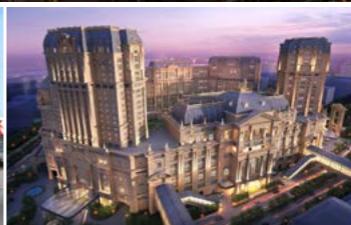


Construction Cost Handbook

CHINA & HONG KONG

2019

Arcadis Asia Limited
Arcadis Hong Kong Limited



Electronic Cost Handbook

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5. Grand Lisboa Palace, Cotai, Macau

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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 2018.**

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2018

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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



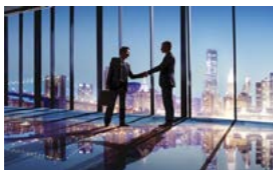
People First

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

Construction Costs for Hong Kong

M&E Costs for Hong Kong

ACMV Costs for Various Designs and
Developments in Hong Kong

Fit-out Costs for Hong Kong

Unit Costs for Ancillary Facilities
for Hong Kong

Construction Costs for Selected Asian
Cities

M&E Costs for Selected Asian Cities

Major Rates for Selected Asian Cities

Construction Cost Specification

CONSTRUCTION COSTS FOR HONG KONG

CONSTRUCTION COSTS FOR HONG KONG

BUILDING TYPE	HK\$/m ² CFA		TOTAL
	BUILDING	SERVICES	
<u>DOMESTIC</u>			
Apartments, high rise, public authority standard	9,050 - 11,150	1,950 - 2,350	11,000 - 13,500
Apartments, high rise, average standard	19,900 - 22,150	4,000 - 5,750	23,900 - 27,900
Apartments, high rise, high end	26,350 - 29,850	5,050 - 6,850	31,400 - 36,700
Terraced houses, average standard	28,650 - 33,200	3,650 - 4,800	32,300 - 38,000
Detached houses, high end	42,000 up	6,000 up	48,000 up
<u>OFFICE / COMMERCIAL</u>			
Medium/high rise offices, average standard	17,800 - 20,350	5,600 - 7,050	23,400 - 27,400
High rise offices, prestige quality	22,150 - 25,350	6,250 - 7,950	28,400 - 33,300
Out-of-town shopping centre, average standard	17,100 - 20,750	6,100 - 6,950	23,200 - 27,700
Retail malls, high end	24,550 - 29,100	6,350 - 7,800	30,900 - 36,900

<u>HOTELS</u>					
Budget hotels - 3-star, mid market	22,850 - 23,800	7,150 - 8,700	30,000 - 32,500		
Business hotels - 4/5-star	23,550 - 26,950	7,850 - 9,950	31,400 - 36,900		
Luxury hotels - 5-star	29,050 - 32,750	7,850 - 9,950	36,900 - 42,700		
<u>INDUSTRIAL</u>					
Owner operated factories, low rise, light weight industry	15,970 - 20,030	2,230 - 3,070	18,200 - 23,100		
<u>OTHERS</u>					
Underground/basement car parks (<3 levels)	22,350 - 26,250	2,650 - 3,750	25,000 - 30,000		
Multi storey car parks, above ground(<4 levels)	13,000 - 14,650	2,000 - 3,150	15,000 - 17,800		
Schools (primary and secondary)	16,800 - 17,400	2,900 - 3,800	19,700 - 21,200		
Students' residences	18,150 - 19,800	4,750 - 6,100	22,900 - 25,900		
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	23,700 - 26,900	6,200 - 7,900	29,900 - 34,800		
General hospitals - public sector	29,900 - 32,600	8,800 - 11,000	38,700 - 43,600		

The above costs are at 4th Quarter 2018 levels.

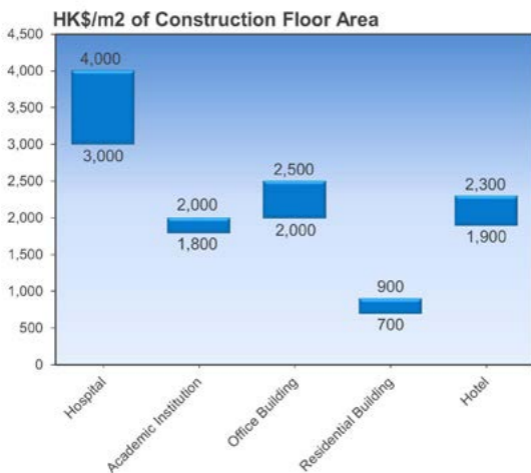
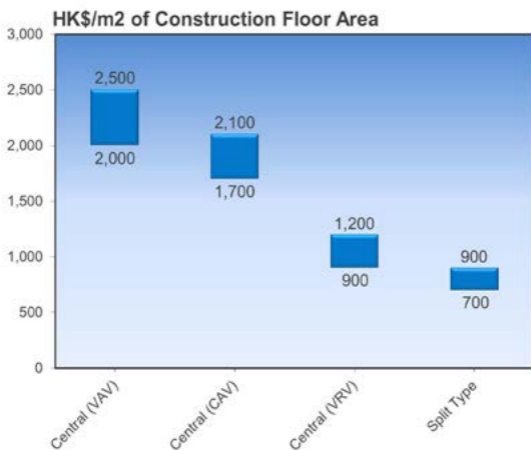
M&E COSTS FOR HONG KONG

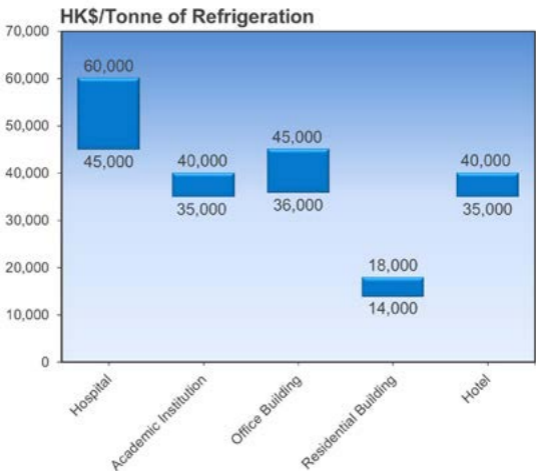
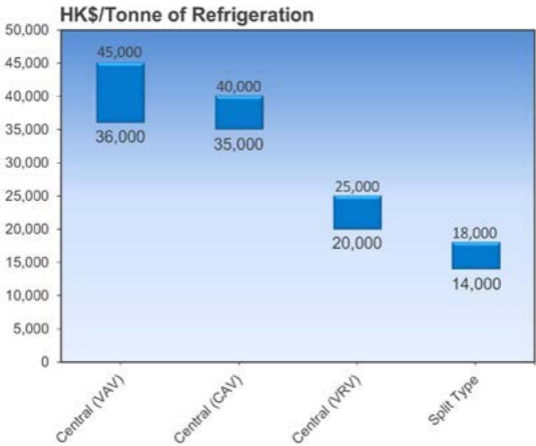
BUILDING TYPE	HK\$/m ² CFA					
	MECHANICAL SERVICES	ELECTRICAL SERVICES	FIRE SERVICES	LIFTS/ ESCALATORS	HYDRAULIC SERVICES	TOTAL SERVICES
<u>DOMESTIC</u>						
Apartments, high rise, public authority standard	--	600 - 700	150 - 200	300 - 350	900 - 1,100	1,950 - 2,350
Apartments, high rise, average standard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

HOTELS												
Budget hotels - 3-star, mid market	2,100 - 2,400	1,900 - 2,200	600 - 850	550 - 750	2,000 - 2,500	7,150 - 8,700						
Business hotels - 4/5-star	2,200 - 2,650	2,200 - 2,600	600 - 850	550 - 850	2,300 - 3,000	7,850 - 9,950						
Luxury hotels - 5-star	2,200 - 2,650	2,200 - 2,600	600 - 850	550 - 850	2,300 - 3,000	7,850 - 9,950						
INDUSTRIAL												
Owner operated factories, low rise, light weight industry	160 - 260	620 - 860	400 - 500	550 - 750	500 - 700	2,230 - 3,070						
OTHERS												
Underground/basement car parks (<3 levels)	900 - 1,100	650 - 1,050	350 - 450	350 - 450	400 - 700	2,650 - 3,750						
Multi storey car parks, above ground (<4 levels)	350 - 700	550 - 850	350 - 450	350 - 450	400 - 700	2,000 - 3,150						
Schools (primary and secondary)	750 - 1,000	1,050 - 1,250	350 - 500	200 - 350	550 - 700	2,900 - 3,800						
Students' residences	750 - 1,000	1,800 - 2,100	600 - 850	200 - 350	1,400 - 1,800	4,750 - 6,100						
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	2,600 - 3,100	2,000 - 2,700	600 - 850	350 - 450	650 - 800	6,200 - 7,900						
General hospitals - public sector	3,500 - 4,100	2,600 - 3,150	700 - 950	400 - 600	1,600 - 2,200	8,800 - 11,000						

The above costs are at 4th Quarter 2018 levels.

ACMV COSTS FOR VARIOUS DESIGNS AND DEVELOPMENTS IN HONG KONG





FIT-OUT COSTS FOR HONG KONG

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

The above costs are at **4th Quarter 2018** levels.

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

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>SQUASH COURTS</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>TENNIS COURTS</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>SWIMMING POOLS</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>PLAYGROUND EQUIPMENT</p> <p>Outdoor playground equipment comprising various activities.</p>	per set	300,000 to 800,000

The above costs are at **4th Quarter 2018** levels.

DESCRIPTION	UNIT	HK\$
<p>SAUNAS</p> <p>Sauna room for 4-6 people complete with all accessories (enclosing structure not included).</p>	per room	250,000
<p>STEAM BATHS</p> <p>Steam bath for 4-6 people complete with all accessories (enclosing structure not included).</p>	per room	250,000
<p>GOLF COURSES</p> <p>(Based on average cost of an 18-hole golf course)</p> <p>Excluding associated buildings and equipment.</p>	per hole	8,000,000 to 14,000,000
<p>GREEN ROOF</p> <p>Proprietary lightweight green roof system; with automatic irrigation system (roofing and roof structure not included).</p>	per m2	3,000 to 6,000
<p>VERTICAL GREEN</p> <p>Vertical green system; wire frame type, with automatic irrigation system (background supporting wall not included).</p>	per m2	5,000 to 10,000

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m ² CFA				
	HONG KONG £	SHANGHAI +	BEIJING +	GUANGZHOU/ SHENZHEN +	CHONGQING/ CHENGDU +
<u>DOMESTIC</u>					
Apartments, high rise, average standard	3,060 - 3,570	668 - 740	613 - 673	534 - 590	552 - 661
Apartments, high rise, high end	4,020 - 4,690	1,554 - 1,697	1,484 - 1,690	874 - 958	907 - 1,149
Terraced houses, average standard	4,130 - 4,860	446 - 477	447 - 522	405 - 446	445 - 541
Detached houses, high end	6,140 up	666 - 740	673 - 749	553 - 609	591 - 682
<u>OFFICE / COMMERCIAL</u>					
Medium/high rise offices, average standard	2,990 - 3,500	868 - 1,156	857 - 1,154	777 - 860	882 - 1,025
High rise offices, prestige quality	3,630 - 4,260	1,158 - 1,445	1,154 - 1,895	1,132 - 1,361	1,122 - 1,520
Out-of-town shopping centre, average standard	2,970 - 3,540	N/A	653 - 873	749 - 822	706 - 912
Retail malls, high end	3,950 - 4,720	1,228 - 1,585	1,181 - 1,626	1,088 - 1,521	1,067 - 1,505
<u>HOTELS</u>					
Budget hotels - 3-star, mid market	3,840 - 4,160	952 - 1,169	966 - 1,191	985 - 1,084	958 - 1,189
Business hotels - 4/5-star	4,020 - 4,720	1,556 - 2,120	1,615 - 2,132	1,592 - 2,273	1,747 - 2,188
Luxury hotels - 5-star	4,720 - 5,460	2,117 - 2,538	2,057 - 2,646	2,165 - 2,386	2,159 - 2,592

INDUSTRIAL									
Industrial units, shell only (Conventional single storey framed units)	N/A	280 - 342	270 - 329	497 - 547	426 - 542				
Owner operated factories, low rise, light weight industry	2,330 - 2,950	432 - 540	522 - 598	N/A	N/A				
OTHERS									
Underground/basement car parks (<3 levels)	3,200 - 3,840	742 - 1,033	746 - 820	513 - 820	413 - 589				
Multi storey car parks, above ground (<4 levels)	1,920 - 2,280	382 - 532	449 - 454	367 - 404	324 - 405				
Schools (primary and secondary)	2,520 - 2,710	528 - 676	520 - 671	407 - 448	438 - 487				
Students' residences	2,930 - 3,310	377 - 527	368 - 520	264 - 297	N/A				
Sports clubs, multi purpose sports/leisure centres (dry sports)	3,820 - 4,450	955 - 1,172	890 - 897	754 - 832	N/A				
General hospitals - public sector	4,950 - 5,580	1,418 - 1,839	1,170 - 1,465	N/A	N/A				
Exchange Rate Used : US\$1 =	HK\$ 7.82	RMB 6.94	RMB 6.94	RMB 6.94	RMB 6.94				

The above costs are at **4th Quarter 2018** 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.

