

An aerial photograph of Hong Kong at sunset. The skyline is filled with numerous skyscrapers, with the tallest one, the Bank of China Tower, prominently featured on the left. The city is situated on a peninsula, with a large body of water in the foreground. The sky is a mix of orange, yellow, and blue, and the water reflects the city lights and the sky. In the background, there are mountains.

Construction Cost Handbook

**CHINA &
HONG KONG
2023**

Arcadis Hong Kong Limited

Electronic Cost Handbook

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

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The information contained herein should be regarded as indicative and for general guidance only. Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and omissions, however caused.

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 2022.

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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.

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.



1 CONSTRUCTION COST DATA

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

BUILDING TYPE	HK\$/m ² CFA		TOTAL
	BUILDING	SERVICES	
DOMESTIC			
Apartments, high rise, public authority standard	9,350 - 11,150	2,050 - 2,450	11,400 - 13,600
Apartments, high rise, average standard	20,400 - 22,750	4,200 - 5,650	24,600 - 28,400
Apartments, high rise, high end	26,650 - 30,050	5,150 - 6,750	31,800 - 36,800
Terraced houses, average standard	29,400 - 33,500	4,500 - 5,500	33,900 - 39,000
Detached houses, high end	42,800 up	6,500 up	49,300 up
OFFICE / COMMERCIAL			
Medium/high rise offices, average standard	18,250 - 20,350	6,250 - 7,450	24,500 - 27,800
High rise offices, prestige quality	22,500 - 25,450	6,700 - 8,050	29,200 - 33,500
Out-of-town shopping centre, average standard	18,000 - 21,350	6,100 - 6,950	24,100 - 28,300
Retail malls, high end	24,500 - 28,650	6,800 - 8,050	31,300 - 36,700

HOTELS			
Budget hotels - 3-star, mid market	23,300 - 23,950	7,700 - 9,050	31,000 - 33,000
Business hotels - 4/5-star	23,800 - 27,300	8,200 - 9,800	32,000 - 37,100
Luxury hotels - 5-star	29,000 - 32,500	8,300 - 9,800	37,300 - 42,300
INDUSTRIAL			
Owner operated factories, low rise, light weight industry	15,800 - 19,750	2,700 - 3,450	18,500 - 23,200
OTHERS			
Underground/basement car parks (<3 levels)	23,600 - 27,900	3,000 - 3,800	26,600 - 31,700
Multi storey car parks, above ground(<4 levels)	13,250 - 15,250	2,650 - 3,550	15,900 - 18,800
Schools (primary and secondary)	17,500 - 18,250	3,100 - 3,950	20,600 - 22,200
Students' residences	18,650 - 20,550	4,850 - 5,850	23,500 - 26,400
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	24,700 - 27,200	6,200 - 7,800	30,900 - 35,000
General hospitals - public sector	30,300 - 32,200	8,900 - 10,900	39,200 - 43,100

The above costs are at **4th Quarter 2022** levels.

M&E COSTS FOR HONG KONG

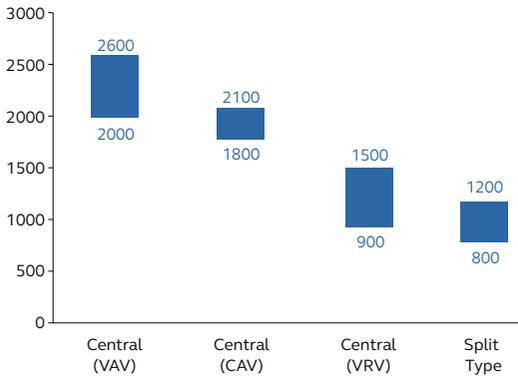
BUILDING TYPE	HK\$/m ² CFA					
	MECHANICAL SERVICES	ELECTRICAL SERVICES	FIRE SERVICES	LIFTS/ ESCALATORS	HYDRAULIC SERVICES	TOTAL SERVICES
DOMESTIC						
Apartments, high rise, public authority standard	--	700 - 800	150 - 200	300 - 350	900 - 1,100	2,050 - 2,450
Apartments, high rise, average standard	850 - 1,100	1,150 - 1,350	400 - 650	450 - 750	1,350 - 1,800	4,200 - 5,650
Apartments, high rise, high end	1,200 - 1,500	1,400 - 1,700	400 - 700	550 - 850	1,600 - 2,000	5,150 - 6,750
Terraced houses, average standard	1,300 - 1,600	1,400 - 1,700	100 - 200	--	1,700 - 2,000	4,500 - 5,500
Detached houses, high end	2,100 up	2,400 up	100 up	--	1,900 up	6,500 up
OFFICE / COMMERCIAL						
Medium/high rise offices, average standard	2,000 - 2,300	2,200 - 2,600	650 - 800	700 - 900	700 - 850	6,250 - 7,450
High rise offices, prestige quality	2,100 - 2,600	2,400 - 2,700	650 - 800	850 - 1,100	700 - 850	6,700 - 8,050
Out-of-town shopping centre, average standard	2,100 - 2,300	1,800 - 2,100	650 - 800	850 - 900	700 - 850	6,100 - 6,950
Retail malls, high end	2,200 - 2,600	2,300 - 2,650	650 - 900	900 - 1,100	750 - 800	6,800 - 8,050

