engineers to obtain insurance to cover their liability for design. For Government Contracts, the Professional Indemnity Insurance shall cover the contractor's liability for design generally for the construction period and a further 6 years.

### SPECIFIED FORMS FOR BUILDINGS ORDINANCE OR REGULATIONS FOR HONG KONG

#### SPECIFIED FORMS FOR BUILDINGS ORDINANCE OR REGULATIONS

FORM NO.	PURPOSE	RELEVANT SECTION OF REGULATION
BA1	Application for inclusion in the authorized persons' register / structural engineers' register / geotechnical engineers' register / inspector's register.	BOs 3(6)
BA1A	Application for retention of name in the authorized persons' register / structural engineers' register / geotechnical engineers' register / inspectors' register.	BOs 3(9B)
BA1B	Application for restoration of name to the authorized persons' register / structural engineers' register / geotechnical engineers' register / inspectors' register.	BOs 3(12)
BA2	Application for registration as a general building contractor / specialist contractor.	BOs 8B
BA2A	Application for renewal of registration as a registered general building contractor / registered specialist contractor.	BOs 8C(2)
BA2B	Application for restoration of name to the register of general building contractors / specialist contractors.	BOs 8D(2)
BA2C	Application for approval of technical director / other officer / person appointed to act for the purposes of the Buildings Ordinance for a registered general building contractor / registered specialist contractor.	BOs 8B
BA4	Notice of appointment of authorized person and/or registered structural engineer and/or registered geotechnical engineer.	BOs 4, B(A)R 23
BA5	Application for approval of plans of building works and/or street works and certificate of preparation of plans.	BOs 14(1)(a), B(A)R 29 & 18A





BA6	Stability certificate of authorized person and/or registered structural engineer.	B(A)R 18
BA7	Notice of urgent works required as a result of accident or emergency.	BOs 19, B(A)R 28
BA8	Application for consent to the commencement and carrying out of building works or street works.	BOs 14(1)(b), B(A)R 31
BA8A	Application for concurrent consent to the commencement of building works.	BOs 14(1)(b), B(A)R 31
BA9	Application for renewal of consent to the carrying out of building works or street works.	BOs 20
BA10	Notice of appointment of registered contractor, notice of commencement of building works or street works and undertaking by registered contractor.	B(A)R 20, BOs 9
BA11	Notice from a registered contractor on ceasing to be appointed in respect of building works or street works and certificate in respect of that part of the building works or street works carried out by the registered contractor.	B(A)R 24
BA12	Certificate on completion of building works resulting in a new temporary building, a new building or part of a new building and application for temporary occupation permit in respect of such building or part.	B(A)R 25, BOs 21
BA13	Certificate on completion of building works resulting in a new building and application for permit to occupy such building.	B(A)R 25, BOs 21
BA14	Certificate on completion of building works not resulting in a new building or of street works.	B(A)R 25 & 26
BA14A	Certificate on completion of demolition works.	B(A)R 25

Source: Buildings Department, Hong Kong, SAR. Refer to [www.bd.gov.hk](http://www.bd.gov.hk) for further information.

(Cont'd)

### SPECIFIED FORMS FOR BUILDINGS ORDINANCE OR REGULATIONS FOR HONG KONG

#### SPECIFIED FORMS FOR BUILDINGS ORDINANCE OR REGULATIONS

FORM NO.	PURPOSE	RELEVANT SECTION OF REGULATION
BA15	Notice of intended material change in the use of a building.	BOs 25, B(A)R 47
BA16	Application for modification of and/or exemption from the provisions of the Buildings Ordinance and/or Regulations made thereunder.	BOs 42
BA17	Application for permit to erect a temporary building.	B(P)R 51
BA18	Application for permit to erect a contractor's shed.	B(P)R 53
BA19	Application for permit to erect hoardings, covered walkways or gantries.	B(P)R 64
BA20	Notice of technically competent person or persons appointed to supervise demolition works.	B(DW)R 8
BA21	Notice of nomination by authorized person or registered structural engineer or registered geotechnical engineer to temporary act in his stead.	BOs 4(2), B(A)R 23(2)
BA22	Application for authorization to carry out and/or maintain groundwater drainage works.	BOs 28B(1)
BA23	Application for grant/renewal of licence for an oil storage installation.	B(OS)R 6(1) & 7(3)
BA24	Notification of change of business address / Contact Information.	B(A)R 45



BA25	Application for registration as a registered minor works contractor (company).	B(MW)R 10(1)(B)
BA25A	Application for renewal of registration of registered minor works contractor (company).	B(MW)R 14(1)
BA25B	Application for restoration of name to the register of minor works contractors (company).	B(MW)R 18(1)
BA25C	Application for registration of additional class and /or type of minor works for registered minor works contractor (company).	B(MW)R 21(2)
BA25D	Application for approval of nomination of additional authorized signatory/technical director of registered minor work contractor (company).	B(MW)R 24(1)
BA25E	Application for review of decision of the Building Authority or recommendation of the Minor Works Contractors Registration Committee in respect of registration of minor works contractor (company).	B(MW)R 26
BA26	Application for registration as a registered minor works contractors (individual).	B(MW)R 10(1)(A)
BA26A	Application for renewal of registration of registered minor works contractor (individual).	B(MW)R 14(1)
BA26B	Application for restoration of name to the register of minor works contractor (individual).	B(MW)R 18(1)
BA26C	Application for registration of additional items of Class III minor works for a registered minor works contractor (individual).	B(MW)R 21(1)
BA26D	Application for review of decision of the Building Authority or recommendation of the Minor Works Contractors Registration Committee in respect of registration of minor works contractor (individual).	B(MW)R 26

Source: Buildings Department, Hong Kong, SAR. Refer to [www.bd.gov.hk](http://www.bd.gov.hk) for further information.

### SUMMARY OF BUILDING REGULATIONS FOR HONG KONG

DESCRIPTION	NUMBER OF REGULATIONS
Administration	48
Appeal	13
Construction	93
Demolition Works	14
Energy Efficiency	5
Minor Works	67
Minor Works (Fees)	20
Inspection and Repair	35
Oil Storage Installations	15
Planning	74
Private Street and Access Roads	28
Refuse Storage and Material Recovery Chambers and Refuse Chutes	30
Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines	97
Ventilating Systems	8

Source: *Buildings Ordinance, Hong Kong, SAR*  
Refer to [www.legislation.gov.hk](http://www.legislation.gov.hk) for further information.



## PERCENTAGE SITE COVERAGE AND PLOT RATIOS FOR HONG KONG

### DEFINITION

**Class A Site :** Not being a class B or class C site, that abuts on one specified street not less than 4.5 m wide or on more than one such street.

**Class B Site :** A corner site that abuts on 2 specified streets neither of which is less than 4.5 m wide.

**Class C Site :** A corner site that abuts on 3 specified streets none of which is less than 4.5 m wide.

### OPEN SPACE ABOUT DOMESTIC BUILDINGS

Item	Class of site	Open space required
1.	Class A site	Not less than one-half of the roofed-over area of the building
2.	Class B site	Not less than one-third of the roofed-over area of the building
3.	Class C site	Not less than one-quarter of the roofed-over area of the building

Source: *Buildings Ordinance, Hong Kong, SAR*  
Refer to [www.legislation.gov.hk](http://www.legislation.gov.hk) for further information.

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### PERCENTAGE SITE COVERAGE AND PLOT RATIOS FOR HONG KONG

Height of Building in metres	DOMESTIC BUILDINGS					
	Percentage site coverage			Plot Ratio		
	Class A site	Class B site	Class C site	Class A site	Class B site	Class C site
Not over 15 m	66.6	75	80	3.3	3.75	4.0
15 m to 18 m	60	67	72	3.6	4.0	4.3
18 m to 21 m	56	62	67	3.9	4.3	4.7
21 m to 24 m	52	58	63	4.2	4.6	5.0
24 m to 27 m	49	55	59	4.4	4.9	5.3
27 m to 30 m	46	52	55	4.6	5.2	5.5
30 m to 36 m	42	47.5	50	5.0	5.7	6.0
36 m to 43 m	39	44	47	5.4	6.1	6.5
43 m to 49 m	37	41	44	5.9	6.5	7.0
49 m to 55 m	35	39	42	6.3	7.0	7.5
55 m to 61 m	34	38	41	6.8	7.6	8.0
Over 61 m	33.33	37.5	40	8.0	9.0	10.0

Source: *Buildings Ordinance, Hong Kong, SAR*  
 Refer to [www.legislation.gov.hk](http://www.legislation.gov.hk) for further information.

NON-DOMESTIC BUILDINGS					
Percentage site coverage			Plot Ratio		
Class A site	Class B site	Class C site	Class A site	Class B site	Class C site
100	100	100	5	5	5
97.5	97.5	97.5	5.8	5.8	5.8
95	95	95	6.7	6.7	6.7
92	92	92	7.4	7.4	7.4
89	90	90	8.0	8.1	8.1
85	87	88	8.5	8.7	8.8
80	82.5	85	9.5	9.9	10.2
75	77.5	80	10.5	10.8	11.2
69	72.5	75	11.0	11.6	12.0
64	67.5	70	11.5	12.1	12.6
60	62.5	65	12.2	12.5	13.0
60	62.5	65	15	15	15

### EVOLVING REGULATIONS FOR GREEN BUILDINGS IN CHINA

#### Green Building Certifications

The leading and nationally recognized environmental assessment tool for buildings in China is the Green Building Evaluation Standard (GB-T50378-2019) published by the Ministry of Housing and Urban-Rural Development (MOHURD). The Green Building Evaluation Standard applies to all types of civil buildings, including residential buildings, commercial buildings, governmental offices and other public facilities. The Green Building Evaluation Standard rates applicable buildings under a three star system certified by the Green Building Label based on several environmental factors such as indoor air quality and energy and water efficiency. But it should be noted that the 2019 version of the Green Building Evaluation Standard added a basic grade below the one star grade, making it more difficult to receive a star rating. China also adopted other evaluation standards for other building types, such as green industrial buildings and green hospital.