+ 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 ² CFA			
	MACAU ^b	SINGAPORE ^c	KUALA LUMPUR	BANGKOK ^{ce}
<u>DOMESTIC</u>				
Apartments, high rise, average standard	2,279 - 2,788	1,305 - 1,485	345 - 580 ^a	703 - 871
Apartments, high rise, high end	3,183 - 4,864	2,030 - 3,045	710 - 1,120	978 - 1,207
Terraced houses, average standard	3,884 - 4,635	1,705 - 1,920	220 - 345 ^a	458 - 565
Detached houses, high end	4,737 - 6,163	2,175 - 2,900	740 - 980	794 - 962
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	2,623 - 3,387	1,705 - 1,920 ^a	575 - 745 ^a	642 - 794
High rise offices, prestige quality	3,387 - 3,705	1,920 - 2,100 ^a	865 - 1,255 ^a	871 - 1,176
Out-of-town shopping centre, average standard	2,470 - 3,705	1,920 - 2,030	550 - 715	626 - 810
Retail malls, high end	3,884 - 4,686	2,030 - 2,245	680 - 1,000	840 - 886
<u>HOTELS</u>				
Budget hotels - 3-star, mid market	3,451 - 3,909	2,140 - 2,355	1,020 - 1,395	1,146 - 1,268
Business hotels - 4/5-star	4,686 - 5,602	2,755 - 3,115	1,720 - 2,175	1,466 - 1,680
Luxury hotels - 5-star	5,602 - 6,621	2,755 - 3,115	1,940 - 2,435	1,711 - 1,986

INDUSTRIAL						
Industrial units, shell only (Conventional single storey framed units)	N/A	725 - 930	320 - 430	489 - 611		
Owner operated factories, low rise, light weight industry	N/A	N/A	430 - 520	N/A		
OTHERS						
Underground/basement car parks (<3 levels)	2,050 - 3,005	930 - 1,255	310 - 530	550 - 733		
Multi storey car parks, above ground (<4 levels)	1,133 - 1,490	640 - 930 ▼	220 - 345	183 - 299		
Schools (primary and secondary)	2,266 - 2,623	N/A	250 - 305 ▲	N/A		
Students' residences	1,795 - 2,088	1,560 - 1,705	295 - 360 ◆	N/A		
Sports clubs, multi purpose sports/leisure centres (dry sports)	N/A	1,955 - 2,100	595 - 730	N/A		
General hospitals - public sector	N/A	2,755 - 2,900	855 - 1,155	N/A		
Exchange Rate Used : US\$1 =	MOP 8.07	S\$ 1.38	RM 4.18	BAHT 32.73		

The above costs are at **4th Quarter 2018** levels, inclusive of preliminaries but exclusive of contingencies.

- † Rates are exclusive of any management contract fee.
- ♣ Rates are net of GST.
- ♠ Includes raised floor and ceiling to tenanted areas but excludes office carpets (normally under tenant's fit-out).
- ▼ Open on all sides with parapet.
- ▲ 6 - 12 units per floor, 46m² - 83m² 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.
- œ Rates exclude VAT.

(Cont'd)

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US\$/m ² CFA			
	MANILA Ω	INDIA ₹	JAKARTA $\text{\$}$	HO CHI MINH &
<u>DOMESTIC</u>				
Apartments, high rise, average standard	937 - 1,135	576 - 660	722 - 817	645 - 800
Apartments, high rise, high end	1,265 - 2,107	869 - 1,047	996 - 1,124	820 - 940
Terraced houses, average standard	762 - 917	398 - 419	383 - 498	435 - 510
Detached houses, high end	1,631 - 2,724	525 - 550	1,042 - 1,165	495 - 605
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	933 - 1,076	435 - 471	712 - 789	755 - 875
High rise offices, prestige quality	1,264 - 1,390	544 - 576	1,050 - 1,174	870 - 1,185
Out-of-town shopping centre, average standard	762 - 935	424 - 461	611 - 675	N/A
Retail malls, high end	1,093 - 1,508	592 - 639	675 - 730	705 - 920
<u>HOTELS</u>				
Budget hotels - 3-star, mid market	1,195 - 1,312	817 - 905	1,237 - 1,461	1,400 - 1,710
Business hotels - 4/5-star	1,347 - 1,607	1,272 - 1,508	1,691 - 1,827	N/A
Luxury hotels - 5-star	1,851 - 2,524	1,607 - 1,759	1,801 - 2,030	1,765 - 2,120

INDUSTRIAL						
Industrial units, shell only (Conventional single storey framed units)	485 - 538	340 - 398	327 - 356	310 - 390		
Owner operated factories, low rise, light weight industry	685 - 789	361 - 424	355 - 392	350 - 460		
OTHERS						
Underground/basement car parks (<3 levels)	494 - 610	288 - 309	505 - 619	640 - 765		
Multi storey car parks, above ground (<4 levels)	475 - 661	230 - 252	327 - 356	410 - 450		
Schools (primary and secondary)	701 - 952	285 - 324	N/A	540 - 590		
Students' residences	742 - 937	309 - 340	N/A	540 - 695		
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,186 - 1,699	602 - 628	1,095 - 1,640	800 - 855		
General hospitals - public sector	1,287 - 1,523	660 - 723	N/A	N/A		
Exchange Rate Used : US\$1 =	PHP 52.88	INR 71.9	IDR 15,180	VND 22,600		

The above costs are at **4th Quarter 2018** levels, inclusive of preliminaries but exclusive of contingencies.

Ω Rates include 12% VAT.

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

\$ Rates are nett of VAT.

& Rates are nett of VAT and contingencies.

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	HONG KONG		SHANGHAI		BEIJING		GUANGZHOU/ SHENZHEN		CHONGQING/ CHENGDU	
	HK\$/m ² CFA		RMB/m ² CFA		RMB/m ² CFA		RMB/m ² CFA		RMB/m ² CFA	
<u>MECHANICAL SERVICES</u>	Offices	1,900 - 2,700	790 - 1,005	775 - 1,071	775 - 1,070	730 - 990				
	Industrial *	160 - 260	176 - 295	170 - 280	155 - 285	140 - 230				
	Hotels	2,100 - 2,650	1,010 - 1,316	950 - 1,224	1,080 - 1,350	930 - 1,280				
	Shopping Centres	2,200 - 2,750	1,070 - 1,125	806 - 970	715 - 910	890 - 1,010				
	Apartment	850 - 2,000 up	320 - 423	143 - 459	152 - 410	150 - 300				
<u>ELECTRICAL SERVICES</u>	Offices	1,750 - 2,450	620 - 700	470 - 717	540 - 795	450 - 660				
	Industrial **	620 - 860	311 - 440	326 - 459	320 - 459	260 - 360				
	Hotels	1,900 - 2,600	677 - 864	719 - 962	715 - 1020	580 - 830				
	Shopping Centres	1,800 - 2,450	540 - 677	490 - 690	500 - 690	510 - 660				
	Apartment	1,100 - 2,100up	262 - 383	258 - 406	280 - 500	230 - 340				
<u>HYDRAULIC SERVICES</u>	Offices	700 - 900	112 - 166	97 - 143	128 - 184	85 - 120				
	Industrial	500 - 700	89 - 131	97 - 143	89 - 124	85 - 120				
	Hotels	2,000 - 3,000	375 - 498	377 - 490	390 - 500	330 - 450				

Shopping Centres	700 - 900	140 - 188	143 - 204	114 - 168	100 - 150
Apartment	1,400 - 2,200	171 - 231	173 - 234	150 - 280	100 - 180
<u>FIRE SERVICES</u>					
Offices	550 - 700	232 - 325	184 - 270	230 - 350	240 - 290
Industrial	400 - 500	160 - 268	153 - 230	143 - 272	130 - 230
Hotels	600 - 850	294 - 397	224 - 383	285 - 425	250 - 350
Shopping Centres	550 - 700	263 - 391	224 - 383	248 - 383	250 - 370
Apartment	100 - 600	56 - 105	71 - 138	72 - 152	60 - 110
<u>LIFTS / ESCALATORS</u>					
Offices	700 - 1,200	288 - 567	294 - 577	295 - 517	300 - 550
Industrial	550 - 750	139 - 402	145 - 400	150 - 440	150 - 350
Hotels	550 - 850	226 - 510	232 - 520	250 - 480	250 - 430
Shopping Centres	850 - 1,000	335 - 510	327 - 520	325 - 470	290 - 440
Apartment	450 - 850	170 - 300	175 - 289	130 - 500	140 - 240

The above costs are at **4th Quarter 2018** levels, exclusive of contingencies.

* Generally without A/C.

** Excludes special power supply.

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

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

BUILDING TYPE	MACAU		SINGAPORE *		KUALA LUMPUR		BANGKOK ^o	
	MOP/m ² CFA		S\$/m ² CFA		RM/m ² CFA		BAHT/m ² CFA	
<u>MECHANICAL SERVICES</u>								
Offices	N/A		153 - 249		320 - 490		4,400 - 4,800	
Industrial *	N/A		34 - 117		85 - 190		1,550 - 1,600	
Hotels	2,640 - 3,050		129 - 278		300 - 590		4,600 - 5,100	
Shopping Centres	2,400 - 3,000		147 - 246		300 - 475		4,600 - 4,800	
Apartment	900 - 1,200		90 - 170		120 - 210		4,300 - 4,500	
<u>ELECTRICAL SERVICES</u>								
Offices	N/A		158 - 258		290 - 460		3,400 - 3,800	
Industrial **	N/A		55 - 136		145 - 190		1,950 - 2,200	
Hotels	2,640 - 3,150		181 - 356		295 - 550		3,800 - 4,500	
Shopping Centres	2,640 - 3,000		160 - 304		295 - 460		2,800 - 3,200	
Apartment	1,020 - 1,320		97 - 213		105 - 210		2,800 - 3,350	
<u>HYDRAULIC SERVICES</u>								
Offices	N/A		26 - 55		35 - 65		780 - 900	
Industrial	N/A		18 - 36		40 - 50		750 - 790	
Hotels	1,830 - 2,240		91 - 172		175 - 270		1,400 - 1,650	

Shopping Centres	610 - 810	46 - 80	30 - 35	790 - 950
Apartment	1,520 - 2,030	72 - 146	50 - 100	1,200 - 1,400
<u>FIRE SERVICES</u>				
Offices	N/A	33 - 56	60 - 80	780 - 850
Industrial	N/A	23 - 51	45 - 65	730 - 750
Hotels	910 - 1,120	28 - 57	65 - 90	780 - 890
Shopping Centres	610 - 810	37 - 56	55 - 80	780 - 820
Apartment	250 - 300	25 - 43	15 - 30	720 - 850
<u>LIFTS / ESCALATORS</u>				
Offices	N/A	63 - 162	125 - 350	1,100 - 1,350
Industrial	N/A	41 - 104	55 - 180	N/A
Hotels	610 - 810	49 - 108	100 - 285	1,100 - 1,400
Shopping Centres	460 - 710	56 - 90	95 - 120	250 - 450
Apartment	460 - 610	41 - 100	65 - 110	500 - 580

The above costs are at **4th Quarter 2018** levels, exclusive of contingencies.