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

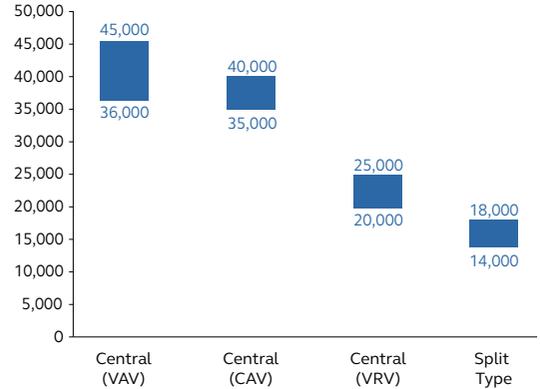
The above costs are at **4th Quarter 2022** levels.

ACMV COSTS FOR VARIOUS DESIGNS AND DEVELOPMENTS IN HONG KONG

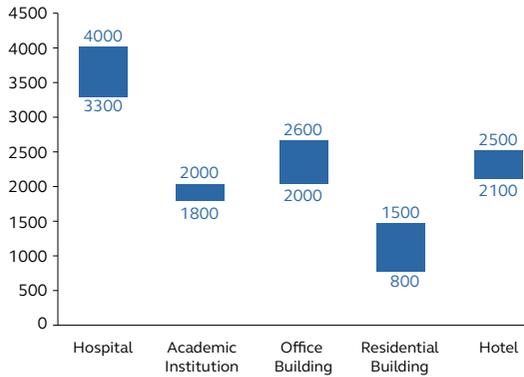
HK\$/m² of Construction Floor Area



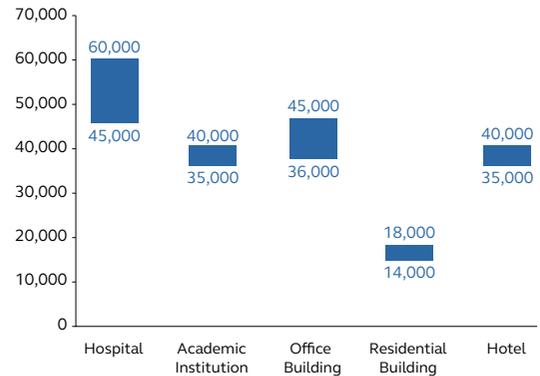
HK\$/Tonne of Refrigeration



HK\$/m² of Construction Floor Area



HK\$/Tonne of Refrigeration



FIT-OUT COSTS FOR HONG KONG

BUILDING TYPE	HK\$/m ²
HOTELS	
Public Areas (Front of House) :	
3-star Hotel	10,700 - 16,100
4-star Hotel	16,300 - 22,300
5-star Hotel	22,600 up
Guest Rooms :	
3-star Hotel	9,200 - 10,800
4-star Hotel	11,000 - 14,500
5-star Hotel	14,700 up
Notes :	
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	7,000 - 11,000
Executive office	12,000 - 15,000
Prestige office	15,000 up
Notes :	
1. Local/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 2022 levels.