The Green Building Evaluation Standard is generally not mandatory for new or refurbished buildings. Nevertheless, under the Green Building Work Plan in 2013, certain government-invested buildings, affordable housing in some big cities and public buildings over 20,000 square meters must fully adopt the Green Building Evaluation Standard. Besides, there may be local rules requiring certain types of buildings to comply with the Green Building Evaluation Standard. For example, in Beijing and Shanghai (except Chongming District), all new buildings

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are required to meet the one-star requirements except that all new large-scale public buildings (i.e. public buildings with over 20,000 square meters of floor area) are required to meet the two-star requirements. The Chongming District of Shanghai imposes higher standards, which require that, with effect from May 1, 2019, all new public buildings must meet the two-star requirements except that all new large-scale public buildings must meet the three-star requirements). Chongming District also requires that at least 70% of the new residential buildings must meet the two-star requirements. Further, Chinese developers are encouraged to adopt the Green Building Evaluation Standard for residential and commercial projects because there are certain special government funds or other financial awards specifically designed for environment protection purposes.

### **Buildings and Energy Efficiency**

China has established a nationwide energy performance evaluation and labelling system – the Civil Building Energy Performance Evaluation and Labelling scheme through the Interim Measures for the Administration of Energy Performance Evaluation and Labelling of Civil Buildings 2008 (“Interim Measures 2008”). The evaluation and labelling are conducted in two stages for a single building: First stage is a theoretical prediction of the building’s energy performance. The second stage is the actual evaluation of a building’s actual energy use after it has been put to use. If the building’s energy performance

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(Cont'd)

### EVOLVING REGULATIONS FOR GREEN BUILDINGS IN CHINA

#### Buildings and Energy Efficiency (Cont'd)

satisfies the requirements of the scheme, a certificate is issued to the building owner for each of the two stages.

But it should be noted that, though the nationwide energy performance evaluation and labelling system has been established through the Interim Measures 2008, China only launched a pilot of such scheme for certain provinces and cities in respect of a limited scope of projects. For example, office buildings of government authorities or large-scale public buildings that are conducting comprehensive energy conservation improvements and have applied for government support are required to go through the evaluation and labelling procedures. Nonetheless, more and more cities that are not part of the pilot program have been voluntarily participating in the scheme. Some provinces and municipalities have introduced their own implementation rules of the Civil Building Energy Performance Evaluation and Labelling scheme.

Other than the Civil Building Energy Performance Evaluation and Labelling scheme, China has also adopted various policies addressing the reduction of energy consumption and carbon emission of buildings. The 13th Five-Year Plan published in March 2016 acknowledged the importance of the various environmental issues.

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Following the 13th Five-Year Ecological Environment Protection Plan published in November 2016, we have seen the introduction of new policies encouraging the use and perfecting and enlarging the enforcement scope of the Green Building Evaluation Standard described above, further implementing the 2013 Green Building Work Plan so that 50% of the newly built buildings in the Beijing, Tianjin and Hebei area are green buildings. The 13th Five-Year Building Energy-Saving and Green Building Development Plan, published in February 2017, sets targets such as over 50% of the new buildings in urban areas shall be green buildings, at least 500 million square meters of residential buildings shall be renovated for energy saving. More recently at the 19th National Congress of the Communist Party of China held in October 2017, further emphasis has been put on the country's agenda on environmental protection and the need to push for "green development" and "market-oriented green technologies innovation".

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### EVOLVING REGULATIONS FOR GREEN BUILDINGS IN CHINA

#### Government Regulatory Measures

As compared to some other countries, at the moment investors and developers in China may not yet be fully motivated by the environmental and social benefits of green buildings. The Chinese central government currently uses planning and zoning regulations and polices to further control and regulate the development of green buildings. For example, under the 2013 Green Building Work Plan, green initiatives, such as the use of renewable energies, must be included in the urban planning by local authorities. It also requires local authorities to strengthen the review and examination of a building's design and construction plan to ensure that the building is in compliance with the energy conservation standards. A number of major cities have also published local regulations administering and promoting development of green buildings. For example, apart from the requirements of Beijing and Shanghai that all new buildings must meet the one-star requirements while all new large-scale public buildings must meet the two-star requirements mentioned above, under the Measures for Promoting Green Buildings in Shenzhen published in February 2017, newly-built civil buildings in Shenzhen are required to reach at least one-star certification under the Green Building Evaluation Standard or the bronze certification under local evaluation standard. Per the 13th Five-Year Plan for the Development of Building Energy Efficiency and Green Buildings issued by

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the MOHURD in February 2017, the Chinese government is aiming for all new buildings in (1) all cities / towns in eastern China, (2) all provincial capital cities and major cities in central China, and (3) all provincial capital cities in western China, to achieve the minimum requirements under the Green Building Evaluation Standard.

In addition to the above, the PRC Environmental Protection Tax Law which came into force on January 1, 2018 imposes environmental protection taxes on building owners for carbon emission and waste disposal into the environment. Many building owners have been required to pay such tax. With the implementation of the environmental protection taxes, the real estate developers are more keen to develop green buildings in the future.

Provided by :

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### PROCUREMENT STRATEGIES AND FORM OF CONTRACTS

#### General

A host of contract procurement approaches have emerged in the past decade. Each procurement approach has characteristics, benefits and restrictions peculiar to it. There is no single approach that fits all situations. The key to a successful procurement arrangement lies in marrying the right procurement approach with the particular contract in question. This calls for a systematic identification of client's requirements and evaluation of the decision criteria relating to the procurement strategy.

#### Common criteria for procurement selection

**Speed** – Fast-tracking projects generally favor arrangements that offer opportunities to overlap the design and construction processes e.g. design & build contracting and management contracting.

**Cost certainty** – Reliability of budgets is one of the prime concerns of most clients. Traditional lump sum bills of quantities and design & build contracting offer the highest degree of price certainty.

**Complexity** – Projects which are technologically advanced or highly serviced generally favor the use of traditional contracting where the design will be well developed prior to the tendering stage. Procurement arrangements such as construction management and management contracting that allow early involvement of management contractor are also considered suitable for complex projects.

**Responsibility** – For projects using traditional contracting, the contractor is employed to build what the client's design team has documented. Therefore, any dispute as to quality of works has to be resolved into a design or workmanship issue in the very first place. By contrast, design & build contracts offer the clearest division of responsibility where the design & build contractor will be the sole point of responsibility.



## Common standard form of contract in Hong Kong

In 2005, the Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers and the Hong Kong Institute of Surveyors jointly published a new standard form of building contract which is designed particularly for private projects where bills of quantities are provided.

In 2006, the three institutes published another standard form of building contract tailored for private projects without bills of quantities.

For public works, the conditions of contracts are often based on one of the following standard forms: -

*The Government of the HKSAR, General Conditions of Contract for Building Works 1999 Edition*

*The Government of the HKSAR, General Conditions of Contract for Civil Engineering Works 1999 Edition*

*The Government of the HKSAR, General Conditions of Contract for Electrical and Mechanical Engineering Works 1999 Edition*

*The Government of the HKSAR, General Conditions of Design and Build Contracts 1999 Edition*

## New Engineering Contract (NEC)

NEC is the abbreviation for “New Engineering Contract” which is a suite of contracts published by the Institute of Civil Engineers in the United Kingdom. The NEC has become increasingly popular in the public sector of Hong Kong.

(Cont'd)

### PROCUREMENT STRATEGIES AND FORM OF CONTRACTS

#### New Engineering Contract (NEC) (Cont'd)

The Hong Kong Government has announced to use New Engineering Contract (NEC) - Engineering and Construction Contract (ECC) for all public work projects under Development Bureau with contract sum more than HK\$300M from January 2018. The NEC family covers not only construction contracts between employers and contractors but also professional services for employers to engage consultants and adjudicators.

ECC of the NEC family of contracts contains standard options that cover lump sum contracts, target cost contracts, cost reimbursable contracts and management contracts. The ECC contract claims to be radically different to traditional construction contracts in that it facilitates good management and encourages collaborative working. For instance, both the Project Manager and the Contractor are obliged to give early warnings and to hold early warning meetings to mitigate the effects of change in contract scope. Great emphasis is also given to the programme which has to be accepted by the Project Manager and to be kept updated by the Contractor. The Project Manager is to maintain a Risk Register to record risks that have arisen during the contract and the decisions of how to deal with them.

Arcadis was the NEC Advisor for Fuk Man Road Nullah Improvement Works – the very first NEC pilot project in Hong Kong. Our work with the project team for that pilot project reveals that it is not only the letter or the form of the NEC that brings about the advantages of flexibility and promotion of good project management. The success lies in a change in mindset and attitudes and the establishment of mutual trust.