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

** 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 ^o	INDIA ^φ	JAKARTA #	HO CHI MINH
	PHP/m ² CFA	INR/m ² CFA	IDR/m ² CFA	VND/m ² CFA
<u>MECHANICAL SERVICES</u>				
Offices	4,000 - 5,930	4,800 - 6,805	1,028,000 - 1,183,000	2,036,000 - 2,902,000
Industrial *	800 - 1,500	2,210 - 3,925	466,000 - 744,000	N/A
Hotels	3,500 - 9,670	5,880 - 6,420	1,022,000 - 1,210,000	N/A
Shopping Centres	2,890 - 6,840	4,585 - 6,005	905,000 - 1,087,000	N/A
Apartment	1,360 - 4,430	2,620 - 3,245	915,000 - 1,001,000	1,537,000 - 2,106,000
<u>ELECTRICAL SERVICES</u>				
Offices	3,700 - 7,000	4,250 - 5,840	830,000 - 1,060,000	2,275,000 - 2,723,000
Industrial **	2,000 - 3,500	2,500 - 4,150	589,000 - 833,000	N/A
Hotels	4,700 - 12,000	4,710 - 6,425	835,000 - 937,000	N/A
Shopping Centres	3,600 - 6,000	4,050 - 5,420	723,000 - 910,000	N/A
Apartment	3,600 - 6,800	2,040 - 2,805	878,000 - 1,049,000	2,006,000 - 2,534,000
<u>HYDRAULIC SERVICES</u>				
Offices	1,230 - 2,200	740 - 1,130	209,000 - 294,000	332,000 - 621,000
Industrial	800 - 1,300	510 - 890	139,000 - 214,000	N/A
Hotels	2,250 - 6,820	3,868 - 5,825	835,000 - 1,054,000	N/A

Shopping Centres	1,220 - 1,600	1,100 - 1,990	198,000 - 305,000	N/A
Apartment	2,250 - 3,600	1,745 - 2,410	889,000 - 1,124,000	647,000 - 752,000
<u>FIRE SERVICES</u>				
Offices	950 - 1,560	1,185 - 1,545	284,000 - 375,000	704,000 - 1,167,000
Industrial	800 - 2,000	540 - 745	150,000 - 214,000	N/A
Hotels	1,100 - 2,030	1,375 - 1,760	284,000 - 332,000	N/A
Shopping Centres	1,090 - 1,730	1,130 - 1,310	278,000 - 326,000	N/A
Apartment	900 - 1,300	630 - 750	294,000 - 343,000	483,000 - 606,000
<u>LIFTS / ESCALATORS</u>				
Offices	1,600 - 4,620	985 - 1,250	444,000 - 1,065,000	670,000 - 1,279,000
Industrial	0 - 400	640 - 825	N/A	N/A
Hotels	1,800 - 3,400	1,430 - 2,085	434,000 - 707,000	N/A
Shopping Centres	1,600 - 2,680	1,675 - 2,145	326,000 - 878,000	1,364,000 - 1,931,000
Apartment	850 - 3,440	890 - 1,150	434,000 - 798,000	761,000 - 1,101,000

The above costs are at **4th Quarter 2018** levels, exclusive of contingencies.

- * Generally without A/C. # All rates are nett of VAT. Rates for Electrical Services are excluding genset.
- ** Excludes special power supply. Rates for Hydraulic Services are excluding STP.
- Ω Transformer, included in Electrical Services. Rates for Mechanical Services refers to ACMV Rates only.

₹ 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	HONG KONG		SHANGHAI		BEIJING		GUANGZHOU/ SHENZHEN		CHONGQING/ CHENGDU	
		HK\$	RMB	RMB	RMB	RMB	RMB	RMB	RMB		
1. Excavating basement ≤ 2.00m deep	m ³	200	30	30	30	30	30	30	30	30	30
2. Excavating for footings ≤ 1.50m deep	m ³	180	30	30	33	30	30	30	30	26	26
3. Remove excavated materials off site	m ³	300 ^e	135	135	60	105	60	105	105	95	95
4. Hardcore bed blinded with fine materials	m ³	950	190	190	180	190	180	190	190	170	170
5. Mass concrete grade 15	m ³	1,100	540	540	530	540	530	540	540	420	420
6. Reinforced concrete grade 30	m ³	1,200	570	570	550	580	550	580	580	550	550
7. Mild steel rod reinforcement	kg	9.7	5.8	5.8	5.6	6	5.6	6	6	5.3	5.3
8. High tensile rod reinforcement	kg	9.7	5.8	5.8	5.6	6	5.6	6	6	5.3	5.3
9. Sawn formwork to soffits of suspended slabs	m ²	410	90	90	90	90	90	90	90	65	65
10. Sawn formwork to columns and walls	m ²	410	90	90	85	85	85	85	85	60	60
11. 112.5mm thick brick walls	m ²	400	90 ^e	90 ^e	80	80	80	80	80	80	80
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	1,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

13. Aluminium casement windows, single glazed	m ²	3,800	700	815*	700	650
14. Structural steelwork - beams, stanchions and the like	kg	36	11	11	12.5	11
15. Steelwork - angles, channels, flats and the like	kg	42	9.5	9.5	11.5	11.1
16. 25mm cement and sand (1:3) paving	m ²	160	35	32	35	25
17. 20mm cement and sand (1:4) plaster to walls	m ²	165	35	32	30	35
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	400	160	145	155	130
19. 12mm fibrous plasterboard ceiling lining	m ²	600	150	162	190	150
20. Two coats of emulsion paint to plastered surfaces	m ²	90	40	32	35	35
Average expected preliminaries	%	10 - 15	5 - 10	7 - 10	5 - 12	6 - 12

The above costs are at **4th Quarter 2018** levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

δ Rates including dumping charges.

@ Rates for 120mm thick concrete block walls.

* Rates for double glazed window.

(Cont'd)

MAJOR RATES FOR SELECTED ASIAN CITIES

MAJOR RATES FOR SELECTED ASIAN CITIES (Cont'd)

DESCRIPTION	UNIT	MACAU		SINGAPORE		KUALA LUMPUR		BANGKOK	
		MOP	S\$	RM	BAHT				
1. Excavating basement ≤ 2.00m deep	m ³	150	20	15 - 25	120 - 140				
2. Excavating for footings ≤ 1.50m deep	m ³	180	20	15 - 25	140 - 180				
3. Remove excavated materials off site	m ³	150	15 - 20	20 - 30	120 - 150				
4. Hardcore bed blinded with fine materials	m ³	1,200	50	72 - 95	650 - 750				
5. Mass concrete grade 15	m ³	1,350	175 - 185**	240 - 315	2,300 - 2,500				
6. Reinforced concrete grade 30	m ³	1,250	115 - 120	260 - 320	2,600 - 2,800				
7. Mild steel rod reinforcement	kg	9	1.25 - 1.35	3.4 - 3.8	26 - 29				
8. High tensile rod reinforcement	kg	9	1.25 - 1.35	3.4 - 3.8	26 - 28				
9. Sawn formwork to soffits of suspended slabs	m ²	280	40	38 - 45	420 - 480				
10. Sawn formwork to columns and walls	m ²	280	40	38 - 45	420 - 480				
11. 112.5mm thick brick walls	m ²	450	35 - 40	42 - 50	650 - 750				
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	N/A	43	65 - 70	1,200				

13. Aluminium casement windows, single glazed	m ²	4,000	290	380 - 600	7,000
14. Structural steelwork - beams, stanchions and the like	kg	35	4 - 4.5	7.5 - 9.5	60 - 75
15. Steelwork - angles, channels, flats and the like	kg	40	4 - 4.5	7.5 - 9.5	60 - 75
16. 25mm cement and sand (1:3) paving	m ²	120	21	17 - 25	200 - 240
17. 20mm cement and sand (1:4) plaster to walls	m ²	150	22	18 - 25	220 - 260
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	450	74	50 - 70	1,200
19. 12mm fibrous plasterboard ceiling lining	m ²	650	30	35 - 45	750 - 850
20. Two coats of emulsion paint to plastered surfaces	m ²	200	3.5 - 4	3.5 - 5.0	120 - 160
Average expected preliminaries	%	10	12 - 15	6 - 15	12 - 18

The above costs are at **4th Quarter 2018** 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 are nett of VAT.

(Cont'd)

MAJOR RATES FOR SELECTED ASIAN CITIES

MAJOR RATES FOR SELECTED ASIAN CITIES (Cont'd)

DESCRIPTION	UNIT	MANILA		INDIA ⁶		JAKARTA #		HO CHI MINH #	
		PHP	INR	IDR	VND				
1. Excavating basement ≤ 2.00m deep	m ³	270	199	40,000	92,400				
2. Excavating for footings ≤ 1.50m deep	m ³	500	225	75,000	92,400				
3. Remove excavated materials off site	m ³	350	N/A	35,000	84,700				
4. Hardcore bed blinded with fine materials	m ³	1,800	4,620	650,000	280,900				
5. Mass concrete grade 15	m ³	3,400	6,248	950,000	1,696,400				
6. Reinforced concrete grade 30	m ³	4,800	7,822	1,135,000	1,865,650				
7. Mild steel rod reinforcement	kg	54	70	12,500	19,764				
8. High tensile rod reinforcement	kg	55	72	12,500	19,908				
9. Sawn formwork to soffits of suspended slabs	m ²	1,000	708	200,000	215,000				
10. Sawn formwork to columns and walls	m ²	950	761	195,000	245,000				
11. 112.5mm thick brick walls	m ²	N/A	1,155	250,000	312,780				
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	1,400	1,785	300,000	401,110 - 597,600				

13. Aluminium casement windows, single glazed	m ²	11,500 ^Ω	6,300	1,650,000	6,315,000
14. Structural steelwork - beams, stanchions and the like	kg	160	126	27,000	52,650
15. Steelwork - angles, channels, flats and the like	kg	160	126	27,000	52,650
16. 25mm cement and sand (1:3) paving	m ²	650	498	90,000	94,000
17. 20mm cement and sand (1:4) plaster to walls	m ²	700	409	100,000	144,000
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	1,800	1,785	200,000	674,180
19. 12mm fibrous plasterboard ceiling lining	m ²	1,400	1,417	215,000 [⊠]	234,000
20. Two coats of emulsion paint to plastered surfaces	m ²	500	252	30,000	88,900
Average expected preliminaries	%	12 - 18	9 - 13	8 - 10	8 - 12

The above costs are at **4th Quarter 2018** 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. # Rates are nett of VAT.

⊠ All rates above are Supply and Fix, based on projects in Bangalore and # Rate for 9mm gypsum board. are nett of GST. Mumbai costs are generally 8% higher.

CONSTRUCTION COST SPECIFICATION

CONSTRUCTION COST SPECIFICATION

BUILDING TYPE	OUTLINE SPECIFICATION
<u>DOMESTIC</u>	
Apartments, high rise, average standard	Apartment units with fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding 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 excluding decorative light fittings and loose furniture
Terraced houses, average standard	Houses with fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding 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 excluding decorative light fittings, loose furniture, garden and parking
<u>OFFICE / COMMERCIAL</u>	
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 excluding shop fit-out
Retail malls, high end	
<u>HOTELS</u>	
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) excluded .
Business hotels - 4/5-star	
Luxury hotels - 5-star	
<u>INDUSTRIAL</u>	
Industrial units, shell only (Conventional single storey framed units)	RC structure with steel roof and M&E to main distribution, but excluding 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 excluding a/c and heating

(Cont'd)

CONSTRUCTION COST SPECIFICATION

CONSTRUCTION COST SPECIFICATION (Cont'd)

BUILDING TYPE	OUTLINE SPECIFICATION
<u>OTHERS</u>	
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 excluding 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\$/m² CFA. Fluctuation in exchange rates may lead to changes in construction costs expressed in U.S. dollars.



GENERAL CONSTRUCTION DATA

2

2019 Outlook

Building Cost Trends in Hong Kong

Labour Index in Hong Kong

Labour Wages in Hong Kong

Material Prices in Hong Kong

Construction Workdone Forecast

Estimating Rules of Thumb and Design
Norms

Construction Activity in Hong Kong

Construction Value in Hong Kong

Hong Kong General Construction Insurance

Specified Forms for Buildings Ordinance
or Regulations for Hong Kong

Summary of Building Regulations
for Hong Kong

Percentage Site Coverage and Plot Ratios
for Hong Kong

Evolving Regulations for Green Building
in China

Procurement Strategies and Form
of Contracts

2019 OUTLOOK

CHINA

The Chinese government had a clear economic outline for growth in 2018 with areas of focus including a need to improve the quality of GDP growth, create more openness to foreign investment and to control its growing levels of pollution. In response, China's GDP increased by 6.7%, Year-on-Year (YoY) based on Q3 2018. The rate of inflation was mild with the Composite Consumer Price Index (CPI) increasing gradually from a low in early 2017 by 2.2% YoY based on November 2018.