BUILDING TYPE	HK\$/m ²
DEPARTMENT STORES	
General department store	9,000 - 14,000
Prestige department store	15,000 up
Notes :	
1. Includes electrical work, additional FCU and minor alteration of fire services to suit layout.	
2. Excludes facade modification, data cabling, operational items and equipment (e.g. computers, P.O.S., office equipment) and opening expenses.	
RESTAURANTS	
General dining restaurant	13,000 - 20,000
Fine dining restaurant	25,000 up
Notes :	
1. Includes furniture, floor, wall and ceiling finishes, electrical work, minor alteration to air-conditioning and fire services installation to suit layout, exhaust for kitchen.	
2. Excludes exhaust flue, operational items (e.g. cutlery, crockery, linen, utensils, etc.).	

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\$
SQUASH COURTS		
Single court with glass backwall including associated mechanical and electrical services but excluding any public facilities (enclosing structure not included).	per court	760,000
TENNIS COURTS		
Single court on grade with acrylic surfacing and complete with chain link fence.	per court	1,630,000
Single court on grade with artificial turf surfacing and complete with chain link fence.	per court	1,840,000
Extra for lighting.	per court	650,000
SWIMMING POOLS		
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.	per pool	10,800,000
PLAYGROUND EQUIPMENT		
Outdoor playground equipment comprising various activities.	per set	350,000 to 840,000

The above costs are at 4th Quarter 2022 levels.

DESCRIPTION	UNIT	HK\$
SAUNAS		
Sauna room for 4-6 people complete with all accessories (enclosing structure not included).	per room	330,000
STEAM BATHS		
Steam bath for 4-6 people complete with all accessories (enclosing structure not included).	per room	330,000
GOLF COURSES		
(Based on average cost of an 18-hole golf course)	per hole	8,000,000 to 14,000,000
Excluding associated buildings and equipment.		
GREEN ROOF		
Proprietary lightweight green roof system; with automatic irrigation system (roofing and roof structure not included).	per m2	2,000 to 5,000
VERTICAL GREEN		
Vertical green system; wire frame type, with automatic irrigation system (background supporting wall not included).	per m2	5,000 to 10,000

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m ² CFA			
	SHANGHAI	BEIJING	GUANGZHOU/ SHENZHEN	CHONGQING/ CHENGDU
DOMESTIC				
Apartments, high rise, average standard	706 - 778	621 - 682	595 - 682	555 - 655
Apartments, high rise, high end	1,593 - 1,737	1,505 - 1,714	966 - 1,101	896 - 1,119
Terraced houses, average standard	975 - 1,062	889 - 963	901 - 1,077	772 - 907
Detached houses, high end	1,714 - 1,819	1,709 - 1,783	1,728 - 2,025	983 - 1,116
OFFICE / COMMERCIAL				
Medium/high rise offices, average standard	905 - 1,196	886 - 1,194	844 - 964	887 - 1,019
High rise offices, prestige quality	1,163 - 1,591	1,440 - 1,960	1,236 - 1,553	1,118 - 1,486
Out-of-town shopping centre, average standard	N/A	N/A	N/A	N/A
Retail malls, high end	1,229 - 1,657	1,198 - 1,649	1,190 - 1,725	1,066 - 1,471
HOTELS				
Budget hotels - 3-star, mid market	991 - 1,207	980 - 1,207	1,083 - 1,228	968 - 1,183
Business hotels - 4/5-star	1,596 - 2,161	1,670 - 2,205	1,751 - 2,577	1,737 - 2,148
Luxury hotels - 5-star	2,158 - 2,580	2,126 - 2,736	2,357 - 2,678	2,138 - 2,542

INDUSTRIAL				
Industrial units, shell only (Conventional single storey framed units)	279 - 342	274 - 334	313 - 385	438 - 544
Owner operated factories, low rise, light weight industry	431 - 540	529 - 606	N/A	N/A
OTHERS				
Underground/basement car parks (<3 levels)	740 - 1,032	757 - 832	558 - 913	418 - 580
Multi storey car parks, above ground (<4 levels)	379 - 530	456 - 460	398 - 450	334 - 408
Schools (primary and secondary)	565 - 714	527 - 680	449 - 583	442 - 487
Students' residences	414 - 565	373 - 527	414 - 528	310 - 443
Sports clubs, multi purpose sports/leisure centres (dry sports)	954 - 1,172	903 - 910	767 - 869	698 - 765
General hospitals - public sector	1,457 - 1,879	1,187 - 1,486	1,162 - 1,498	1,115 - 1,381
Exchange Rate Used : US\$1 =	RMB 7.20	RMB 7.20	RMB 7.20	RMB 7.20

The above costs are at **4th Quarter 2022** levels, inclusive of preliminaries but exclusive of contingencies.