## Procurement Strategy Table

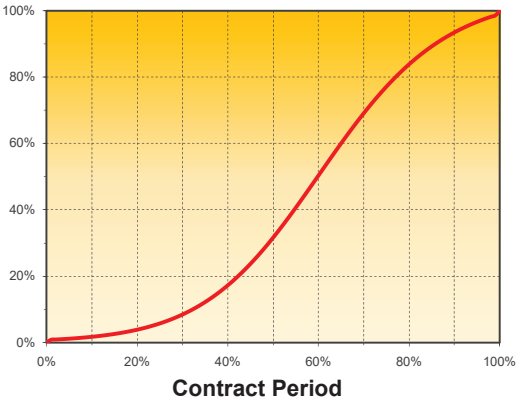
PROJECT CRITERIA		RELATIVE DEGREE OF APPROPRIATENESS			
Parameter	Objectives	Traditional	Management Contracting	Construction Management	Design and Construct
Timing	Early Completion	Low	High	High	High
Cost	Pre construction price certainty	High	Low	Low	High
Quality	Design prestige	High	High	High	Low
Variations	Avoid prohibitive cost of change	High	Moderate	Moderate	Low
Complexity	Technically advance or highly complex building	Moderate	High	High	Low
Responsibility	Single contractual link	Low	Low	Low	High
Professional Responsibility	Need for design team to report to sponsor	High	High	High	Low
Risk Avoidance	Desire to transfer complete risk	Low	Low	Low	High
Damage Recovery	Facility to recover costs direct from contractor	Moderate	Low	Low	High
Buildability	Contractor input to economic construction	Low	High	High	High

### CONSTRUCTION WORKDONE FORECAST

The following graph and table are an indication of the rate of expenditure for construction projects.

The rate of expenditure is an average rate and will vary from project to project when specific project circumstances are taken into account.

**Construction Workdone Forecast**



CONTRACT PERIOD	CUMULATIVE WORKDONE	CONTRACT PERIOD	CUMULATIVE WORKDONE
5%	1%	55%	41%
10%	2%	60%	50%
15%	3%	65%	60%
20%	4%	70%	69%
25%	6%	75%	77%
30%	8%	80%	84%
35%	12%	85%	89%
40%	17%	90%	93%
45%	24%	95%	97%
50%	32%	100%	100%



# PROPERTY 3

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Property Commentary 2019

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Property Indicators

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Gross Floor Area (GFA) Calculations  
in Hong Kong

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Gross Floor Area (GFA) Calculations  
in PRC

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Construction Floor Area (CFA) Definition

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### PROPERTY COMMENTARY 2019

#### Economy

In the wake of the prolonged China-US trade war and the worst political crisis in its history, the Hong Kong economy has been seriously impacted, resulting in an abrupt deterioration in the third quarter of 2019. After a mild increase of 0.4% in Q2, GDP contracted 2.9% YoY in Q3, indicating that the Hong Kong economy has entered a technical recession. This marked the first year-on-year contraction for an individual quarter since the Great Recession of 2009. Both domestic and external demand remained weak. Private consumption expenditure decreased 3.5% in real terms in the third quarter from a year earlier, as against the 1.3% growth in the second quarter. Over the same period, total exports of goods declined 7% and imports of goods also fell 11.1%. For the first three quarters, the economy contracted 0.7% YoY.

Affected by turbulence in the macroeconomic and political environment, the local stock market underwent a sharp correction during the third quarter. The Hang Seng Index dropped by 8.6% from end-June to end-September, the largest quarterly loss since the third quarter of 2015. Nonetheless, despite being overshadowed by global uncertainties, Hong Kong stood firm in its position as the world's leading IPO hub. According to KPMG, by the end of 2019, Hong Kong will have completed 160 IPOs, raising a total of HKD 307.8 billion, with a historical high of 145 new Main Board listings. Two notable mega-sized listings in 2019 included Alibaba's secondary listing and the listing of Anheuser-Busch InBev.



Since the beginning of 2H19, the retail sector tumbled, as sentiment was dampened by the local social incidents, escalated US-Mainland trade tensions and a weaker global economy. The continued social unrest also dealt a severe blow to the tourism sector. The total number of visitors to Hong Kong plunged significantly by 56.0% in November 2019, which marked the biggest YoY monthly decline since the Sars outbreak in 2003.

The resolution of Sino-U.S. trade wars and the end of social unrest will be the key focuses for better market sentiment. Looking ahead, the difficult external environment is likely to persist in the near Term. We expect the local economy and investment sentiment will remain weak in 2020.

## Residential

Both macro headwinds and local political crisis have plagued Hong Kong's residential market. The transaction volume dropped drastically in line by 44% MoM to 4,627 units, largely attributable to the weakened sentiment due to the outburst of social unrest. Residential prices dropped by 1.7% MoM in September, which marked a largest fall since December 2018. The market saw a rebound in November after the announcement of new housing policy in relaxing the mortgage cap. Total residential sales reached 5,756 units in November, up 43.9% MoM. Total residential sales reached 56,613 units in the first 11 months of 2019, up slightly by 2.6% compared with the same period in 2018.

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(Cont'd)

### PROPERTY COMMENTARY 2019

#### Residential (Cont'd)

Looking ahead, we expect the various headwinds to continue to curb buyer confidence. Nonetheless, the new initiatives of easier mortgage rules should provide stimulus to drive property transaction prices and volume in the short term. For properties worth between HK\$6-8 million, buyers only need a down payment of just 10%. These properties will become the main demand drivers in the market, and drive up transaction volume by as much as 20-30% in the next three to four months, until the purchasing power has been exhausted. Mass and luxury home prices are expected to fall by 5-10% next year, while super luxury residential prices would have a minor correction. We expect the transaction volume of first-hand and second-hand homes to be on a par with last year, and total residential transaction volume to maintain at around 60,000 units in 2020.

#### Office

The Hong Kong Grade-A office sales market has been in the doldrums in the second half of 2019. Leasing activities of the office market remained weak with rents continue to swing downwards. The average rent of Grade-A offices in Hong Kong in November dropped 9.4%, according to Knight Frank Research. Rents on the Hong Kong Island declined by 10.6% YoY, with Central dropping 13.2% YoY. On Kowloon side, office rents in Tsim Sha Tsui and Kowloon East down 1.1% YoY and 4.6% YoY respectively.

In the last two or three months, more lease disposition cases were seen in Kowloon, indicating early signs of weakening demand. Also, we noticed that many tenants

Provided by :





have reduced their leases area by approximately 20-30%. Leasing activities of Chinese-funded companies have dwindled. A small number of premium Grade-A office buildings reported lease surrenders, leading to some supply re-entering the market. All in all, as the vacancy rate of Grade-A office buildings in Hong Kong Island remained relatively low, we do not expect the rent to decrease significantly next year, but a slight decline by about 6-8%.

We expect office supply to spike in 2020, mainly because new offices in 2019 have not yet been fully absorbed, and there is additional supply from lease disposition cases. Coupled with softening demand, we expect office rents in Kowloon to drop by 2-4% next year.

## Retail

In 2019, retail sector hit hard with sales dropped tremendously and lots of store closures. According to government figures, total retail sales value registered a tremendous drop of 24.3% YoY in October, the largest-ever-YoY decline for a single month, even worse than the record in September 1998 during the Asian Financial Crisis. For the first ten months of 2019, the total retail sales recorded a YoY decrease of 9% in value, and 10% in volume.

Many retailers in both street shops and shopping malls in the areas affected by the protests, especially in major shopping districts, such as Causeway Bay, Tsim Sha Shui and Mongkok, have been badly impacted. According to the Knight Frank Prime Street Shop Rental Index rents

### PROPERTY COMMENTARY 2019

#### Retail (Cont'd)

for retail space in prime streets dropped around 14.6% YoY in 2H 2019. The downward adjustment in retail rents is expected to continue in 2020.

Transactions for retail property dropped significantly in 2019. The sales volume of retail properties in the first ten months of 2019 plunged by 35.5% YoY, while the yield for retail properties has been largely stable in the past 12 months.

Stepping into 2020, it is difficult to see any upside for the retail sector in the coming months. Given the poor macro-economic conditions, coupled with the social unrest, consumer sentiment will remain weak. Rental rates for high street shops are expected to drop by at least 15%. The retail environment in Hong Kong will be extremely challenging in 2020.

#### Industrial

Total sales transaction of flatted factory units reached 2,159 in the January-October period of 2019, dropped 52.6% compared with the same period last year, according to the Rating and Valuation Department. New completion of flatted factory space was 27,000 sqm in the first 10 months this year, increased by 24.4% YoY.





Transaction prices of flatted factory dropped 3.9% from January to October this year, down by 14.5 percentage points from in the same period in 2018. Rents of flatted factories increased 4.6% during the same period, compared with 5.4% increase in last year.

To meet the community's keen demand for public housing, as announced in Policy Address 2019, the Hong Kong Government will invite Hong Kong Housing Authority to explore the redevelopment of its six factory estates for public housing use. Such factory estates, with a total internal floor area of approximately 200,000 sqm, are located in Kwai Chung or Tsing Yi, Tuen Mun, Sha Tin, Kwun Tong and Sham Shui Po respectively.

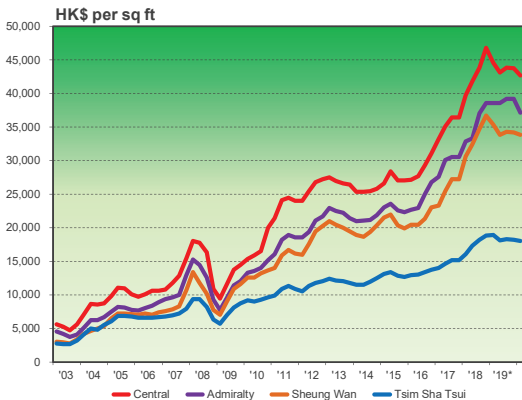
Looking ahead, the warehouse leasing market is expected to remain under pressure in 2020, given the weak retail sector in Hong Kong.