Annual growth in land sales

There was significant annual growth in land sales of 15.7% in the first three quarters of 2018. However, 935 land auctions were aborted due to a failure to reach reserve prices, which included 13 plots in Tier-1 Cities. This has resulted in developers operating with more caution and the reserve price of new land dropping to its lowest level since 2014.

Additionally, developers saw high levels of turnover in the first three quarters of 2018, which generated RMB11,591.4 billion in revenue, a 12.5% increase YoY. There was also growth in available property to sell due to an annual rise of 16.3% in new development areas. However, the growth in sales of the new development areas was slow at only 2.2%, suggesting that construction may slow down in 2019. Construction levels might be further impacted by the announcement on 31 July 2018 that the government would 'firmly suppress the rise of housing prices', causing further concern for developers.

Tightening of lending

Real estate investment increased by 7.7% YoY in 2018 despite market tightening around access to funding. The tightening of lending is a reaction to limit associated risk for local loans (provided by local banks and financial



institutions) and overseas financing which saw lending drop by 5.2% and 35.6% respectively. Despite this change in access to funding, real estate investment still increased and this is partly due to a 10.8% growth in self-raised funds, such as mortgages. This suggests the property market may slow down in 2019 as lenders look to operate with more caution.

In Q4 of 2018, the Central Bank of China reacted by lowering the Reserve Requirement Ratio (RRR) by 1% for the fourth time in 2018. This action, together with the continuous growth of new development areas, has the potential to alleviate the impact of suppressing rising housing prices on the property market. Early activity in 2019 has seen a further 1% reduction in RRR.

Increase in construction wages

In the first three quarters of 2018, construction wages increased by 4.3% YoY, which is the highest rate of growth in the last three years. Basic construction product costs fluctuated with rebar (-) 17%, steel (-) 13%, concrete (+) 23% and cement (+) 39%, YoY. There was also an increase in the price of cement and concrete due to changes in environmental protection policies, while decrease in rebar and steel were due to excess supply. The tender price recorded an increase of 3% in 2018.

There are no signs that the government is going to loosen any restrictions in its policies on housing purchases, bank mortgages or loans in 2019. It is also anticipated that there will be a slowing down in the real estate market that is expected to impact the construction market in 2019.

Construction wages are anticipated to grow between 3% and 5% in 2019 with prices of major material to remain stable. Its anticipated that construction costs will rise by 3% per annum in the next two years.

(Cont'd)

2019 OUTLOOK

HONG KONG

Hong Kong's 2018 construction industry had some core challenges that were addressed in the 2018/19 Budget Announcement and Chief Executive's 2018 Policy Address. These include the need to adopt technology and innovation, address the shortage of land and develop more affordable housing, which are all expected to continue into 2019. Despite these market challenges, Hong Kong's economy showed continued growth with its GDP rising by 2.9% Year-on-Year (YoY) based on Q3 2018. Inflation was mild with the Composite Consumer Price Index (CPI) increasing gradually from a low in early 2017 by 2.7% YoY based on October 2018.

High approval rates for major capital works

The gross value of construction works performed rose by 3.2% YoY based on Q2 2018 with several major long-term civil projects reaching completion, including the Hong Kong-Zhuhai-Macau Bridge and the West Kowloon Railway Station. This had the potential to leave a gap in ongoing capital works, but Hong Kong's Legislative Council approved funding for major capital works in 2017/18, that showed a 50% increase from the previous year.

As a result, there has been a number of projects that have commenced in 2018, and more that will commence in 2019 keeping the market stable. These projects include the Kai Tak Sports Park, Tung Chung New Town Extension, Central Kowloon Route and Integrated Basement for West Kowloon Cultural District. These supplement existing projects still under construction that include the Tseung Kwan O-Lam Tin Tunnel, infrastructure for the Kai Tak Development and the new runway at the Hong Kong International Airport. Funding was also granted in 2018 as a part of the government's 10-year Hospital Development Plan, for projects at Kwong Wah Hospital, Queen Mary Hospital and New Acute Hospital at Kai Tak Development Area.



The Lantau Tomorrow Vision

A new large-scale development project, the Lantau Tomorrow Vision, was launched in the 2018 Policy Address which includes significant land reclamation of 1,700 hectares. This is a long-term project that has limited construction work in 2019 with feasibility and design work taking precedent.

Subsidized housing

The completion of rental public housing and subsidized units in 2018/19 was around 27,000, which is slightly under the yearly supply average of 28,000. The number of completed private residential units in 2018 was on target at around 18,000, but the commencement rate including consent to commence in terms of floor area, decreased by 17% YoY based on September 2018.

Rising cost of sand

The Tender Price Index (TPI) decreased by 4.01% YoY based on Q4 2018. Steel price has increased from a market low in early 2016 with other core materials remaining stable throughout the year. Notably, the price of sand increased by 142% since a market slump in September 2017. Construction workers' wages, including bar benders, electrical and mechanical workers remained stable at peak levels, but wages for carpenters, bricklayers and general workers have experienced a slight dip. The Labour Wage Index (LWI) dropped 3.1% YoY based on Q3 2018.

Looking forward to 2019, despite the increased number of approved works, it is expected that there will be a reduction in the level of construction activities, especially on residential developments. In addition, there is also growing uncertainty around the influence of the US-China trade war and the local property market on future construction output. It's anticipated that construction costs will drop 2% in 2019 and further 1% in 2020.

(Cont'd)

2019 OUTLOOK

MACAU

The economic outlook for Macau is positive with the International Monetary Fund (IMF) expecting the Special Administrative Region (SAR) to have the highest GDP in the world by 2020, with its gaming sector continuing to underpin its economic growth. However, diversification of economic income remains key for Macau's government to reduce its dependence of gaming revenue.

This outlook is supported by statistics released by the Macau Government Economic Bureau that indicate Macau is moving toward economic recovery with significant GDP growth rising by 8.3% in 2018 and projected to be 7.1% in 2019. The Composite Consumer Price Index (CPI) also increased by 2.8% Year-on-Year (YoY) with the price of products and services across the clothing and footwear, medical and transportation sectors growing.

Growth in hotel construction

The Macau construction market has been historically dominated by the development of new casinos, but hotels have seen the most growth with guest rooms increasing to 38,700 by the end of June 2018, a 7.6% increase YoY. However, Macau is starting to see a change in strategic direction with the construction sector looking at Alteration and Additions (A&A) development and construction works for public housing, as the Macau government looks to provide more affordable housing.

Overall, the gaming industry saw rapid growth with gross gaming revenue in the first half of 2018 up by 18.9% YoY to MOP 150.79 billion, while tax revenue from gaming rose by 19% YoY to MOP 57.17 billion. An area for further growth is the renewal of Macau's gaming license in 2020, which might lead to a rise in competition in the casino market.

Reduction in the foreign labour quota

Statistical data provided by DSEC (Government of Macao Special Administrative Region – Statistics and Census

Service), shows that the price of construction materials has increased by 3.4% YoY as of Q3 2018 with labour costs remaining steady. There are fewer construction sites needed for new build casinos, creating a drop in the demand for labour. However, the Macau government has tightened the granting of labour quotas for foreign and mainland workers, forcing construction companies to employ a higher proportion of local citizens. It also remains possible that the Macau government will continue to tighten labour quotas, further limiting the supply of foreign labour into 2019. These two factors offset one another, leaving the cost of labour relatively unchanged.

Investment in leisure and tourism

In 2018, the Macau government continued to invest in infrastructure and construction projects, with a focus on the leisure and tourism industry. With over 35 million visitor arrivals reported by the DSEC in 2018, the need to capitalize on additional attractions and mobility is critical. The opening of the Hong Kong-Zhuhai-Macau Bridge (HKZMB) in October is expected to boost visitor arrival figures further in 2019 with early indications in 2018 showing growth in visitor arrivals when comparing October and November 2017 to the same period in 2018.

The overall growth of construction costs in 2018 was around 2%, and anticipated to rise by a further 2% in 2019 and 1% in 2020, mainly due to inflation factors and economic recovery.

CONSTRUCTION COST TREND PREDICTION			
REGION	2018	2019	2020
China ⁽¹⁾	(+)3%	(+)3%	(+)3%
Hong Kong ⁽¹⁾	(-)4%	(-)2%	(-)1%
Hong Kong ⁽²⁾	(-)5%	(-)3%	(-)1%
Macau ⁽¹⁾	(+)2%	(+)2%	(+)1%

(1) Building Works

(2) Civil Engineering Works

BUILDING COST TRENDS IN HONG KONG



YEAR	INDEX (Base = 100, at Year 1970)			
	Q1	Q2	Q3	Q4
2008	1,239	1,360	1,355	1,281
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



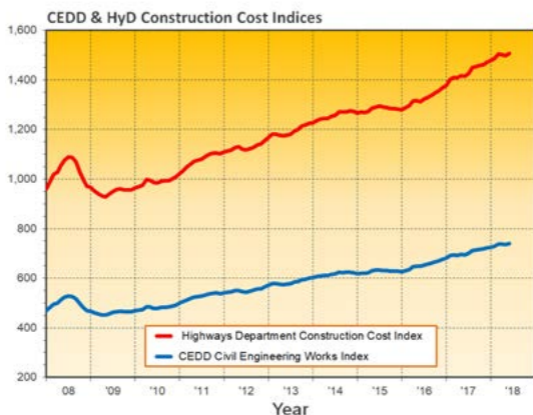
YEAR	INDEX (Base = 100, at Year 1970)			
	Q1	Q2	Q3	Q4
2008	1,118	1,305	1,401	1,262
2009	1,074	983	1,111	1,107
2010	1,134	1,161	1,249	1,266
2011	1,273	1,320	1,369	1,408
2012	1,414	1,438	1,467	1,496
2013	1,516	1,532	1,559	1,590
2014	1,621	1,648	1,679	1,703
2015	1,732	1,761	1,777	1,775
2016	1,775	1,776	1,783	1,781
2017	1,779	1,776	1,773	1,768
2018*	1,755	1,727	1,708	

* Up to Q3 only

Source: Architectural Services Department, Hong Kong, SAR
Refer to www.archsd.gov.hk for further information.

(Cont'd)

BUILDING COST TRENDS IN HONG KONG

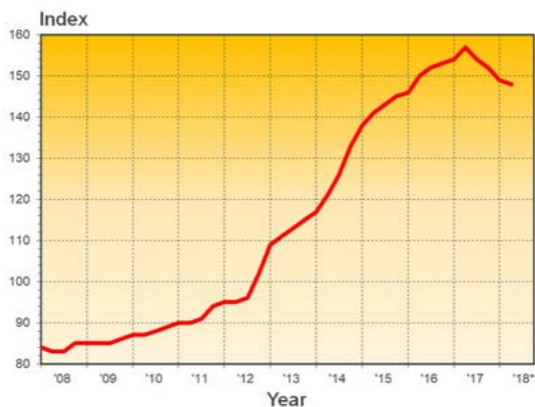


YEAR	HyD CONST. COST INDEX (Nov. 1975 Value = 100)	CEDD CIVIL ENGINEERING WORKS INDEX (1980 Value = 100)
2008	1,031	500
2009	950	461
2010	989	481
2011	1,075	525
2012	1,127	550
2013	1,191	583
2014	1,256	616
2015	1,282	627
2016	1,323	652
2017	1,429	703
2018*	1,496	735

* 1/18 to 6/18 only

Source: Civil Engineering and Development Department, Hong Kong, SAR
Refer to www.cedd.gov.hk/eng/index.htm for further information.