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US\$/m ² CFA				KUALA LUMPUR #
	HONG KONG	MACAU	SINGAPORE *		
DOMESTIC					
Apartments, high rise, average standard	3,140 - 3,620	2,497 - 3,054	1,775 - 1,920	315 - 625 ▲	
Apartments, high rise, high end	4,060 - 4,690	3,487 - 5,328	2,715 - 4,020	725 - 1,500	
Terraced houses, average standard	4,320 - 4,970	4,254 - 5,077	2,285 - 2,535	230 - 370 ▲	
Detached houses, high end	6,290 up	5,189 - 6,751	2,900 - 3,875	770 - 1,045	
OFFICE / COMMERCIAL					
Medium/high rise offices, average standard	3,130 - 3,550	2,874 - 3,711	2,285 - 2,535	605 - 800	
High rise offices, prestige quality	3,720 - 4,270	3,711 - 4,059	2,570 - 2,790	950 - 1,360	
Out-of-town shopping centre, average standard	3,070 - 3,610	2,706 - 4,059	2,465 - 2,715	445 - 665	
Retail malls, high end	3,990 - 4,680	4,254 - 5,134	2,715 - 2,970	700 - 1,070	
HOTELS					
Budget hotels - 3-star, mid market	3,950 - 4,210	3,781 - 4,283	2,900 - 3,190	1,020 - 1,500	
Business hotels - 4/5-star	4,080 - 4,730	5,134 - 6,137	3,730 - 4,130	1,330 - 2,330	
Luxury hotels - 5-star	4,760 - 5,400	6,137 - 7,254	3,730 - 4,130	1,955 - 2,620	

INDUSTRIAL				
Industrial units, shell only (Conventional single storey framed units)	N/A	N/A	1,085 - 1,270	330 - 460
Owner operated factories, low rise, light weight industry	2,360 - 2,960	N/A	N/A	435 - 550
OTHERS				
Underground/basement car parks (<3 levels)	3,390 - 4,040	2,245 - 3,292	1,305 - 1,705	315 - 560
Multi storey car parks, above ground (<4 levels)	2,030 - 2,400	1,241 - 1,633	835 - 1,195	210 - 365
Schools (primary and secondary)	2,630 - 2,830	2,483 - 2,874	N/A	255 - 325
Students' residences	3,000 - 3,370	1,967 - 2,287	2,140 - 2,245	305 - 385
Sports clubs, multi purpose sports/leisure centres (dry sports)	3,940 - 4,460	N/A	2,610 - 2,790	610 - 775
General hospitals - public sector	5,000 - 5,500	N/A	3,695 - 3,875	845 - 1,235
Exchange Rate Used : US\$1 =	HK\$ 7.84	MOP 8.01	S\$ 1.38	RM 4.41

The above costs are at **4th Quarter 2022** levels, inclusive of preliminaries but exclusive of contingencies.

- ◆ Rates are net of GST and exclusive of cost arising from COVID-19 pandemic.
- ▲ Terraced houses exclude air-conditioning, kitchen cabinets and home appliances.
- ◆ 6-12 units per floor, 46m² - 89m² per unit, exclude air-conditioning equipment, kitchen cabinets and home appliances.
- # Rate are net of GST.

Source of data: **Singapore** - Asia Infrastructure Solutions Singapore Pte. Ltd. **Kuala Lumpur** - JUBM Group.