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## PROPERTY INDICATORS

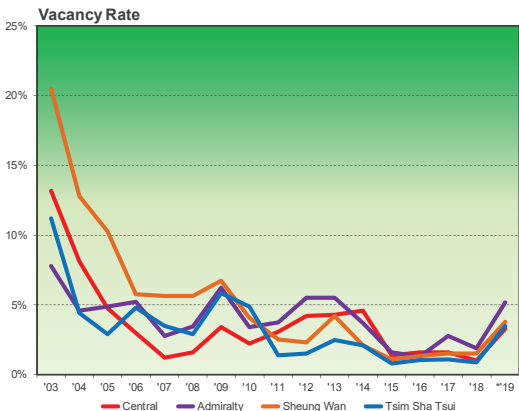
### HONG KONG GRADE-A OFFICE PRICE



\* November figures

Source: Knight Frank Research

### HONG KONG GRADE-A OFFICE VACANCY RATES

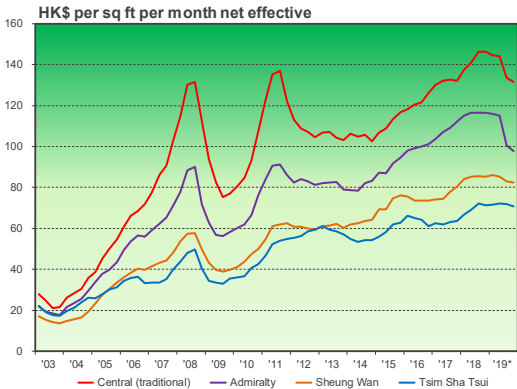


\* November figures

Source: Knight Frank Research



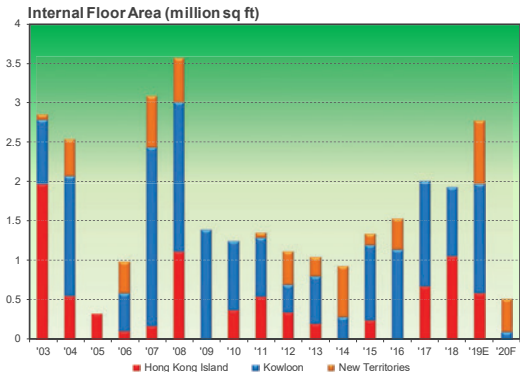
## HONG KONG GRADE-A OFFICE RENTAL VALUES



\* November figures

Source: Knight Frank Research

## HONG KONG GRADE-A OFFICE SUPPLY



Source: Rating and Valuation Department / Knight Frank Research

## GROSS FLOOR AREA (GFA) CALCULATIONS IN HONG KONG

### GROSS FLOOR AREA (GFA) CALCULATIONS IN HONG KONG

FEATURE	BUILDING (PLANNING) REGULATION	REMARKS
General floor area	Accountable	Area within outer surface of external walls.
Basement	Accountable	
Balcony / utility platform *	Accountable	Non-accountable if for residential buildings and with not less than 40% of the perimeter faces into open air, max. 50% area can be exempted.
Curtain wall / cladding	Non-accountable	Non-accountable if: 1. The curtain wall system itself does not form part of the structural system of the parent building; 2. The system does not result in any additional floor area at a floor level; 3. The projection of the system from the outer face of the structural elements does not exceed 200 mm for a domestic building and 250 mm for a non-domestic building.
External wall finishes (including bay windows) *	Non-accountable	Precast facades may, subject to conditions, be excluded from GFA calculation.
Plant rooms	Non-accountable	Subject to justification with reasonable plant layouts.
Staircases and lift shafts	Accountable	Except staircases and lift shafts solely serving non-accountable areas.
Covered public carparking space	Accountable	Underground public car parking space can be exempted.
Covered private carparking space	Non-accountable	Applicable only for spaces serving users of the building required under local standard and built below ground. Only 50% area can be exempted if above ground.

Lobby *	Accountable	Concession may be granted for lift lobbies subject to conditions.
Refuge floor	Non-accountable	
Loading and unloading bay	Non-accountable	Applicable if required under local standard/lease and built on ground floor or below ground. Only 50% area can be exempted if above ground.
Refuse storage chambers, refuse storage, refuse chutes, refuse hopper rooms	Non-accountable	
Covered area on roof-tops	Accountable	Non-accountable for plant rooms and staircases serving non-accountable area only.
Recreational facilities *	Accountable	Non-accountable subject to conditions.
Spaces for watchmen and management staff *	Accountable	Non-accountable subject to conditions.
Modular Integrated Construction	Accountable	Concession may be granted to 6% of the MiC floor area upon submission of an application.

\* Total concessions of these areas are subject to a cap of 10% of the total GFA and prerequisites with sustainability designs.

**Disclaimer :** GFA calculations are subject to various legislation and practice notes. All cases of accountable or non-accountable GFA are subject to individual conditions. The above presents a brief summary only and users are advised to seek professional advice from authorized persons. Arcadis herewith disclaims any liability that may arise from unsolicited use of the information given above.

## GROSS FLOOR AREA (GFA) CALCULATIONS IN PRC

### GROSS FLOOR AREA (GFA) CALCULATIONS IN PRC

FEATURE	NATIONAL STANDARD - STANDARD MEASUREMENT FOR CONSTRUCTION AREA OF BUILDING (GB/T 50353-2005)	REMARKS FOR BEIJING, SHANGHAI AND GUANGZHOU
General floor area	Accountable	Area within outer surface of external insulation. Shanghai : External insulation is exempted from calculation of plot ratio.
Basement	Accountable	<ol style="list-style-type: none"> <li>1. Beijing : Non-accountable</li> <li>2. Shanghai : Non-accountable</li> <li>3. Guangzhou : Accountable for GFA except where the floor space is solely for plant rooms or carpark.</li> </ol>
Balcony / utility platform	Accountable	
Curtain wall / cladding	Accountable	Except decorative type of curtain wall.
External wall finishes (including bay windows)	Non-accountable	
Plant rooms	Accountable	
Staircases and lift shafts	Accountable	
Covered public carparking space	Accountable	
Covered private carparking space	Accountable	
Lobby	Accountable	

Canopy	Accountable	Non-accountable subject to width of the canopy not exceeding 2.1m.
Refuge floor	Accountable	1. Shanghai : Non-accountable. 2. Guangzhou : Only refuge areas on refuge floor are non-accountable.
Space below elevated ground floor	Accountable	Non-accountable for GFA if for the usage of walkway, green, public amenities or similar public function.
Covered walkways	Accountable	
Loading and unloading bay	Accountable	Non-accountable if not roofed over.
Refuse storage chambers, refuse storage, refuse chutes, refuse hopper rooms	Accountable	Non-accountable if not roofed over.
Floor space inside sloping roof	Accountable	Non-accountable if clear height does not exceed 1.2m.
Covered area on roof-tops	Accountable	1. Shanghai : Non-accountable if the area of the construction on roof-top does not exceed 1/8 of the area of the typical floor. 2. Guangzhou: Staircase, lift lobby and water tank room on roof-tops are exempted from GFA
Recreational facilities	Accountable	
Spaces for watchmen and management staff	Accountable	
External staircases	Accountable	Non-accountable if not roofed over.

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### CONSTRUCTION FLOOR AREA (CFA) DEFINITION

The construction floor area measured from drawings is defined as covered floor areas fulfilling the functional requirements of the building measured to the outside face of the external walls or external perimeter.

It includes floor areas occupied by:

- partitions
- columns
- stairwells
- lift shafts
- plant rooms
- water tanks
- balconies
- utilities platforms
- vertical ducts
- service floors higher than 2.2m and the like

But excludes floor areas occupied by:

- bay windows
- planters projecting from the building, and
- the areas covered by canopies, roof eaves and awnings

Sloping surfaces such as staircases, escalators and carpark ramps are to be measured flat on plan.

*The measurement of construction floor area is as defined by Arcadis.*





FINANCIAL

4

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Financial Definitions

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Financial Formulae

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Mortgage Repayment Table

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Composite CPI

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Prime Rates

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Exchange Rates

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Currency Charts

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Hang Seng Index

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### FINANCIAL DEFINITIONS

#### DISCOUNT RATE

The rate of return a developer expects when investing in a project.

i.e. opportunity cost.

#### INTERNAL RATE OF RETURN (IRR)

The IRR may be defined as the interest rate that equates the present value of expected future cash flows to the cost of the investment.

The IRR can be compared to the Discount Rate.

#### NET PRESENT VALUE (NPV)

The NPV is the present value of all future cash flows, discounted back to today's values at the Discount Rate.

The NPV indicates in today's dollars the profit or loss a developer makes above or below his required profit (based on a nominated Discount Rate).

#### 72 RULE

The approximate number of years required to double your capital can be calculated by dividing the interest rate into 72.

e.g. If interest rate = 10% p.a.

Then  $72 \div 10 = 7.2$  years

It will take approximately 7.2 years to double your capital if it is invested at 10% p.a.



## FINANCIAL FORMULAE

Future value of \$1	$FV = PV (1 + i)^n$
Future value of \$1 per period	$FV = PMT [((1+i)^n - 1) \div i]$
Sinking fund (the amount required to be put away periodically to realise some future sum)	$PMT = FV [i \div ((1 + i)^n - 1)]$
Present value of \$1	$PV = FV [1 \div (1+i)^n]$
Present value of \$1 per period	$PV = PMT [((1+i)^n - 1) \div (i(1+i)^n)]$
Annuity with a PV of \$1 (mortgage bond formula)	$PMT = PV [i (1+i)^n \div ((1+i)^n - 1)]$

PV = present value

FV = future value

PMT = payment amount

n = period (e.g. 10 years with monthly payments,  $n = 10 \times 12 = 120$ )

i = interest rate per period  
(e.g. 12% p.a. compounded monthly;  
 $i = 12\% \div 12 \text{ months} = 1\% \text{ per period}$ )

Refer to [www.hkifa.org.hk](http://www.hkifa.org.hk) for further information.