LABOUR INDEX IN HONG KONG



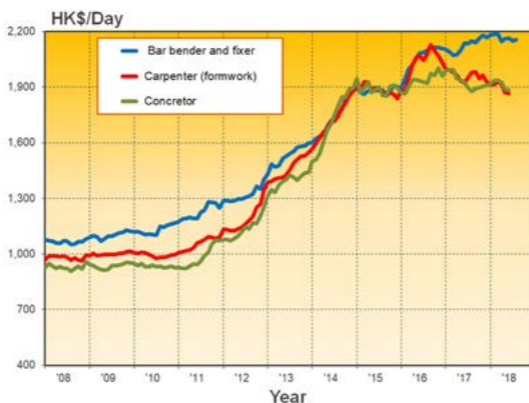
YEAR	INDEX (Base = 100, at April 2003)			
	Q1	Q2	Q3	Q4
2008	84	83	83	85
2009	85	85	85	86
2010	87	87	88	89
2011	90	90	91	94
2012	95	95	96	102
2013	109	111	113	115
2014	117	121	126	133
2015	138	141	143	145
2016	146	150	152	153
2017	154	157	154	152
2018*	149	148		

Figures above are the quarterly average of the monthly indices * 1/18 to 6/18 only

Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.gov.hk for further information.

LABOUR WAGES IN HONG KONG

STRUCTURAL

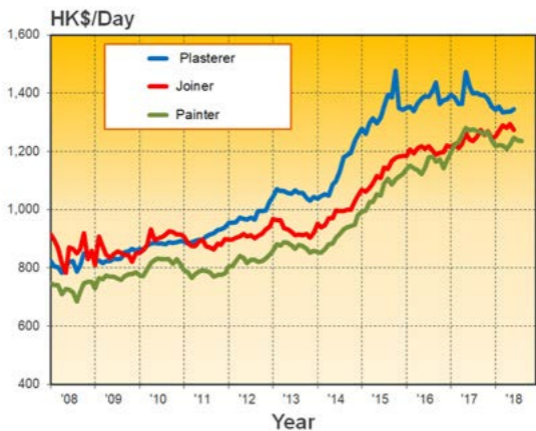


ARCHITECTURAL - BASIC WORKS

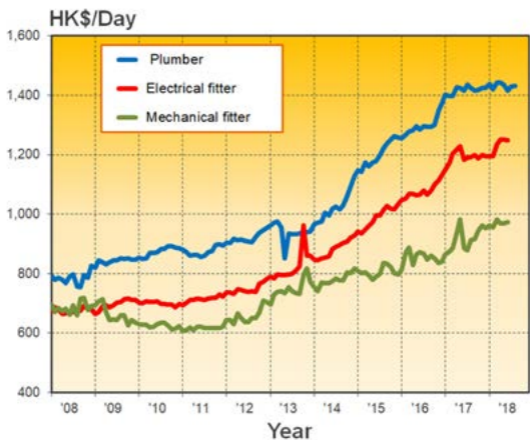


Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.gov.hk for further information.

ARCHITECTURAL - DECORATIVE WORKS



M&E

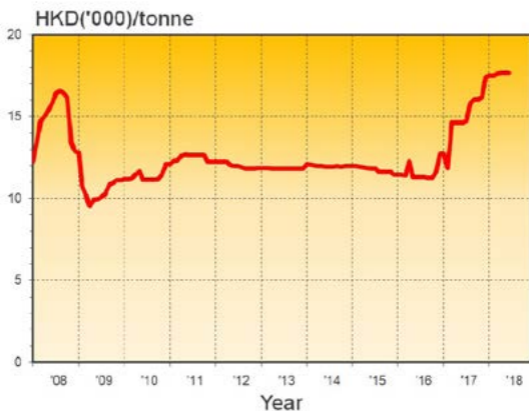


Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.gov.hk for further information.

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MATERIAL PRICES IN HONG KONG

GALVANIZED MILD STEEL ANGLE



REBAR

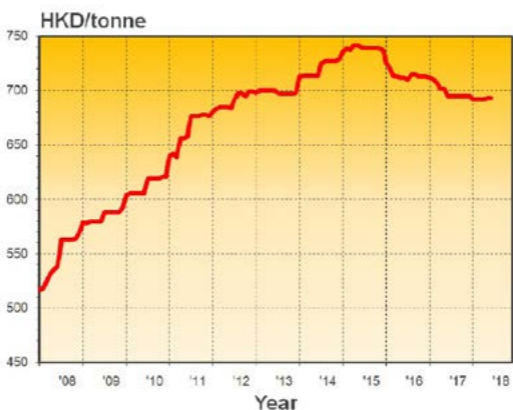


Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.gov.hk for further information.

SAND



ORDINARY PORTLAND CEMENT

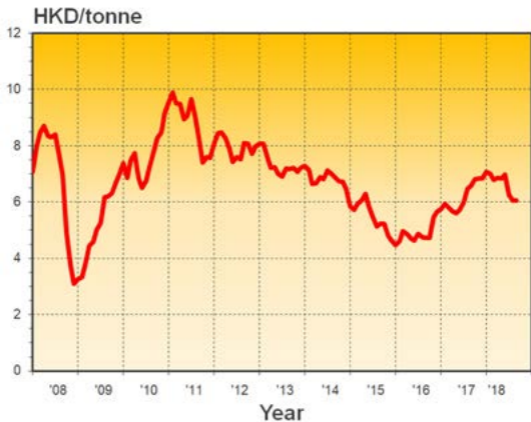


Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.gov.hk for further information.

(Cont'd)

MATERIAL PRICES IN HONG KONG

COPPER GRADE A



Source: International Monetary Fund
Refer to www.imf.org for further information.

CRUDE OIL



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



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%

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 ² 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 ³
Cement	1,450 kg/m ³
Sand	1,600 kg/m ³
Aggregate	1,600 kg/m ³
Steel	7,843 kg/m ³

Average Loads Volume

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

HONG KONG (Cont'd)

Average Piling Ratio - Bored Piles

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

Average Piling Ratio - Driven H-Piles

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

Average Piling Ratio - Pre-Bored H-Piles

Building Type	m ² 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 ³ /m ² to 0.5 m ³ /m ²
Formwork/floor area	2.2 m ² /m ² to 3.0 m ² /m ²
Reinforcement	160 kg/m ³ to 250 kg/m ³

Average External Wall/Floor Ratio

Residential Apartments	1.2 m ² /m ²
Office, Hotel	0.4 m ² /m ²
Industrial	0.4 m ² /m ²

(Cont'd)

ESTIMATING RULES OF THUMB AND DESIGN NORMS

HONG KONG (Cont'd)

Average Internal Wall/Floor Ratio

Residential Apartments	1.0 m ² /m ²
Office	0.5 m ² /m ²
Hotel	1.5 m ² /m ²

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 ² 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 ² Cooling Area/RT
Residential	18 - 23
Office	14 - 18
Retail	12-14
Hotel	23
School	23

HONG KONG (Cont'd)

Dimensions of Parking Spaces

Type of Vehicle	Length	Width	Minimum Headroom
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

	Length	Width
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 [@]	Hong Kong [*]
<u>DOMESTIC</u>		
Apartments	2.0	2.0
<u>OFFICE / COMMERCIAL</u>		
Office	2.0	3.0
Shopping Arcade	3.5	5.0
<u>HOTELS</u>		
Hotel	2.0	2.0
<u>INDUSTRIAL</u>		
Industrial, light duty	4.0	5.0
<u>OTHERS</u>		
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

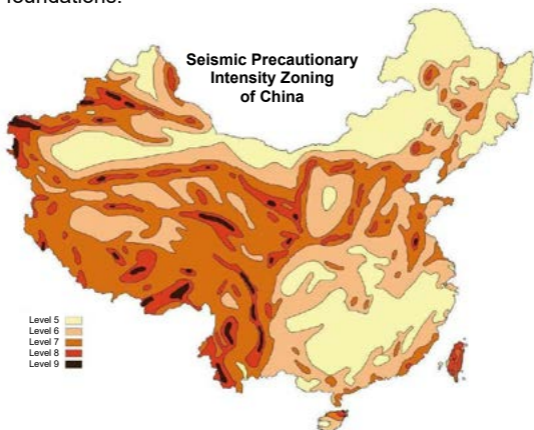
Source :

- [@] *Load Code for the Design of Building Structures, GB 50009-2012, Ministry of Housing and Urban-Rural Development, PRC*
- ^{*} *Code of Practice for Dead and Imposed Loads 2011, Buildings Department, HKSAR*

CHINA

Seismic Precautionary Intensity Zoning

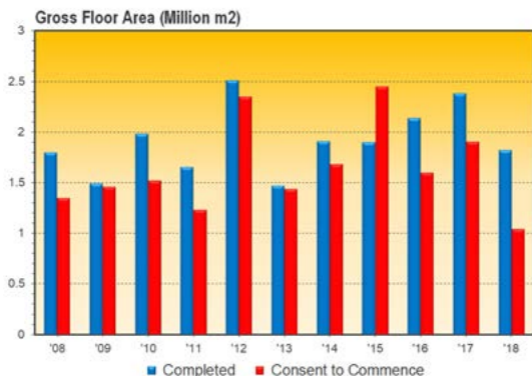
As stipulated in PRC National Standard GB 50011-2010 (Code for Seismic Design of Buildings) 2016, geographic regions which are classified as Level 6 or above in Seismic Precautionary Intensity Classification should incorporate seismic measures in the design of the structure and foundations.



Geographic Regions	Intensity Level	Geographic Regions	Intensity Level
Beijing	8	Hong Kong	7
Changsha	6	Macau	7
Chengdu	7 - 8	Qingdao	6 - 7
Chongqing	6 - 7	Shanghai	7
Dalian	6 - 8	Shenyang	6 - 7
Foshan	7	Shenzhen	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.cn)

CONSTRUCTION ACTIVITY IN HONG KONG



YEAR	COMPLETED m ²	CONSENT TO COMMENCE m ² #
2008	1,799,000	1,350,000
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*	1,816,000	1,042,000

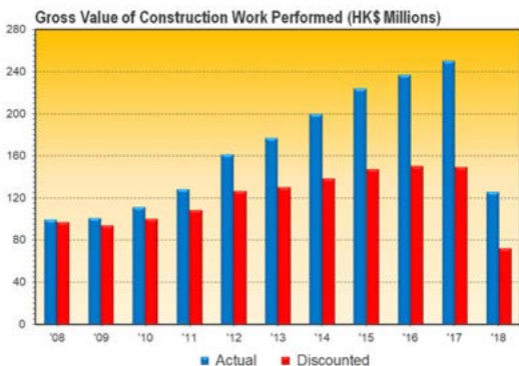
* 1/18 to 9/18 only

First Submission only

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

Refer to www.censtatd.gov.hk and 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
2008	99,599	97,024
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*	125,865	72,146

* Up to Q2 figures and are provisional only

Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.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 (except 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 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)RS 14(1)
BA25B	Application for restoration of name to the register of minor works contractors (company).	B(MW)RS 18(1)
BA25C	Application for registration of additional class and /or type of minor works for registered minor works contractor (company).	B(MW)RS 21(2)
BA25D	Application for approval of nomination of additional authorized signatory/technical director of registered minor work contractor (company).	B(MW)RS 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)RS 26
BA26	Application for registration as a registered minor works contractors (individual).	B(MW)RS 10(1)(A)
BA26A	Application for renewal of registration of registered minor works contractor (individual).	B(MW)RS 14(1)
BA26B	Application for restoration of name to the register of minor works contractor (individual).	B(MW)RS 18(1)
BA26C	Application for registration of additional items of Class III minor works for a registered minor works contractor (individual).	B(MW)RS 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)RS 26

Source: Buildings Department, Hong Kong, SAR. Refer to 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 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 for further information.

(Cont'd)

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 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-T50378-2014) 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. 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, all new buildings are required to meet the one-star requirements except that all new large-scale public buildings (i.e. public buildings with over 20,000

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square meters of floor area) are required to 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.

It should be noted that the MOHURD circulated the new Green Building Evaluation Standard (Draft for Consultation) on 20 September 2018, which purported to, among other things, reform the evaluation system, add a new grade to the three-star system, expand the meaning of green buildings and lift the requirements on green building standards. The consultation period ended on 20 October 2018. The new Green Building Evaluation Standard is yet to be published.

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.

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(Cont'd)

EVOLVING REGULATIONS FOR GREEN BUILDINGS IN CHINA

Buildings and Energy Efficiency (Cont'd)

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 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

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Five-Year Plan published in March 2016 acknowledged the importance of the various environmental issues.

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, more recently 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

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Efficiency and Green Buildings issued by 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.