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US\$/m ² CFA				
	MANILA Ω	INDIA ₤	BANGKOK #	HO CHI MINH #	JAKARTA #
DOMESTIC					
Apartments, high rise, average standard	956 - 1,282	705 - 859	701 - 857	653 - 809	864 - 979
Apartments, high rise, high end	1,293 - 2,321	1,125 - 1,433	955 - 1,152	830 - 941	1,188 - 1,342
Terraced houses, average standard	858 - 1,050	496 - 560	440 - 544	441 - 512	459 - 597
Detached houses, high end	1,666 - 2,836	628 - 712	767 - 941	503 - 606	1,243 - 1,389
OFFICE / COMMERCIAL					
Medium/high rise offices, average standard	875 - 1,143	532 - 587	776 - 941	763 - 873	852 - 945
High rise offices, prestige quality	1,268 - 1,635	607 - 767	970 - 1,259	880 - 1,186	1,338 - 1,480
Out-of-town shopping centre, average standard	745 - 928	521 - 571	663 - 857	N/A	735 - 813
Retail malls, high end	1,017 - 1,425	706 - 809	889 - 941	713 - 923	808 - 876
HOTELS					
Budget hotels - 3-star, mid market	1,111 - 1,375	1,026 - 1,111	1,210 - 1,361	1,415 - 1,713	1,483 - 1,751
Business hotels - 4/5-star	1,268 - 2,103	1,448 - 1,863	1,549 - 1,789	N/A	2,018 - 2,179
Luxury hotels - 5-star	1,756 - 3,332	1,998 - 2,346	1,809 - 2,113	1,787 - 2,120	2,138 - 2,411

INDUSTRIAL					
Industrial units, shell only (Conventional single storey framed units)	497 - 640	453 - 557	515 - 666	314 - 391	397 - 432
Owner operated factories, low rise, light weight industry	667 - 839	478 - 596	N/A	355 - 463	430 - 474
OTHERS					
Underground/basement car parks (<3 levels)	579 - 753	346 - 399	593 - 796	648 - 764	611 - 751
Multi storey car parks, above ground (<4 levels)	458 - 687	288 - 338	194 - 333	417 - 452	397 - 432
Schools (primary and secondary)	653 - 901	360 - 422	N/A	548 - 591	N/A
Students' residences	700 - 888	376 - 461	N/A	548 - 695	N/A
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,100 - 1,602	693 - 777	N/A	809 - 856	1,238 - 1,857
General hospitals - public sector	1,325 - 1,548	779 - 904	N/A	N/A	N/A
Exchange Rate Used : US\$ 1 =	PHP 56.12	INR 81.50	BAHT 34.55	VND 23,730	IDR 15,538

The above costs are at **4th Quarter 2022** levels, inclusive of preliminaries but exclusive of contingencies.

Ω Rates include 12% VAT.

⊕ Rates are based on projects in Bangalore and are net of GST.

Mumbai costs are generally 8% higher.

Source of data: **India** - Arkind LS Private Limited. **Bangkok** - Mentabuild Limited. **Ho Chi Minh** - DLS Consultant Company Limited. **Jakarta** - PT Lantera Sejahtera Indonesia.

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	SHANGHAI	BEIJING	GUANGZHOU/ SHENZHEN	CHONGQING/ CHENGDU
	RMB/m ² CFA	RMB/m ² CFA	RMB/m ² CFA	RMB/m ² CFA
MECHANICAL SERVICES				
Offices	813 - 1,002	767 - 1,188	783 - 1,162	756 - 1,021
Industrial *	180 - 295	169 - 277	157 - 288	146 - 237
Hotels	1,028 - 1,302	941 - 1,211	1,070 - 1,364	977 - 1,336
Shopping Centres	796 - 936	798 - 960	722 - 920	893 - 1,018
Apartment	326 - 418	141 - 455	154 - 414	151 - 297
ELECTRICAL SERVICES				
Offices	638 - 698	484 - 875	535 - 803	505 - 716
Industrial **	320 - 439	335 - 473	323 - 464	280 - 378
Hotels	696 - 861	740 - 991	722 - 960	627 - 878
Shopping Centres	555 - 675	505 - 711	500 - 697	560 - 714
Apartment	269 - 383	266 - 417	288 - 505	241 - 356
HYDRAULIC SERVICES				
Offices	114 - 163	96 - 141	107 - 186	90 - 125
Industrial	92 - 129	96 - 141	90 - 125	93 - 128
Hotels	385 - 513	373 - 485	394 - 505	371 - 493

Shopping Centres	144 - 187	141 - 202	115 - 170	107 - 156
Apartment	175 - 230	172 - 231	152 - 283	104 - 182
FIRE SERVICES				
Offices	238 - 324	182 - 268	240 - 354	244 - 294
Industrial	165 - 266	152 - 227	144 - 275	136 - 235
Hotels	303 - 395	221 - 379	288 - 429	280 - 376
Shopping Centres	270 - 391	221 - 379	250 - 387	268 - 381
Apartment	58 - 105	71 - 136	79 - 300	62 - 114
LIFTS / ESCALATORS				
Offices	285 - 549	291 - 571	295 - 517	306 - 563
Industrial	138 - 390	143 - 396	150 - 440	154 - 356
Hotels	223 - 494	229 - 515	250 - 480	255 - 439
Shopping Centres	332 - 494	323 - 515	300 - 470	310 - 463
Apartment	168 - 291	173 - 286	130 - 450	143 - 247

The above costs are at **4th Quarter 2022** levels, exclusive of contingencies.