## MORTGAGE REPAYMENT TABLE

Based on :

- 1,000 units of currency
- Interest compounded monthly
- Equal monthly repayments

INTEREST p.a.	REPAYMENT (years)			
	15	20	25	30
1%	5.98	4.60	3.77	3.22
2%	6.44	5.06	4.24	3.70
3%	6.91	5.55	4.74	4.22
4%	7.40	6.06	5.28	4.77
5%	7.91	6.60	5.85	5.37
6%	8.44	7.16	6.44	6.00
7%	8.99	7.75	7.07	6.66
8%	9.56	8.36	7.72	7.34
9%	10.14	9.00	8.40	8.05
10%	10.75	9.65	9.09	8.78
11%	11.37	10.32	9.80	9.52
12%	12.00	11.01	10.53	10.29
13%	12.65	11.72	11.28	11.06
14%	13.32	12.44	12.04	11.85
15%	14.00	13.17	12.81	12.64

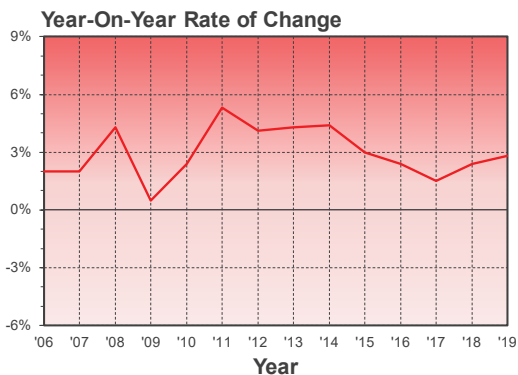
### Example:

Borrow \$1,000,000 to be repaid monthly at 5% p.a. over 20 years.

$$\begin{aligned} \text{Repayments} &= 1,000,000 \div 1,000 \times \$6.60 \\ &= \$6,600 \text{ per month} \end{aligned}$$

Refer to [www.hkmc.com.hk](http://www.hkmc.com.hk) for an online mortgage calculator.

## COMPOSITE CPI



YEAR	INDEX	% CHANGE
2006	74.7	2.0%
2007	76.2	2.0%
2008	79.5	4.3%
2009	80.0	0.5%
2010	81.8	2.4%
2011	86.1	5.3%
2012	89.6	4.1%
2013	93.5	4.3%
2014	97.7	4.4%
2015	100.6	3.0%
2016	103.0	2.4%
2017	104.5	1.5%
2018	107.0	2.4%
2019*	109.6	2.8%

\* 1/19 to 8/19 only

**Note:**

The base index (100) applies to the period from October 2014 to September 2015.

Source : Census and Statistics Department, Hong Kong, SAR  
Refer to [www.censtatd.gov.hk](http://www.censtatd.gov.hk) for further information.

## PRIME RATES

PRIME RATES AND BASE LENDING RATES AS AT 4TH QUARTER 2019.

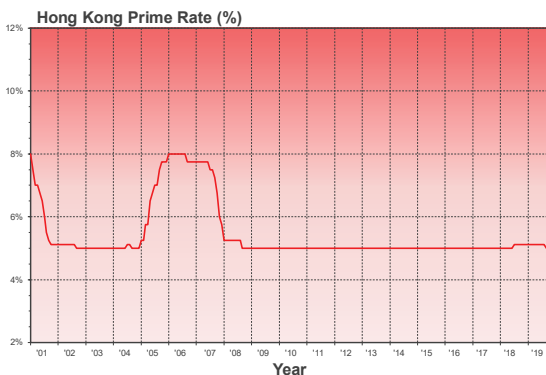
COUNTRY	RATE (%)
China**	4.85
Hong Kong	5.00
India	9.40
Macau	5.25
Malaysia^^	4.35
Philippines	5.64
Singapore	5.25
Thailand#	6.60
United Kingdom	0.50
United States of America	5.50
Vietnam##	9.00

China\*\* = 5-year Benchmark Lending Rate

Malaysia^^ = Indicative Effective Lending Rate

Thailand# = Minimum Loan Rate % per annum (avg based on local bank)

Vietnam## = Min and in VND per year



#### CHANGES IN HONG KONG PRIME RATES

DATE	%	DATE	%
26 Mar 2001	8.00	11 Aug 2005	6.75
23 Apr 2001	7.50	23 Sep 2005	7.00
21 May 2001	7.00	03 Nov 2005	7.50
03 Jul 2001	6.75	15 Dec 2005	7.75
24 Aug 2001	6.50	30 Mar 2006	8.00
19 Sep 2001	6.00	07 Nov 2006	7.75
04 Oct 2001	5.50	20 Sep 2007	7.50
08 Nov 2001	5.25	02 Nov 2007	7.25
13 Dec 2001	5.125	12 Nov 2007	7.00
08 Nov 2002	5.00	13 Dec 2007	6.75
23 Sep 2004	5.125	24 Jan 2008	6.00
12 Nov 2004	5.00	01 Feb 2008	5.75
21 Mar 2005	5.25	20 Mar 2008	5.25
23 May 2005	5.75	10 Nov 2008	5.00
05 Jul 2005	6.25	28 Sep 2018	5.13
22 Jul 2005	6.50	01 Nov 2019	5.00

Source : Hong Kong Monetary Authority

Refer to [www.info.gov.hk/hkm\\_a](http://www.info.gov.hk/hkm_a) for further information.

## EXCHANGE RATES

Approximate rates prevailing on 19 November 2019.

COUNTRY	CURRENCY	HK\$1	US\$1
Australia	Dollar	0.19	1.47
Brunei	Dollar	0.17	1.36
Canada	Dollar	0.17	1.32
China	Renminbi	0.90	7.03
EU (Euro Zone)	Euro	0.12	0.90
Hong Kong	Dollar	1.00	7.83
India	Rupee	9.18	71.87
Indonesia	Rupiah	1,796	14,056
Japan	Yen	13.87	108.61
Macau	Pataca	1.03	8.05
Malaysia	Ringgit	0.53	4.15
New Zealand	Dollar	0.20	1.56

Source : [www.exchange-rates.org](http://www.exchange-rates.org)

Refer also : [www.xe.com](http://www.xe.com)





COUNTRY	CURRENCY	HK\$1	US\$1
Philippines	Peso	6.49	50.77
Qatar	Riyal	0.46	3.64
Saudi Arabia	Riyal	0.48	3.75
Singapore	Dollar	0.17	1.36
South Korea	Won	149.27	1,168.69
Switzerland	Franc	0.13	0.99
Taiwan	NT Dollar	3.89	30.45
Thailand	Baht	3.85	30.17
United Arab Emirates	Dirham	0.47	3.67
United Kingdom	Pound	0.10	0.77
United States of America	Dollar	0.13	1.00
Vietnam	Dong	2,959	23,166

Source : [www.eb-ange-rates.org](http://www.eb-ange-rates.org)

Refer ale : [www.e.o.m](http://www.e.o.m)

## CURRENCY CHARTS

### STERLING POUND



### EURO



Source : Hong Kong Monetary Authority  
 Refer to [www.info.gov.hk/hkma](http://www.info.gov.hk/hkma) for further information

Refer also : [www.xe.com](http://www.xe.com) ; [www.exchange-rates.org](http://www.exchange-rates.org)

## AUSTRALIAN DOLLAR



## SINGAPORE DOLLAR



Source : Hong Kong Monetary Authority  
Refer to [www.info.gov.hk/hkma](http://www.info.gov.hk/hkma) for further information

Reference : [www.eo.com](http://www.eo.com) ; [www.ebsi.com/ange-rates.org](http://www.ebsi.com/ange-rates.org)

(Cont'd)

## CURRENCY CHARTS

### JAPANESE YEN

JPY per 1 US\$



### RENMINBI

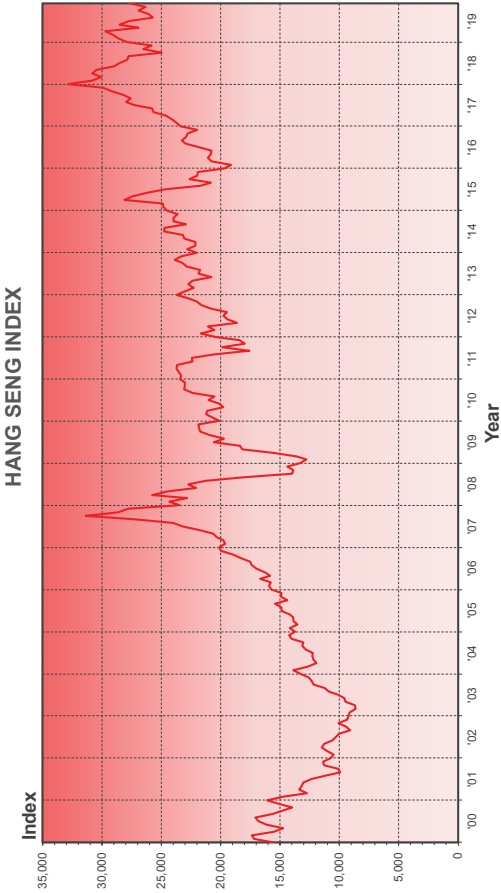
RMB to 1 US\$



Source : Hong Kong Monetary Authority  
 Refer to [www.info.gov.hk/hkma](http://www.info.gov.hk/hkma) for further information

Refer also : [www.xe.com](http://www.xe.com) ; [www.exchange-rates.org](http://www.exchange-rates.org)

## HANG SENG INDEX



Refer to [www.aastocks.com](http://www.aastocks.com) for further information.