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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. In a Development Bureau paper for LegCo dated 25 February 2014, it was reported that “Government has been using the NEC form Currently, there are 10 public works projects with construction contracts using NEC form. We will use

(Cont'd)

PROCUREMENT STRATEGIES AND FORM OF CONTRACTS

New Engineering Contract (NEC) (Cont'd)

the NEC form more extensively in different works categories (including building works, civil engineering works etc.), contract types and contracts of different prices.” The NEC family covers not only construction contracts between employers and contractors but also professional services for employers to engage consultants and adjudicators.

The Engineering & Construction Contract (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



PROPERTY 3

Property Commentary

Property Indicators

Gross Floor Area (GFA) Calculations
in Hong Kong

Gross Floor Area (GFA) Calculations
in PRC

Construction Floor Area (CFA) Definition

PROPERTY COMMENTARY

HONG KONG'S PROPERTY MARKET IN 2018

Economic overview

The Hong Kong economy sustained strong momentum in the first half of 2018, expanding by 4% in real terms over the previous year, riding on the broadly positive global economic environment. Nonetheless, Hong Kong's economic growth momentum began to slow down in Q3 while uncertainties in the global economy have increased markedly. The economy eased to expand 2.9% year-on-year (YoY) in Q3. It was the weakest growth rate since the third quarter of 2016. In the first three quarters of 2018, Hong Kong's real GDP rose 3.7% YoY. The labour market conditions remain tight, with the seasonally adjusted unemployment rate stood at 2.8% for the three months ending October 2018, the lowest level in more than 20 years. Inflation has remained mild, increasing 2.4% YoY in the first 10 months of 2018.

The local stock market continued to rally in early 2018 and reached a record high in late January, but experienced corrections thereafter amid market expectation for successive US interest rate hikes and intensified concerns over the US-China trade war. The Hang Seng Index dropped for more than 13% since beginning of the year till mid-December. On the other hand, Hong Kong remains one of the world's largest IPO markets, with fundraising through IPO listings hit an eight-year high in 2018 at HK\$300 billion.

The retail and tourism sectors have continued to recover in 2018. Total visitor arrivals increased 9.7% YoY in the first

Provided by :





10 months, while total retail sales value increased 10.6% YoY. The openings of two major infrastructure projects namely Hong Kong-Zhuhai-Macau Bridge and the High Speed Rail (Hong Kong Section) are expected to further boost Mainland visitors arrivals.

Growth is poised to decelerate in 2019 as multiple downside risks loom. Most notably, the weak fundamentals in China and its trade war with the US will dampen investment and external demand. Furthermore, rising interest rates will weigh on private consumption, and erode consumer sentiment in the financial and housing markets. Local business sentiment has become more cautious in recent months. We expect Hong Kong's real GDP to grow around 3% per annum from 2019 to 2021.

Residential

Total residential sales reached 55,477 units in the first 11 months of 2018, down slightly by 1.4% compared with the same period in 2017. The transaction volume has been dropping in the second half of the year, largely attributable to the dip in secondary sales for 16.4% YoY in the July-November period.

As at November 2018, the residential price has decreased by 3.7% since August 2018 after increasing for 28 months in a row, according to the Rating and Valuation Department. After rising for 11.7% in the first seven months of the year, the price decreased for 3 consecutive months.

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(Cont'd)

PROPERTY COMMENTARY

Residential (Cont'd)

Residential price growth in the January-November period has slowed down to 7.8%. Sellers have started to accept the fact that the market has lost momentum for further price growth.

Up to 25,800 units of new residential supply, including unsold and presold units, are expected to come onto the market in 2019. Nonetheless, there is concern for sufficient demand to take up this mounting supply amid market uncertainties.

Mass and luxury home prices are expected to fall 10% next year, while super luxury residential prices would drop 5%. With market players being increasingly cautious, sales transaction volume is expected to decrease from around 60,000 units in 2018 to 52,000-55,000 units in 2019.

Office

The Hong Kong Grade-A office sales market was robust in 2018. While the Rating and Valuation Department's statistics showed that the number of office sales transactions fell 26% YoY to 1,226 in the first 10 months of 2018, a number of significant en-bloc transactions were recorded during the period, including The Center in Central, 18 King Wah Road in North Point and Octa Tower in Kowloon Bay.

On the leasing front, Mainland companies and co-working space providers vied for the limited office spaces in Central in the first three quarters of the year. But the intensifying Sino-US trade conflicts thereafter resulted in a weakening

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demand. In Kowloon, leasing demand was underpinned by companies that decentralised from the Hong Kong Island for cost saving. Demand for Tsim Sha Tsui office was particularly strong, driven by the semi-retail sector and the opening of High Speed Rail in nearby West Kowloon.

The average rent of Grade-A offices in Hong Kong rose 7.0% YoY in November, according to Knight Frank Research. Rents on the Hong Kong Island increased 6.2% YoY, with Central growing the fastest (8.2%). Office rents in Tsim Sha Tsui and Kowloon East were up 13.5% and 2.9% respectively.

Looking ahead, Hong Kong's Grade-A office market will lose momentum amidst an economic slowdown arose from trade war. It is expected that very few Mainland firms will look for new office space, who have been the major force driving Central office demand. Vacancy in Central will rise, and hence rent in the area is forecasted to fall modestly in 2019.

Retail

Hong Kong's retail sector enjoyed strong performance in the first half of 2018 with double-digit growth, buttressed by robust economy, increased in visitor arrivals and a record-low unemployment rate in Hong Kong. In February 2018, retail sales increased by 29.8% to HK\$45.2 billion, which was the strongest growth in 8 years. For the first 10 months in 2018, the total retail sales recorded a YoY increase of 10.6% in value and 9.1% in volume.

PROPERTY COMMENTARY

Retail (Cont'd)

Rebounding retail sales, however, had little impact on rents for retail space in the prime street shopping areas during the first ten months of 2018. According to the Knight Frank Prime Street Shop Rental Index, rents for retail space in prime streets dropped around 5% in first three quarters of 2018. The downward adjustment in retail rents is expected to continue in 2019, with plenty of caution remains.

Transactions for retail property remained stable in 2018. The sales volume of retail properties in the first eleven months of 2018 was up 3.1% YoY. The yield for retail properties has been flat in the past 12 months.

Stepping into 2019, the current weak momentum in Hong Kong's retail market is expected to persist, due to external uncertainties. It is forecasted that the prime street retail rents will continue to drop by 5% in 2019 amid wealth effect, trade war and other external factors. With retail sales growth narrowing towards the end of 2018, retailers are once again being cautious. Rents in shopping centres will continue to grow steadily but at a slower pace.

Industrial

Sales transaction of flatted factory units reached 4,531 in the January-October period of 2018, up 13.2% compared with the same period last year, according to the Rating and Valuation Department. New completion of flatted factory space was 21,700 sqm in the first 10 months this year, decreased slightly by 4.0% YoY. The new supply in 2018 is by far the second least in last 5 years.

Provided by :





Transaction prices of flatted factory grew 10.6% from January to October this year, on par with the growth in the same period in 2017. Rents of flatted factories increased 5.4% during the same period, compared with 3.9% last year. Flatted factory yields dropped from 2.9% in October 2017 to 2.7% in October 2018, due to faster growth in prices than rents.

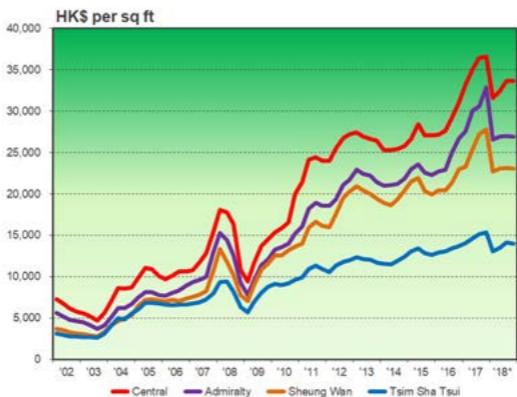
Announced in 2018 Policy Address, the Hong Kong Government has decided to reactivate the revitalisation scheme for industrial buildings. The new scheme will include relaxing the waiver application policy, allowing relaxation of the maximum permissible non-domestic plot ratio by 20% for redevelopment projects, and permitting revitalisation of industrial buildings to provide transitional housing. It is expected that developers and investors will be more active in acquiring industrial buildings for redevelopment.

Provided by :



PROPERTY INDICATORS

HONG KONG GRADE-A OFFICE PRICE



* November figures

Source: Knight Frank Research

HONG KONG GRADE-A OFFICE VACANCY RATES

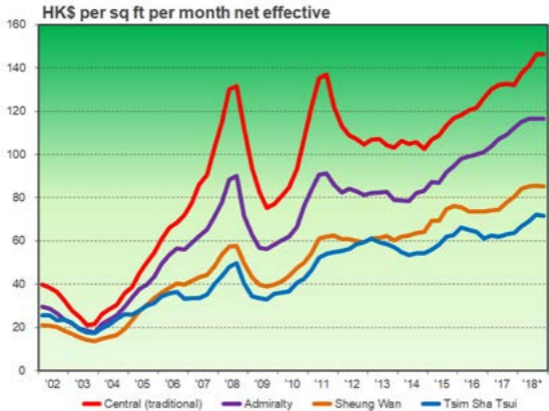


* November figures

Source: Knight Frank Research



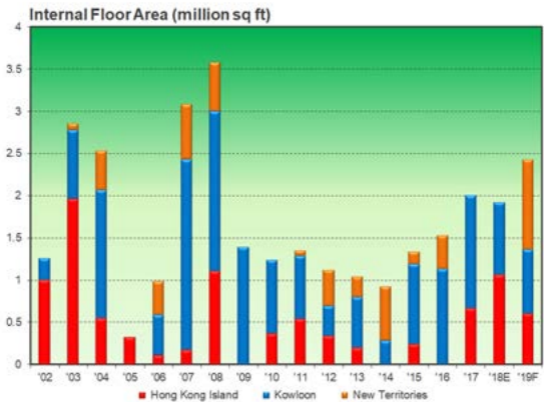
HONG KONG GRADE-A OFFICE RENTAL VALUES



* 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 be open on at least 2 sides, max. 50% area grantable.
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 300 mm.
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	
Covered private carparking space	Non-accountable	Applicable only for spaces serving users of the building required under local standard and built below ground.
Lobby *	Accountable	Concession may be granted for lift lobbies subject to conditions.

Canopy	Accountable	Non-accountable when the canopy solely serves as protection against weather and falling object.
Refuge floor	Non-accountable	
Space below elevated ground floor	Accountable	Non-accountable if the covered areas are clearly intended for and designed as playground or dedicated as public passage.
Covered walkways *	Accountable	Open-sided covered walkways for common areas in residential developments may be exempted, subject to the proposed walkways being not for commercial use.
Loading and unloading bay	Non-accountable	Applicable if required under local standard/lease and built below ground.
Refuse storage chambers, refuse storage, refuse chutes, refuse hopper rooms	Non-accountable	
Floor space inside sloping roof	Accountable	
Covered area on roof-tops	Non-accountable	Non-accountable for plant rooms and staircases only.
Recreational facilities *	Accountable	Non-accountable subject to conditions.
Spaces for watchmen and management staff *	Accountable	Non-accountable subject to conditions.
External staircases	Accountable	Non-accountable if situated in non-accountable areas.

* 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"> 1. Beijing : Non-accountable 2. Shanghai : Non-accountable 3. Guangzhou : Accountable for GFA except where the floor space is solely for plant rooms or carpark.
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.

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.

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

Financial Definitions

Financial Formulae

Mortgage Repayment Table

Composite CPI

Prime Rates

Exchange Rates

Currency Charts

Hang Seng Index

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 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

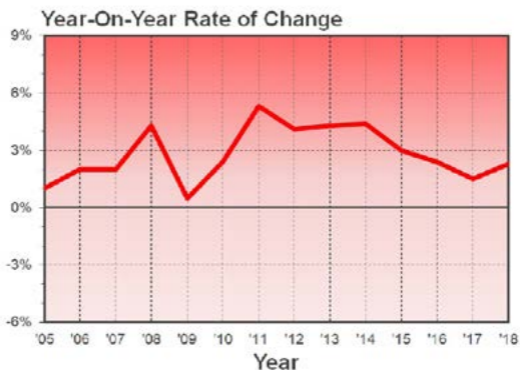
Example:

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 for an online mortgage calculator.