- * Generally without A/C.
- ** Excludes special power supply.

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

BUILDING TYPE	HONG KONG	MACAU	SINGAPORE	KUALA LUMPUR *
	HK\$/m ² CFA	MOP/m ² CFA	S\$/m ² CFA	RM/m ² CFA
MECHANICAL SERVICES				
Offices	2,000 - 2,600	N/A	212 - 327	395 - 555
Industrial *	350 - 500	N/A	40 - 151	110 - 210
Hotels	2,300 - 2,750	2,610 - 3,010	272 - 355	375 - 670
Shopping Centres	2,100 - 2,600	2,370 - 2,960	186 - 309	370 - 535
Apartment	850 - 2,100	910 - 1,210	116 - 215	145 - 230
ELECTRICAL SERVICES				
Offices	2,200 - 2,700	N/A	197 - 354	360 - 515
Industrial **	800 - 950	N/A	68 - 170	185 - 215
Hotels	2,200 - 2,700	2,610 - 3,110	350 - 463	370 - 600
Shopping Centres	1,800 - 2,650	2,610 - 2,960	201 - 387	365 - 510
Apartment	1,150 - 2,400	1,010 - 1,300	135 - 295	135 - 235
HYDRAULIC SERVICES				
Offices	700 - 850	N/A	34 - 70	55 - 80
Industrial	500 - 650	N/A	23 - 46	55 - 65
Hotels	1,900 - 2,600	1,800 - 2,210	153 - 213	215 - 305

Shopping Centres	700 - 850	600 - 800	57 - 103	45 - 50
Apartment	1,350 - 2,000	1,500 - 2,000	101 - 237	65 - 110
FIRE SERVICES				
Offices	650 - 800	N/A	38 - 87	75 - 95
Industrial	550 - 700	N/A	28 - 62	65 - 80
Hotels	700 - 900	920 - 1,130	34 - 69	75 - 110
Shopping Centres	650 - 900	610 - 820	46 - 68	70 - 90
Apartment	100 - 700	250 - 300	27 - 67	30 - 40
LIFTS / ESCALATORS				
Offices	700 - 1,100	N/A	80 - 204	165 - 395
Industrial	500 - 650	N/A	51 - 130	65 - 190
Hotels	600 - 850	610 - 820	63 - 102	135 - 325
Shopping Centres	850 - 1,100	460 - 720	70 - 112	120 - 130
Apartment	450 - 850	460 - 610	50 - 141	80 - 120

The above costs are at **4th Quarter 2022** levels, exclusive of contingencies.

* Generally without A/C.

** Excludes special power supply.

♣ Rates are nett of GST, excluding BAS and cost impact arising from COVID-19 pandemic.

* Rates are nett of GST.

Source of data: **Singapore** - Asia Infrastructure Solutions Singapore Pte. Ltd. **Kuala Lumpur** - JUBM Group.