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## UTILITY COSTS FOR SELECTED ASIAN CITIES

CITY	EXCHANGE RATE	ELECTRICITY	
		DOMESTIC	COMMERCIAL/ INDUSTRIAL
	US\$1=	US\$/kWh	US\$/kWh
Hong Kong	HK\$ 7.82	0.11	0.13
Macau	MOP8.06	0.17	0.17
Shanghai	RMB 7.00	0.088(peak) / 0.044(normal)	4.860(Basic Tariff) / 0.084(Summer) / 0.080(Non-Summer)
Beijing	RMB 7.00	0.070 - 0.113	0.195 - 0.197(peak) / 0.121 - 0.123 (normal)
Guangzhou	RMB 7.00	0.085 - 0.128	0.089 - 0.124
Chongqing	RMB 7.00	0.074 - 0.081	0.113 - 0.121

The above costs are at **4th Quarter 2019** levels.

### Basis of Charges in Hong Kong, China

- **Electricity** (Based on tariff scheme of CLP Holdings Limited)

Domestic (bi-monthly consumption) :

0 - 400kWh = US\$ 0.11/kWh; 400 - 1,000kWh = US\$ 0.12/kWh;  
 1,000 - 1,800kWh = US\$ 0.14/kWh; 1,800 - 2,600kWh = US\$ 0.18/kWh;  
 2,600 - 3,400kWh = US\$ 0.21/kWh; 3,400 - 4,200kWh = US\$ 0.23/kWh;  
 Above 4,200kWh = US\$ 0.23/kWh

- **Water - Domestic** :

0 - 12m<sup>3</sup> = Free of charge; 12 - 43m<sup>3</sup> = US\$ 0.54/m<sup>3</sup>;  
 43 - 62m<sup>3</sup> = US\$ 0.83/m<sup>3</sup>; Above 62m<sup>3</sup> = US\$ 1.17/m<sup>3</sup>

### Basis of Charges in Macau, China

- **Electricity**

Electricity tariffs are a composition of demand charges, consumption charges, fuel clause adjustment and government tax.

- **Water - Domestic** :

Consumption charge = US\$ 0.56/m<sup>3</sup> for 28m<sup>3</sup> or below; US\$0.64/m<sup>3</sup> for 29m<sup>3</sup> to 60m<sup>3</sup>; US\$0.75/m<sup>3</sup> for 61m<sup>3</sup> to 79m<sup>3</sup> and US\$0.90/m<sup>3</sup> for 80m<sup>3</sup> or above.

Other charges (Depending on meter size 15mm - 200mm) :

Meter rental = US\$0.34 - 57.64/month

- **Water - Commercial/Industrial** :

Charges for ordinary users (e.g. Business, government buildings, schools, associations, hospitals and others) only. Special users (e.g. gaming industries, hotels, saunas, golf courses, construction, public infrastructure and other temporary consumption) are excluded.

### Basis of Charges in Chongqing, China

- **Unleaded Fuel** 90# = US\$0.798/litre; 97# = US\$0.893/litre





WATER		FUEL		
DOMESTIC	COMMERCIAL/ INDUSTRIAL	DIESEL	LEADED	UNLEADED
US\$/m <sup>3</sup>	US\$/m <sup>3</sup>	US\$/litre	US\$/litre	US\$/litre
0.83	0.59	1.83	N/A	2.21
0.56 - 0.90	0.75	1.8	N/A	1.64
0.493 - 0.833	0.68	0.90	N/A	1.013
0.714 - 1.286	1.286 - 1.357	0.91	N/A	1.02
0.285 - 0.571	0.54	0.92	N/A	1.02
0.500 - 0.843	0.65	0.778	N/A	0.837

#### Basis of Charges in Shanghai, China

- **Electricity - Domestic** (Charge on yearly consumption) :
  - 0 - 3,120kWh = US\$ 0.088/kWh (peak) / US\$ 0.044/kWh (normal);
  - 3,120 - 4,800kWh = US\$ 0.097/kWh (peak) / US\$ 0.048/kWh (normal);
  - Above 4,800kWh = US\$ 0.140/kWh (peak) / US\$ 0.070/kWh (normal)
- **Electricity - Commercial/Industrial** (Charge on yearly consumption) :  
In dual tariff system; and in rate of 10KVA
- **Water - Domestic** :
  - 0 - 220m<sup>3</sup> = US\$ 0.493/m<sup>3</sup>; 220 - 300m<sup>3</sup> = US\$ 0.690/m<sup>3</sup>;
  - Above 300m<sup>3</sup> = US\$ 0.833/m<sup>3</sup>
- **Unleaded Fuel** = Unleaded fuel rate is for Unleaded 95#

#### Basis of Charges in Beijing, China

- **Electricity - Domestic**:
  - 1 - 240kWh = US\$0.070/kWh; 241 - 400 kWh = US\$0.077/kWh;
  - Above 400kWh = US\$0.113 / kWh
- **Electricity - Commercial/Industrial** :
  - Central Districts: US\$0.197/kWh(peak); US\$0.123/kWh(normal)
  - Other Districts= US\$0.195/kWh(peak); US\$0.121/kWh(normal)
- **Water - Domestic** (Charge on yearly consumption) :
  - 1 - 180m<sup>3</sup> = US\$0.714/m<sup>3</sup>; 181 - 260m<sup>3</sup> = US\$1.000/kWh
  - Above 261m<sup>3</sup> = US\$1.286/m<sup>3</sup>
- **Water - Commercial/Industrial** :
  - Central Districts: US\$1.357/m<sup>3</sup>; Other Districts= US\$1.286/m<sup>3</sup>
- **Unleaded Fuel** = Unleaded fuel rate is for Unleaded gasoline 97#

#### Basis of Charges in Guangzhou, China

- **Unleaded Fuel** = Unleaded fuel rate is for Unleaded gasoline 97#

(Cont'd)

### UTILITY COSTS FOR SELECTED ASIAN CITIES

CITY	EXCHANGE RATE	ELECTRICITY	
		DOMESTIC	COMMERCIAL/ INDUSTRIAL
	US\$1=	US\$/kWh	US\$/kWh
Singapore	S\$ 1.38	0.17	0.17
Kuala Lumpur	RM 4.15	0.053 - 0.138	0.092 - 0.123
Bangkok	BAHT 29.96	0.078 - 0.148	0.104 - 0.106
Manila	PHP 51.05	0.18	0.16
Ho Chi Minh	VND 23,300	0.13	0.12/0.07
Bangalore	INR 71.11	0.071 - 0.102	0.088 - 0.129
New Delhi	INR 71.11	0.020 - 0.1125	0.102

The above costs are at **4th Quarter 2019** levels.

#### **Basis of Charges in Singapore** (All rates are nett of GST)

- Electricity tariff is based on low tension power supply.
- <sup>1</sup>Domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for the 1st 40m3
- <sup>2</sup>Domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water borne fee, sanitary appliance fee and is an average for the usage after the 1st 40m3
- Non-domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, and sanitary appliance fee
- Diesel fuel = as at 17 October 2019.
- Unleaded Fuel = 98 Unleaded petrol as at 17 October 2019.

#### **Basis of Charges in Kuala Lumpur, Malaysia**

- Unleaded petrol Ron 95.
- Electricity (Commercial/Industrial): Tariff A & Tariff D (low voltage)

#### **Basis of Charges in Bangkok, Thailand**

- Unleaded Fuel = Gasohol 95
- For normal tariff with consumption not exceeding 150 kwh per month



WATER		FUEL		
DOMESTIC	COMMERCIAL/ INDUSTRIAL	DIESEL	LEADED	UNLEADED
US\$/m <sup>3</sup>	US\$/m <sup>3</sup>	US\$/litre	US\$/litre	US\$/litre
1.99 <sup>a</sup> /2.67 <sup>b</sup>	1.99	1.38	N/A	1.96
0.137 - 0.482	0.499 - 0.549	0.525	N/A	0.501
0.284 - 0.482	0.317 - 0.528	0.868	N/A	0.900
0.39 - 0.49	1.82	0.875	N/A	1.108
0.26	0.87/0.48	0.79	N/A	0.93
0.562 - 0.703	1.41	0.965	N/A	1.067
0.35 - 1.06	1.405 - 2.467	0.931	N/A	1.033

**Basis of Charges in Ho Chi Minh, Vietnam** (All rates are VAT inclusive)

**Basis of Charges in Manila, Philippines**

- **Electricity**
  - Domestic : 190kWh - 2,099kWh
  - Commercial/Industrial : 185,404kWh
- **Water**
  - Domestic : 24m<sup>3</sup> - 101m<sup>3</sup>/month
  - Commercial/Industrial : 3,750m<sup>3</sup>/month

## KEY CITY INDICATORS

	HONG KONG	MACAU
GDP (output) * +	US\$ 363 bn	US\$ 54 bn
Real GDP growth per annum $\Omega$	6.8%	8.5%
Population	7.45M	0.67M
GDP/capita *	US\$ 48,666	US\$ 82,536
City size	1,107 km <sup>2</sup>	33 km <sup>2</sup>
Population density	6,890/km <sup>2</sup> @	20,000/km <sup>2</sup>

Unless otherwise stated, the above figures are as at year-end 2018, and are preliminary / provisional / revised figures which will be subject to updates before finalisation.

\* Exchange Rate : 1 US\$ = 7.08 RMB = 7.84 HK\$ = 8.08 MOP

+ All figures are at current market prices.

$\Omega$  All figures are relative to 2017 prices.

@ Excluding marine population and area reservoirs, figure as at mid-year 2018

£ Derived figure.