COMPOSITE CPI



YEAR	INDEX	% CHANGE
2005	73.2	1.0%
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*	106.7	2.3%

Note:

* 1/18 to 8/18 only

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 for further information.

PRIME RATES

PRIME RATES AND BASE LENDING RATES AS AT 4TH QUARTER 2018.

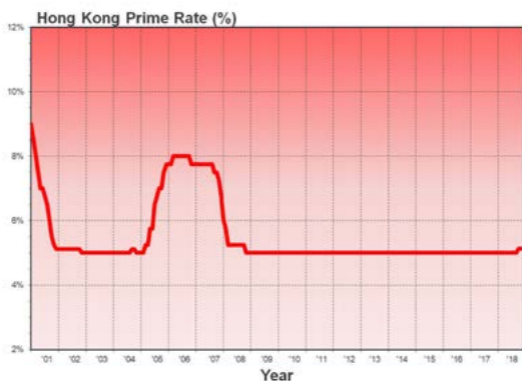
COUNTRY	RATE (%)
China**	4.75
Hong Kong	5.13
India	9.45
Indonesia	6.75
Macau	5.38
Malaysia ^{^^^}	4.6
Philippines	4.35
Singapore	5.33
Thailand [#]	7.00
United Kingdom	0.75
United States of America	5.25
Vietnam ^{##}	9.00

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	%
05 Feb 2001	8.50	22 Jul 2005	6.50
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

Source : Hong Kong Monetary Authority

Refer to www.info.gov.hk/hkma for further information.

EXCHANGE RATES

Approximate rates prevailing on 12 November 2018.

COUNTRY	CURRENCY	HK\$1	US\$1
Australia	Dollar	0.18	1.38
Brunei	Dollar	0.19	1.47
Canada	Dollar	0.17	1.32
China	Renminbi	0.89	6.96
EU (Euro Zone)	Euro	0.11	0.88
Hong Kong	Dollar	1.00	7.83
India	Rupee	9.31	72.94
Indonesia	Rupiah	1,887	14,286
Japan	Yen	14.58	114.16
Macau	Pataca	1.03	8.07
Malaysia	Ringgit	0.53	4.19
New Zealand	Dollar	0.19	1.49

Source : www.exchange-rates.org

Refer also : www.xe.com

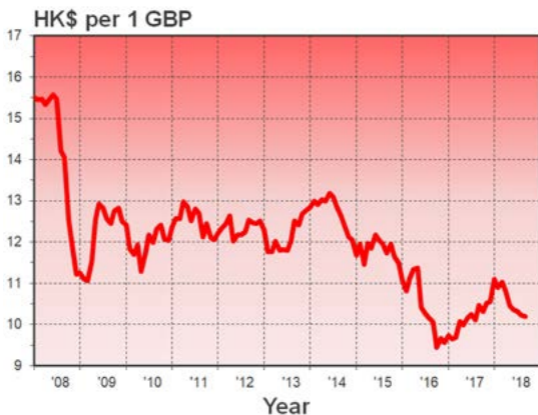
COUNTRY	CURRENCY	HK\$1	US\$1
Philippines	Peso	6.80	53.28
Qatar	Riyal	0.46	3.64
Saudi Arabia	Riyal	0.48	3.75
Singapore	Dollar	0.18	1.38
South Korea	Won	145.22	1,137.49
Switzerland	Franc	0.13	1.00
Taiwan	NT Dollar	3.94	30.88
Thailand	Baht	4.23	33.16
United Arab Emirates	Dirham	0.47	3.67
United Kingdom	Pound	0.10	0.78
United States of America	Dollar	0.13	1.00
Vietnam	Dong	2,974	23,297

Source : www.exchange-rates.org

Refer also : www.xe.com

CURRENCY CHARTS

STERLING POUND



EURO

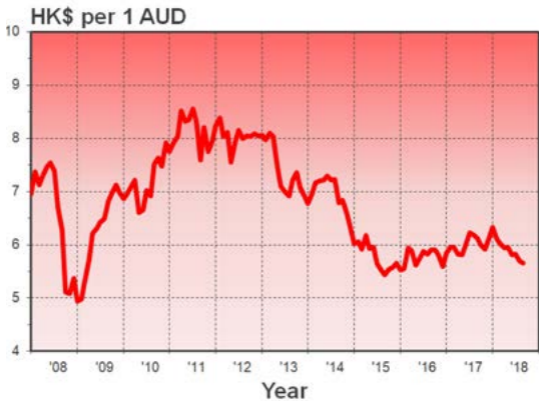


Source : Hong Kong Monetary Authority
Refer to www.info.gov.hk/hkma for further information

Refer also : www.xe.com ; www.exchange-rates.org



AUSTRALIAN DOLLAR



SINGAPORE DOLLAR



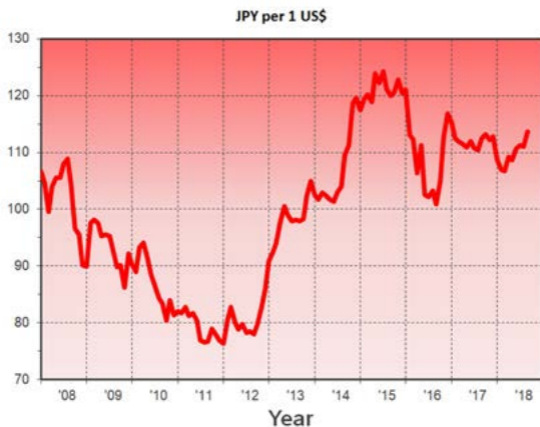
Source : Hong Kong Monetary Authority
Refer to www.info.gov.hk/hkma for further information

Refer also : www.xe.com ; www.exchange-rates.org

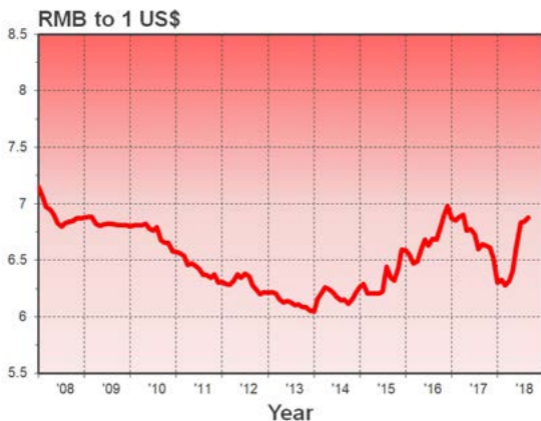
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CURRENCY CHARTS

JAPANESE YEN



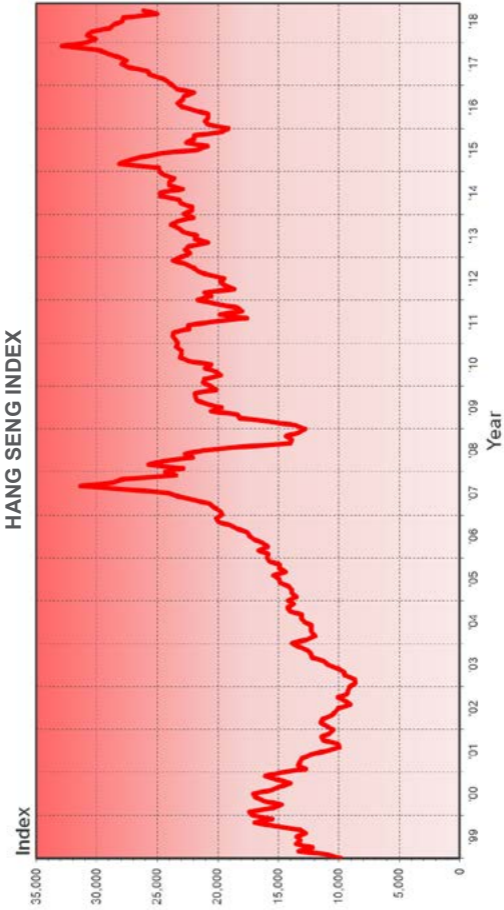
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Source : Hong Kong Monetary Authority
 Refer to www.info.gov.hk/hkma for further information

Refer also : www.xe.com ; www.exchange-rates.org

HANG SENG INDEX



Refer to www.aastocks.com for further information.

Utility Costs for Selected Asian Cities

Key City Indicators

Conversion Factors

IDD Codes and Time Differences

Public Holidays

Arcadis Asia Leadership Team

Arcadis Asia Services

Directory of Offices

Health & Safety Management System

Quality Management System

Environmental Management System

Telephone Directory

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	MOP8.07	0.17	0.17
Shanghai	RMB 6.94	0.089(peak) / 0.044(normal)	0.157(peak) / 0.075(normal)
Beijing	RMB 6.94	0.071 - 0.113	0.219 - 0.221(peak) / 0.124 - 0.126 (normal)
Guangzhou	RMB 6.94	0.085 - 0.128	0.089 - 0.124
Chongqing	RMB 6.94	0.08	0.11

The above costs are at **4th Quarter 2018** 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 - 12m³ = Free of charge; 12 - 43m³ = US\$ 0.54/m³;
 43 - 62m³ = US\$ 0.83/m³; Above 62m³ = US\$ 1.17/m³

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/m³ for 28m³ or below; US\$0.64/m³ for 29m³ to 60m³; US\$0.75/m³ for 61m³ to 79m³ and US\$0.90/m³ for 80m³ 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** 93# = US\$0.93/litre; 97# = US\$0.98/litre

WATER		FUEL		
DOMESTIC	COMMERCIAL/ INDUSTRIAL	DIESEL	LEADED	UNLEADED
US\$/m ³	US\$/m ³	US\$/litre	US\$/litre	US\$/litre
0.83	0.59	1.83	N/A	2.21
0.56 - 0.90	0.75	1.7	N/A	1.45
0.497 - 0.840	0.68	1.16	N/A	1.22
0.721 - 1.296	1.296 - 1.368	1.10	N/A	1.22
0.285 - 0.571	0.499	0.97	N/A	1.12
0.61	0.85	1.22	N/A	1.28

Basis of Charges in Shanghai, China

- **Electricity - Domestic** (Charge on yearly consumption) :
 - 0 - 3,120kWh = US\$ 0.089/kWh (peak) / US\$ 0.044/kWh (normal);
 - 3,120 - 4,800kWh = US\$ 0.098/kWh (peak) / US\$ 0.049/kWh (normal);
 - Above 4,800kWh = US\$ 0.141/kWh (peak) / US\$ 0.070/kWh (normal)
- **Electricity - Commercial/Industrial** (Charge on yearly consumption) :
Charges on consumption less than 1,000kWh per month for summer period only. Refer to www.shdrc.gov.cn for detailed charges for different tiers and charges for non-summer period.
- **Water - Domestic** :
0 - 220m³ = US\$ 0.497/m³; 220 - 300m³ = US\$ 0.696/m³;
Above 300m³ = US\$ 0.840/m³
- **Unleaded Fuel** = Unleaded fuel rate is for Unleaded 95#

Basis of Charges in Beijing, China

- **Electricity - Domestic**:
1 - 240kWh = US\$0.071/kWh; 241 - 400 kWh = US\$0.078/kWh;
Above 400kWh = US\$0.113 / kWh
- **Electricity - Commercial/Industrial** :
Central Districts: US\$0.221/kWh(peak); US\$0.126/kWh(normal)
Other Districts= US\$0.219/kWh(peak); US\$0.124/kWh(normal)
- **Water - Domestic** (Charge on yearly consumption) :
1 - 180m³ = US\$0.721/m³; 181 - 260m³ = US\$1.008/kWh
Above 261m³ = US\$1.296/m³
- **Water - Commercial/Industrial** :
Central Districts: US\$1.368/m³; Other Districts= US\$1.296/m³
- **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 4.18	0.052 - 0.137	0.091 - 0.122
Bangkok	BAHT 32.73	0.072 - 0.136	0.096 - 0.098
Manila	PHP 52.88	0.21	0.19
Jakarta	IDR 15,180	0.097	0.097
Ho Chi Minh	VND 22,600	0.11	0.1/0.06
Bangalore	INR 71.90	0.069 - 0.100	0.087 - 0.128
New Delhi	INR 71.90	0.069 - 0.111	0.070 - 0.111

The above costs are at **4th Quarter 2018** levels.