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

BUILDING TYPE	MANILA ^o		INDIA ^o		BANGKOK #		HO CHI MINH #		JAKARTA #	
	PHP/m ² CFA		INR/m ² CFA		BAHT/m ² CFA		VND/m ² CFA		IDR/m ² CFA	
MECHANICAL SERVICES										
Offices	4,000 - 8,030		5,887 - 8,211		4,400 - 4,900		2,800,000 - 3,980,000		1,057,000 - 1,217,000	
Industrial *	800 - 1,600		2,764 - 5,241		1,550 - 1,700		N/A		479,000 - 765,000	
Hotels	3,500 - 12,350		6,819 - 8,217		4,600 - 5,200		N/A		1,090,000 - 1,415,000	
Shopping Centres	2,890 - 6,840		6,007 - 8,369		4,600 - 4,800		3,150,000 - 3,190,000		930,000 - 1,118,000	
Apartment	1,540 - 5,400		3,099 - 4,420		4,300 - 4,500		2,080,000 - 2,855,000		1,040,000 - 1,321,000	
ELECTRICAL SERVICES										
Offices	3,500 - 8,140		5,288 - 8,082		3,450 - 3,900		2,890,000 - 3,460,000		854,000 - 1,090,000	
Industrial **	2,000 - 3,500		3,113 - 5,744		1,950 - 2,200		N/A		605,000 - 754,000	
Hotels	4,900 - 10,200		5,865 - 8,893		3,800 - 4,600		N/A		880,000 - 1,212,000	
Shopping Centres	3,060 - 6,600		5,041 - 7,499		2,800 - 3,200		2,620,000 - 3,275,000		743,000 - 936,000	
Apartment	3,600 - 6,300		2,667 - 3,884		2,800 - 3,400		2,430,000 - 3,070,000		980,000 - 1,144,000	
HYDRAULIC SERVICES										
Offices	1,260 - 2,410		874 - 1,497		780 - 990		426,000 - 795,000		215,000 - 303,000	
Industrial	820 - 1,440		602 - 1,169		750 - 800		N/A		143,000 - 220,000	
Hotels	2,310 - 7,010		4,598 - 7,690		1,400 - 1,820		N/A		1,029,000 - 1,212,000	

Shopping Centres	1,250 - 1,640		1,310 - 2,632		790 - 990		350,000 - 630,000		204,000 - 314,000	
Apartment	2,310 - 4,690		2,075 - 3,189		1,200 - 1,520		850,000 - 985,000		1,040,000 - 1,232,000	
FIRE SERVICES										
Offices	1,180 - 2,070		1,382 - 2,002		780 - 890		805,000 - 1,325,000		293,000 - 386,000	
Industrial	1,080 - 3,000		632 - 966		730 - 790		N/A		154,000 - 220,000	
Hotels	1,320 - 2,630		1,607 - 2,281		780 - 930		N/A		341,000 - 424,000	
Shopping Centres	1,310 - 2,080		1,323 - 1,697		780 - 890		735,000 - 900,000		286,000 - 335,000	
Apartment	1,140 - 1,810		740 - 977		750 - 930		647,000 - 803,000		325,000 - 353,000	
LIFTS / ESCALATORS										
Offices	1,800 - 4,930		1,082 - 1,448		1,100 - 1,400		760,000 - 1,460,000		456,000 - 1,095,000	
Industrial	0 - 730		721 - 951		N/A		N/A		N/A	
Hotels	1,800 - 3,500		1,623 - 2,405		1,100 - 1,400		N/A		727,000 - 1,134,000	
Shopping Centres	1,600 - 2,300		1,899 - 2,475		300 - 500		1,560,000 - 2,190,000		335,000 - 903,000	
Apartment	850 - 4,760		976 - 1,297		600 - 800		855,000 - 1,250,000		738,000 - 919,000	

The above costs are at **4th Quarter 2022** levels, exclusive of contingencies.

* Generally without A/C.

** Excludes special power supply.

o Transformer, included in Electrical Services.

Rates are nett of VAT.

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

Source of data: **India** - Arkind LS Private Limited, **Bangkok** - Mentabuild Limited, **Ho Chi Minh** - DLS Consultant Company Limited, **Jakarta** - PT Lantera Sejahtera Indonesia.

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	SHANGHAI		BEIJING		GUANGZHOU/ SHENZHEN		CHONGQING/ CHENGDU	
		RMB		RMB		RMB		RMB	
1. Excavating basement ≤ 2.00m deep	m ³	30		35		38.5		36	
2. Excavating for footings ≤ 1.50m deep	m ³	30		40		38.5		36	
3. Remove excavated materials off site	m ³	175		160		170		65	
4. Hardcore bed blinded with fine materials	m ³	210		220		195		180	
5. Mass concrete grade 15	m ³	750		680		680		500	
6. Reinforced concrete grade 30	m ³	800		800		730		530	
7. Mild steel rod reinforcement	kg	5.9		6.5		6.4		5.5	
8. High tensile rod reinforcement	kg	6.0		6.6		6.5		5.5	
9. Sawn formwork to soffits of suspended slabs	m ²	95		90		90		75	
10. Sawn formwork to columns and walls	m ²	90		85		70		75	
11. 112.5mm thick brick walls	m ²	105**		80		80		80	
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	N/A		N/A		N/A		N/A	