BEIJING	SHANGHAI	CHONGQING	GUANGZHOU
US\$ 428 bn	US\$ 462 bn	US\$ 288 bn	US\$ 323 bn
6.6%	6.6%	6.0%	6.2%
21.54M	24.24M	31.02M	14.90M
US\$ 19,804	US\$ 19,068	US\$ 9,312	US\$ 21,962
16,808 km <sup>2</sup>	6,340 km <sup>2</sup>	82,300 km <sup>2</sup>	7,434 km <sup>2</sup>
1,282/km <sup>2</sup> £	3,823/km <sup>2</sup> £	377/km <sup>2</sup> £	2,004/km <sup>2</sup> £

Source : Census and Statistics Department, Hong Kong, SAR - [www.censtatd.gov.hk](http://www.censtatd.gov.hk)

Statistics and Census Department, Macau, SAR - [www.dsec.gov.mo](http://www.dsec.gov.mo)

Beijing Statistical Information - [www.bjstats.gov.cn](http://www.bjstats.gov.cn)

Shanghai Statistical Bureau - [www.tjj.sh.gov.cn](http://www.tjj.sh.gov.cn)

Chongqing Statistics - [www.tjj.cq.gov.cn](http://www.tjj.cq.gov.cn)

Guangzhou Statistics - [www.gzstats.gov.cn](http://www.gzstats.gov.cn)

## CONVERSION FACTORS

UNIT	
<b>LENGTH</b>	
10 mm = 1 cm	12 in = 1 ft
100 cm = 1 m	3 ft = 1 yd
1,000 m = 1 km	1,760 yd = 1 mile
<b>AREA</b>	
10,000 m <sup>2</sup> = 1 ha	9 ft <sup>2</sup> = 1 yd <sup>2</sup>
100 ha = 1 km <sup>2</sup>	4,840 yd <sup>2</sup> = 1 acre
640 acre = 1 mile <sup>2</sup>	
<b>VOLUME</b>	
1,000 ml = 1 l	(UK) 8 pt = (UK) 1 gal
(US) 8 pt = (US) 1 gal	
1,000 l = 1 m <sup>3</sup>	
<b>MASS</b>	
1,000 g = 1 kg	16 oz = 1 lb
1,000 kg = 1 tonne	2,240 lb = 1 ton
16 tael = 1 catty	
<b>POWER</b>	
<b>TEMPERATURE</b>	

Refer to [www.online-unit-converter.com](http://www.online-unit-converter.com) for further information.



(APPROX)	(APPROX)
<p>1 in = 25.400 mm 1 ft = 30.480 cm 1 yd = 0.914 m 1 mile = 1.609 km</p>	<p>1 cm = 0.394 in 1 m = 3.281 ft 1 m = 1.094 yd 1 km = 0.621 mile</p>
<p>1 ft<sup>2</sup> = 0.093 m<sup>2</sup> 1 yd<sup>2</sup> = 0.836 m<sup>2</sup> 1 acre = 0.405 ha 1 mile<sup>2</sup> = 2.590 km<sup>2</sup></p>	<p>1 m<sup>2</sup> = 10.764 ft<sup>2</sup> 1 m<sup>2</sup> = 1.196 yd<sup>2</sup> 1 ha = 2.471 acres 1 km<sup>2</sup> = 0.386 mile<sup>2</sup></p>
<p>(UK) 1 pt = 0.568 l (US) 1 pt = 0.473 l (UK) 1 gal = 4.546 l (US) 1 gal = 3.785 l</p>	<p>(UK) 1 l = 1.760 pt (US) 1 l = 2.113 pt (UK) 1 l = 0.220 gal (US) 1 l = 0.264 gal</p>
<p>1 oz = 28.350 g 1 lb = 0.454 kg 1 ton = 1.016 tonne 1 catty = 0.605 kg</p>	<p>1 gram = 0.035 oz 1 kg = 2.205 lb 1 tonne = 0.984 ton</p>
<p>1 hp = 0.746 kw</p>	<p>1 kw = 1.341 hp</p>
<p><math>^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9</math></p>	<p><math>^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32</math></p>

## IDD CODES AND TIME DIFFERENCES

LOCATION	IDD COUNTRY CODE	AREA CODE	TIME DIFFERENCE (Hours)*
Australia:			
Melbourne	61	3	+3
Perth	61	8	0
Sydney	61	2	+3
Bahrain	973	-	-5
Bangladesh (Dhaka)	880	2	-2
Bhutan (Thimphu)	975	2	-2
Brunei:			
Bandar Seri Begawan	673	2	0
Kuala Belait	673	3	0
Cambodia (Phnom Penh)	855	23	-1
Canada:			
Toronto (Metropolitan)	1	416	-13
Vancouver	1	604	-16
China:			
Beijing	86	10	0
Guangzhou	86	20	0
Hong Kong	852	-	0
Macau	853	-	0
Shanghai	86	21	0
Shenzhen	86	755	0
France (Paris)	33	1	-7
India:			
Bangalore	91	80	-2.5
Chennai	91	44	-2.5
New Delhi	91	11	-2.5
Mumbai	91	22	-2.5
Indonesia:			
Bali	62	36	0
Jakarta	62	21	-1
Ireland:			
Cork	353	21	-8
Dublin	353	1	-8
Japan:			
Tokyo	81	3	+1
Osaka	81	6	+1
Korea (Seoul)	82	2	+1
Korea (Pyongyang)	850	2	+1
Laos (Vientiane)	856	21	+0.5

Source: [www.worldtimeserver.com](http://www.worldtimeserver.com) ; [www.worldtimezone.com](http://www.worldtimezone.com)  
[www.timeanddate.com](http://www.timeanddate.com)



LOCATION	IDD COUNTRY CODE	AREA CODE	TIME DIFFERENCE (Hours)*
Malaysia:			
Johor Bahru	60	7	0
Kota Kinabalu	60	88	0
Kuala Lumpur	60	3	0
Kuching	60	82	0
Penang	60	4	0
Mongolia (Ulaanbaatar)	976	11	0
Myanmar (Yangon)	95	1	-1.5
Nepal (Kathmandu)	977	1	-2.25
Netherlands:			
Amsterdam	31	20	-7
New Zealand:			
Auckland	64	9	+5
Wellington	64	4	+5
Pakistan (Karachi)	92	21	-3
Philippines (Manila)	63	2	0
Qatar	974	-	-5
Singapore	65	-	0
South Africa:			
Johannesburg	27	11	-6
Cape Town	27	21	-6
Sri Lanka (Colombo)	94	11	-2.5
Russia (Moscow)	7	495	-5
Taiwan (Taipei)	886	2	0
Thailand:			
Bangkok	66	2	-1
Phuket	66	76	-1
United Arab Emirates:			
Abu Dhabi	971	2	-4
Dubai	971	4	-4
United Kingdom:			
London	44	20	-8
Edinburgh	44	131	-8
USA:			
Los Angeles	1	213	-16
New York	1	212	-13
Vietnam:			
Ho Chi Minh City	84	8	-1
Hanoi	84	4	-1

\* As compared to Hong Kong. Allowance should be made for seasonal time variations. Time differences above as at 1 January.

**PUBLIC HOLIDAYS**

	<b>2020</b>
<b>HONG KONG</b>	
New Year's Day	01 Jan
Lunar New Year (Day 1)	25 Jan
Lunar New Year (Day 2)	27 Jan
Lunar New Year (Day 3)	28 Jan*
Ching Ming Festival	04 Apr
Good Friday	10 Apr
Holy Saturday	11 Apr
Easter Monday	13 Apr
Birthday of the Buddha Holiday	30 Apr
Labour Day	01 May
Tuen Ng / Dragon Boat Festival	25 Jun
HKSAR Establishment Day	01 Jul
National Day	01 Oct
The day Following Chinese Mid-Autumn Festival	02 Oct
Chung Yeung Festival	26 Oct*
Christmas Day	25 Dec
The 1st weekday after Christmas Day	26 Dec

\* *As the festivals in 2020 falls on Sunday, the day following it is designated as a general holiday in substitution*

	2020
<b>CHINA</b>	
New Year's Day	01 Jan
Chinese New Year's Eve	24 Jan
Chinese New Year <sup>§</sup>	25 Jan
	31 Jan
Women's Day*	08 Mar@
Ching Ming Festival	05 Apr
	06 Apr
	07 Apr
Labour Day	01 May
Tuen Ng / Dragon Boat Festival	25 Jun
Mid-Autumn Festival	13 Sep
National Day#	01 Oct
	07 Oct
Chung Yeung Festival	25 Oct@
<p><sup>§</sup> 25-31 Jan 2020 are holidays</p> <p>* All women can have a half day holiday</p> <p># 01-07 Oct 2020 are public holidays</p> <p>@ Non-Statutory Holiday</p>	

(Cont'd)

## PUBLIC HOLIDAYS

	2020
<b>MACAU</b>	
New Year's Day	01 Jan
Lunar New Year's Eve (Afternoon)	24 Jan*
Lunar New Year's Day	28 Jan@
The 2 <sup>nd</sup> day of Lunar New Year	29 Jan@
The 3 <sup>rd</sup> day of Lunar New Year	27 Jan
Ching Ming Festival	06 Apr@
Good Friday	10 Apr
Holy Saturday	11 Apr
Easter Monday	13 Apr@
Birthday of the Buddha Holiday	30 Apr
Labour Day	01 May
Tuen Ng / Dragon Boat Festival	25 Jun
National Day	01 Oct
The day following National Day	02 Oct
The day Following Chinese Mid-Autumn Festival	05 Oct*
Chung Yeung Festival	26 Oct@
All Soul's Day	02 Nov
Feast of the Immaculate Conception	08 Dec
Winter Solstice	21 Dec
Macau SAR Establishment Day	22 Dec@
Christmas Eve	24 Dec
Christmas Day	25 Dec
New Year's Eve (Afternoon)	31 Dec*

\* *Special Holiday Granted by Chief Executive for staff in Public Administration*