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

- Electricity tariff is based on low tension power supply.
- ^mDomestic 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
- ^dDomestic 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 2 November 2018.
- Unleaded Fuel = 98 Unleaded petrol as at 2 November 2018.

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 ³	US\$/m ³	US\$/litre	US\$/litre	US\$/litre
1.99 ^a / 2.67 ^b	1.99	1.34	N/A	1.94
0.136 - 0.478	0.495 - 0.545	0.522	N/A	0.526
0.259 - 0.441	0.290 - 0.483	0.895	N/A	0.881
0.29 - 0.74	1.37	0.972	N/A	1.146
0.069 - 0.491	0.450 - 0.965	0.481	N/A	0.543
0.24	0.75/0.43	0.82	N/A	0.92
0.556 - 0.695	1.39	1.001	N/A	1.072
0.35 - 1.05	1.390 - 2.440	0.992	N/A	1.141

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 : 24m³ - 101m³/month
 - Commercial/Industrial : 3,750m³/month

Basis of Charges in Jakarta, Indonesia

- Domestic group covers residential building, religious building, non-profit organisation building and government hospital.
- Commercial group covers luxury residence, apartment, offices, hotel, commercial building and factories.

KEY CITY INDICATORS

	HONG KONG	MACAU
GDP (output) * +	US\$ 340 bn	US\$ 50 bn
Real GDP growth per annum ^Ω	6.9%	11.6%
Population	7.39M	0.65M
GDP/capita *	US\$ 46,005	US\$ 77,175
City size	1,106 km ²	31 km ²
Population density	6,683/km ² @	21,100/km ²

Unless otherwise stated, the above figures are as at year-end 2017, and are preliminary / provisional / revised figures which will be subject to updates before finalisation.

* Exchange Rate : 1 US\$ = 6.97 RMB = 7.83 HK\$ = 8.07 MOP

+ All figures are at current market prices.

Ω All figures are relative to 2016 prices.

@ Excluding marine population and area reservoirs, figure as at mid-year 2017

£ Derived figure.

BEIJING	SHANGHAI	CHONGQING	GUANGZHOU
US\$ 402 bn	US\$ 432 bn	US\$ 280 bn	US\$ 309 bn
6.7%	6.9%	9.3%	7.0%
21.71M	24.18M	30.75M	14.50M
US\$ 18,507	US\$ 17,880	US\$ 9,433	US\$ 21,279
16,411 km ²	6,341 km ²	82,400 km ²	7,434 km ²
1,323/km ²	3,816/km ²	373/km ² £	1,950/km ²

Source : Census and Statistics Department, Hong Kong, SAR - www.censtatd.gov.hk

Statistics and Census Department, Macau, SAR - www.dsec.gov.mo

Beijing Statistical Information - www.bjstats.gov.cn

Shanghai Statistical Bureau - www.stats-sh.gov.cn

Chongqing Statistics - www.cqjtj.gov.cn

Guangzhou Statistics - www.gzstats.gov.cn

CONVERSION FACTORS

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

Refer to www.online-unit-converter.com, www.dimensionconverter.com for further information.

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

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 ; www.worldtimezone.com
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

	2019
HONG KONG	
New Year's Day	01 Jan
Lunar New Year (Day 1)	05 Feb
Lunar New Year (Day 2)	06 Feb
Lunar New Year (Day 3)	07 Feb
Ching Ming Festival	05 Apr
Good Friday	19 Apr
Holy Saturday	20 Apr
Easter Monday	22 Apr
Labour Day	01 May
Birthday of the Buddha Holiday*	13 May
Tuen Ng Festival	07 Jun
HKSAR Establishment Day	01 Jul*
The day Following Chinese Mid-Autumn Festival	14 Sep
National Day	01 Oct
Chung Yeung Festival	07 Oct
Christmas Day	25 Dec
The 1st weekday after Christmas Day	26 Dec

* As the Birthday of the Buddha in 2019 falls on a Sunday, the day following it is designated as a general holiday in substitution

	2019
CHINA	
New Year's Day	01 Jan
Chinese New Year's Eve	04 Feb
Chinese New Year [§]	05 Feb
	10 Feb
Women's Day [*]	08 Mar [@]
Ching Ming Festival	05 Apr
Labour Day	01 May
Dragon-Boat Festival	07 Jun
National Day [#]	01 Oct
	02 Oct
	03 Oct
Chung Yeung Festival	07 Oct [@]
<p>[§] 05 - 10 Feb 2019 are holidays</p> <p>[*] All women can have a half day holiday</p> <p>[#] 01-07 Oct 2019 are public holidays. 05-06 Oct 2019 are working days</p> <p>[@] Non-Statutory Holiday</p>	

(Cont'd)

PUBLIC HOLIDAYS

	2019
MACAU	
New Year's Day	01 Jan
Lunar New Year's Eve (Afternoon)	04 Feb*
Lunar New Year's Day	05 Feb
The 2 nd day of Lunar New Year	06 Feb
The 3 rd day of Lunar New Year	07 Feb
Ching Ming Festival	05 Apr
Good Friday	19 Apr
Holy Saturday	20 Apr
Easter Monday	22 Apr
Labour Day	01 May
Birthday of the Buddha Holiday	13 May*
Tung Ng Festival	07 Jun
The day Following Chinese Mid-Autumn Festival	14 Sep
National Day	01 Oct
The day Following National Day	02 Oct
Chung Yeung Festival	07 Oct
All Soul's Day	02 Nov
All Soul's Day Holiday	04 Nov*
Feast of the Immaculate Conception	08 Dec
Feast of the Immaculate Conception Holiday	09 Dec
Macau SAR Establishment Day	20 Dec
Winter Solstice	22 Dec
Winter Solstice Holiday	23 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*

	2019
INDIA	
New Year's Day	01 Jan
Maharashtra Day	01 May
Ramzan	05 Jun
Independence Day	15 Aug
Ganesh Chaturthi	02 Sep
Gandhi Jayanthi	02 Oct
Dasara	08 Oct
Diwali	28 Oct
Christmas Day	25 Dec
INDONESIA	
New Year's Day	01 Jan
Chinese New Year's (Imlek)	05 Feb
Idul Adha Day	
Hindu Day of Quiet (Nyepi)	07 Mar
Ascension of Prophet Muhammad	03 Apr
Good Friday	19 Apr
International Labour Day	01 May
Waisak Day	19 May
Ascension Day of Jesus Christ	30 May
Pancasila Day	01 Jun
Idul Fitri	01 Jun
Idul Adha Day	11 Aug
National Independence Day	17 Aug
Hijriyah New Year	01 Sep
Prophet Muhammad's Birthday	09 Nov
Christmas Day	25 Dec

(Cont'd)

PUBLIC HOLIDAYS

	2019
MALAYSIA	
New Year's Day **	01 Jan
Chinese New Year	05 Feb 06 Feb
Labour Day	01 May
Wesak Day	19 May [#]
Hari Raya Aidilfiri*	05 Jun 06 Jun
Hari Raya Qurban*	11 Aug
National Day	31 Aug
Awal Muharam (Islamic New Year)	01 Sep [#]
King/Agong's Birthday	09 Sep
Malaysia Day	16 Sep
Deepavali*	27-Oct [#]
Prophet Muhammad's Birthday	09 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>	

	2019
PHILIPPINES	
New Year's Day	01 Jan*
Chinese New Year	16 Feb#
EDSA People Power Revolution Anniversary	25 Feb#
Araw ng Kagitingan	09 Feb#
Maundy Thursday	18 Apr*
Good Friday	19 Apr*
Black Saturday	20 Apr#
Labor Day	01 May*
End of Eid-ul-Fitre (Feast of Ramadhan)	06 Jun*
Independence Day	12 Jun*
Eid-ul-Adha	12 Aug#
Ninoy Aquino Day	21 Aug*
National Heroes Day	26 Aug*
All Saint's Day	01 Nov#
All Soul's 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>	

(Cont'd)

PUBLIC HOLIDAYS

	2019
SINGAPORE	
New Year's Day	01 Jan
Chinese New Year	05 Feb
	06 Feb
Good Friday	19 Apr
Labour Day	01 May
Vesak Day	19 May [#]
Hari Raya Puasa	05 Jun
National Day	09 Aug
Hari Raya Haji	11 Aug [#]
Deepavali*	27 Oct [#]
Christmas Day	25 Dec
<p>* <i>Subject to change</i></p> <p># <i>The following Monday will be a public holiday</i></p>	
VIETNAM	
New Year's Day	01 Jan
Lunar New Year	04 Feb
	05 Feb
	06 Feb
	07 Feb
	08 Feb
Hung Vuong King Celebration	14 Apr
	15 Apr [#]
Liberation Day of Saigon	30 Apr
International Labour Day	01 May
Nationa Day	02 Sep
Christmas Day	24 Dec
	25 Dec
<p># <i>Substitute</i></p>	

	2019
THAILAND	
New Year	01 Jan
Makha Bucha Day	19 Feb
Charkri Memorial day	08 Apr ¹
Songkran Festival	15 Apr ²
Songkran Festival	16 Apr ³
Labour Day	01 May
Wisakha Bucha Day	20 May ³
Asarnha Bucha Day	16 Jul
H.M. King Maha Vajiralongkorn's Birthday	29 Jul ⁴
H.M. The Queen's Birthday	12 Aug
H.M. King Bhumibol Adulyadej Memorial Day	14 Oct ⁵
Chulalongkorn Day	23 Oct
H.M. King Bhumibol Adulyadej's Birthday / Father's Day	05 Dec
Contitution Day	10 Dec
New Year's Eve	31 Dec

1 - As Chakri Memorial Day falls on Saturday (6Apr) Monday is designated as a general holiday in substitution

2 - As Songkran Festival falls on Saturday (13 Apr) and Sunday (14 Apr); Monday and Tuesday is designated as a general holidays in substitution

3 - As Wisakha Bucha Day falls on Saturday (18May), Monday is designated as a general holiday in substitution

4 - As H.M. King Maha Vajiralongkorn's Birthday falls on Sunday (28 July) , Monday is designated as a general holiday in substitution

5 - As H.M. Bhumibol Adulyadej Memorial Day falls on Sunday (13 Oct) , Monday is designated as a general holiday in substitution

(Cont'd)

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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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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.

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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.

Positive decision making and the right behavioural outcomes underpin our approach to Health & Safety, an ethos which is promoted and reinforced across all levels of our organisation as a priority. Being aware of the role as a good steward, our staff are encouraged to proactively identify and address any hazard found in the work-related activities.

Committed to making our business a safe, healthy and sustainable place to work, Arcadis strives to achieve zero incidents in everything we do ensuring the health, safety and well-being of our staff and stakeholders. Based on strong H&S culture within the ARCADIS group companies, we continue to ensure processes, procedures and systems of work are maintained to achieve 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. Performance against these objectives is reviewed while carrying out audits quarterly. The quality management documents are also reviewed regularly and shall be updated as necessary to achieve the ongoing effectiveness of the system. To fit for the new version of the ISO9001, the focus of our internal audits has already adopted the holistic approach that covers all functions of the Company.

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 since 2012, when HKQAA certified us to ISO 14001 (Environmental). Over the past few years, we have completed a gradual roll-out of the same standards from Macau to all our China offices. Besides, we have been successful in upgrading our system to the latest version in 2018.



With work-related environmental protection measures, we are able to reduce the impact of our activities on the environment and to improve our operating efficiency. Environmental messages have been regularly released via newsletters and training to increase staff's awareness of assuming responsibility towards the working conditions and environment. Green corners are also established in every office to inspire our staff to take environmental actions. Following the introduction of the Document Management System (DMS) in 2013, we strive to establish a desirable green office by applying the concept of green practice management such as potted plant areas and digital collaboration platforms with the Microsoft Hubs to our new premises in 2018.

For Arcadis, environmental protection and resource conservation are our high-priority corporate goals. To help transform our workplace into a green office, we continue to measure and record our carbon footprint in order to devise more environment friendly standards and practices.

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Division 3	2867 3629
Division 4	2867 4156
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Quantity Surveying Branch	2867 3298/2867 4597
Structural Engineering Branch	2867 3791
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Census and Statistics Department	2582 4807
Civil Engineering and Development Department	2762 5111
Customs and Excise Department	2815 7711
Drainage Services Department	2877 0660
Electrical and Mechanical Services Department	1823
Environmental Protection Department	3509 7636
Fire Services Department	2311 0066
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