@ *As the festivals in 2020 falls on Saturday / Sunday, the day following it is designated as a general holiday in substitution*

	2020
<b>INDIA</b>	
New Year's Day	01 Jan
Chandrama Ugadi	25 Mar
May day	01 May
Ramzan	25 May
Ganesh Chaturthi	21 Aug
Gandhi Jayanti	02 Oct
Vijay Dashmi	26 Oct
Diwali	16 Nov
Christmas Day	25 Dec
<b>MALAYSIA</b>	
New Year's Day **	01 Jan
Chinese New Year	25 Jan
	26 Jan
Labour Day	01 May
Wesak Day	07 May <sup>#</sup>
Hari Raya Aidilfiri*	24 May
	25 May
Hari Raya Qurban*	31 Jul
Awal Muharam (Islamic New Year)	20 Aug
National Day	31 Aug
Malaysia Day	16 Sep
Prophet Muhammad's Birthday	29 Oct
Deepavali*	14 Nov
Christmas Day	25 Dec
<p>* Subject to change</p> <p>** Except Johor, Kelantan, Kedah, Perlis and Terengganu</p> <p># The following day will be an additional public holiday</p>	

(Cont'd)

## PUBLIC HOLIDAYS

	2020
<b>PHILIPPINES</b>	
New Year's Day	01 Jan*
Chinese New Year	25 Jan#
EDSA People Power Revolution	25 Feb#
Araw ng Kagitingan	09 Apr*
Maundy Thursday	09 Apr*
Good Friday	10 Apr*
Black Saturday	11 Apr#
Labor Day	01 May*
End of Eid-ul-Fitre (Feast of Ramadhan)	24 May*
Independence Day	12 Jun*
Eid-ul-Adha	31 Jul*
Ninoy Aquino Day	21 Aug#
National Heroes Day	31 Aug*
All Saint's Day	01 Nov#
All Souls Day	02 Nov#
Bonifacio Day	30 Nov*
Feast of the Immaculate Conception of Mary	08 Dec#
Christmas Eve	24 Dec#
Christmas Day	25 Dec*
Rizal Day	30 Dec*
Last Day of the Year	31 Dec#
* <i>Regular Holidays</i>	
# <i>Special Non-Working Days</i>	

	2020
<b>SINGAPORE</b>	
New Year's Day	01 Jan
Chinese New Year	25 Jan
	26 Jan <sup>#</sup>
Good Friday	10 Apr
Labour Day	01 May
Vesak Day	07 May
Hari Raya Puasa	24 May <sup>#</sup>
National Day	31 Jul
Hari Raya Haji	09 Aug <sup>#</sup>
Deepavali	14 Nov
Christmas Day	25 Dec
<p><i># The following Monday will be a public holiday</i></p>	

(Cont'd)

### PUBLIC HOLIDAYS

	2020
<b>VIETNAM</b>	
New Year's Day	01 Jan
Lunar New Year	24 Jan
	25 Jan
	26 Jan
	27 Jan
	28 Jan <sup>#</sup>
	29 Jan <sup>#</sup>
Hung Vuong King Celeration	02 Apr
Liberation Day of Saigon	30 Apr
International Labour Day	01 May
National Day	02 Sep
Christmas Day	24 Dec
Christmas Day	25 Dec
<sup>#</sup> <i>Substitute</i>	



	2020
<b>THAILAND</b>	
New Year	01 Jan
Makha Bucha Day	10 Feb <sup>1</sup>
Charkri Memorial day	06 Apr
Songkran Festival	13 Apr
Songkran Festival	14 Apr
Songkran Festival	15 Apr
Labour Day	01 May
Coronation Day	04 May
Wisakha Bucha Day	06 May
H.M. Queen Suthida	03 Jun
Bajrasudhabimalalakshana's Birthday	06 Jul <sup>2</sup>
Asarnha Bucha Day	28 Jul
H.M. King Maha Vajiralongkorn's Birthday	12 Aug
H.M. The Queen's Birthday	13 Oct
H.M. King Bhumibol Adulyadej Memorial Day	23 Oct
Chulalongkorn Day	07 Dec <sup>3</sup>
H.M. King Bhumibol Adulyadej's Birthday / Father's Day	10 Dec
Constitution Day	31 Dec
New Year's Eve	
<p>1 - As Makha Bucha Day falls on Saturday (8 Feb) , Monday is designated as a general holiday in substitution</p> <p>2 - As Asarnha Bucha Day falls on Sunday (5 July) ; Monday is designated as a general holidays in substitution</p> <p>3 - As H.M. King Bhumibol Adulyadej's Birthday falls on Saturday (5 Dec) , Monday is designated as a general holiday in substitution</p>	

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### ARCADIS ASIA SERVICES

#### **BUSINESS ADVISORY**

From rapid urbanization and pressure on natural resources, to tighter regulation and market consolidation, we live in an increasingly complex world. We understand your business challenges and have first-hand experience of the assets you own and operate. We partner with you and bring unique insights to support you in getting better results, with more certainty from strategy, optimizing performance, enhancing resiliency or transformation of your asset- Arcadis has helped clients globally deliver success.

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#### **COST MANAGEMENT**

Be it a high-rise office building, a state-of-the-art rail station or a large scale industrial development, the need to achieve value for money is central to every investment strategy. Our people understand the need to accurately advise on costs and procurement at planning stage, ensuring a development or program is both economically and environmentally viable for many years to come.

---

#### **DESIGN & ENGINEERING**

From tall buildings to the busy airports; from underground tunnels to iconic bridges, engineering feats help to improve the quality of life for us all. Our specialist engineers use their expertise and knowledge to deliver exceptional and sustainable outcomes for clients through working on some of the world's most impressive and well-known buildings and structures.



## ENVIRONMENT

We all deserve a clean, safe environment in which to live. Now more than ever, businesses and governments recognize the need to incorporate environmental concerns into their decision making. Arcadis is a global leader in inventive technical and financial approaches, helping some of the world's leading corporates and governments understand their impact on the natural world.

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## PROJECT & PROGRAMME MANAGEMENT

Organizing the creation of the world's largest, most complex and iconic programs of work in the built and natural environment today is no easy task. Budgets, supply chains, health and safety, time-frames and the large number of parties involved can be daunting. We work alongside our clients to create the right strategy, manage and mitigate risk, and assure the outcomes to meet our clients' business objectives and create exceptional value. As construction programs grow more complex, often with multi-geography delivery and faster paced schedules, the risks are getting.

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## WATER

From source to tap and then back to nature, the planet's most precious resource should be cherished. Thanks to over a century of experience in the water sector, Arcadis' specialist teams around the globe are uniquely positioned to provide safe and secure water technology that is built to withstand the demands of a rapidly changing world.

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## HEALTH & SAFETY MANAGEMENT SYSTEM

Based on the recognized international standards of OHSAS 18001, We have implemented a Health and Safety Management System which is part of our Arcadis Asia Health, Safety and Environmental Management System. Following the success of our Health & Safety accreditation in Hong Kong in 2012, we had



rolled out the system across China and Macau, where an H&S coordinator is assigned in each of our Arcadis offices to assist in planning, implementing, monitoring and reporting health and safety issues.

Next year we will complete our migration from the existing OHSAS 18001 standard to the new International Standard ISO 45001 with the issue of the new IMS Manual, which allows for enhanced compatibility of standards, due to the common framework. Adopting the risk-based approach, we continue to identify the H&S related internal and external factors and conditions that could affect, or be affected by, us. To further improve our H&S performance, our staff is empowered to take an active role in setting H&S objectives, assessing H&S risks, conducting audits, etc. Besides, Clark site safety training programme has been launched for more than two years and we will do our best to involve more clients to join.

Committed to making our business a safe, healthy and sustainable place to work, we strive to excel ourselves to achieve zero incidents in everything we do ensuring the health, safety and well-being of our staff and stakeholders as well as maintaining the highest standards, and continual improvement, in our health and safety performance.

### QUALITY MANAGEMENT SYSTEM

The Quality Management System was launched in our Hong Kong office in 1993, and have completed our conversion to the ISO 9001:2015 Standard in 2018. The System and the accreditation of ISO 9001 has also been extended to Macau as well as our eighteen China offices.



Arcadis has set annual objectives to ensure client's expectations to be met or exceeded. To achieve the continual improvement, our quality performance is monitored, measured, analyzed and evaluated to check both effectiveness of our system and that the objectives are to be achieved. This year we rolled out a new, standardized on-line client satisfaction survey, which is integrated with a database system so that it streamlines our client feedback process and allows us to better track and analyze the responded results.

Nowadays an effective Quality Management System is one of the core elements in any kind of business. Arcadis makes every effort to provide not merely quantity surveying services but also the highest quality services to meet our clients' requirements.



## ENVIRONMENTAL MANAGEMENT SYSTEM

As a socially responsible company, we have been formally implementing our Environmental Management System in Hong Kong. Over the past few years, we have completed a gradual roll-out of the same standards from Macau to all our China offices. After upgrading our certificates for quantity surveying line & project management line in Hong Kong, we also got our design and engineering line certified to ISO 14001 (Environmental) this year.



To establish a desirable green office, we not only undertake work-related environmental protection measures, but also apply the concept of green practice management such as potted plant areas and digital collaboration platforms with the Microsoft Hubs to our premises. Other than being concerned about our office environment, we focus on ways of reducing pollution in the community. This year we cooperated with other organizations in running two beach clean-up programmes, one with “ECF - let’s Clean the Sai Kung Shoreline” and another one with “Dow Chemical – Pulling our Weight”.

For Arcadis, environmental protection and resource conservation are our high-priority corporate goals. To do our best towards saving the environment, we continue to devise more environment friendly standards and practices to make the most of every opportunity we get.

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