13. Aluminium casement windows, single glazed	m ²	780		850*		700		760*	
14. Structural steelwork - beams, stanchions and the like	kg	11		14.5		13		10	
15. Steelwork - angles, channels, flats and the like	kg	9.5		13		11		9	
16. 25mm cement and sand (1:3) paving	m ²	35		34		35		34	
17. 20mm cement and sand (1:4) plaster to walls	m ²	35		34		35		34	
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	160		155		160		150	
19. 12mm fibrous plasterboard ceiling lining	m ²	160		162		170		150	
20. Two coats of emulsion paint to plastered surfaces	m ²	42		34		35		35	
Average expected preliminaries	%	6 - 12		5 - 12		6 - 12		5 - 12	

The above costs are at **4th Quarter 2022** levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

* Rates for double glazed window.

** Rate for 120mm thick concrete block walls

MAJOR RATES FOR SELECTED ASIAN CITIES (Cont'd)

DESCRIPTION	HONG KONG		MACAU		SINGAPORE		KUALA LUMPUR *	
	UNIT	HK\$	MOP	S\$	S\$	RM		
1. Excavating basement ≤ 2.00m deep	m ³	230	150	29	29	18 - 35		
2. Excavating for footings ≤ 1.50m deep	m ³	210	180	29	29	18 - 35		
3. Remove excavated materials off site	m ³	290 ⁶	150	30 - 37	30 - 37	20 - 38		
4. Hardcore bed blinded with fine materials	m ³	950	1,300	69.5	69.5	75 - 110		
5. Mass concrete grade 15	m ³	1,200	1,500	255 - 269**	255 - 269**	250 - 310		
6. Reinforced concrete grade 30	m ³	1,300	1,400	175 - 182	175 - 182	270 - 320		
7. Mild steel rod reinforcement	kg	12.5	7.5	2.10 - 2.20	2.10 - 2.20	4.1 - 5.3		
8. High tensile rod reinforcement	kg	12.5	7.5	2.10 - 2.20	2.10 - 2.20	4.1 - 5.3		
9. Sawn formwork to soffits of suspended slabs	m ²	420	280	55.5	55.5	41 - 52		
10. Sawn formwork to columns and walls	m ²	420	280	55.5	55.5	41 - 52		
11. 112.5mm thick brick walls	m ²	420	450	45 - 50	45 - 50	50 - 60		
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	1,100	N/A	55	55	75 - 105		

13. Aluminium casement windows, single glazed	m ²	4,200	4,000	375	375	390 - 680		
14. Structural steelwork - beams, stanchions and the like	kg	37	30	6.6 - 7.4	6.6 - 7.4	7.2 - 15.0		
15. Steelwork - angles, channels, flats and the like	kg	45	40	6.6 - 7.4	6.6 - 7.4	7.2 - 15.0		
16. 25mm cement and sand (1:3) paving	m ²	160	120	28	28	19 - 27		
17. 20mm cement and sand (1:4) plaster to walls	m ²	165	150	29	29	20 - 35		
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	430	450	86	86	65 - 120		
19. 12mm fibrous plasterboard ceiling lining	m ²	580	650	38	38	40 - 55		
20. Two coats of emulsion paint to plastered surfaces	m ²	130	200	4.3 - 4.9	4.3 - 4.9	3.6 - 5.5		
Average expected preliminaries	%	10 - 15	10	14 - 18	14 - 18	6 - 15		

The above costs are at **4th Quarter 2022** levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

♣ Rates are nett of GST and exclude cost impact arising from COVID-19 pandemic

★ Rates are nett of GST.

♣♣ Rate for lean concrete blinding.

Source of data: **Singapore** - Asia Infrastructure Solutions Singapore Pte. Ltd. **Kuala Lumpur** - JUBM Group.

MAJOR RATES FOR SELECTED ASIAN CITIES (Cont'd)

DESCRIPTION	UNIT	MANILA		INDIA [Ⓔ]		BANGKOK [#]		HO CHI MINH [#]		JAKARTA [#]	
		PHP		INR		BAHT		VND		IDR	
1. Excavating basement ≤ 2.00m deep	m ³	300 - 450		260		125 - 160		72,400		75,000	
2. Excavating for footings ≤ 1.50m deep	m ³	538		245		150 - 190		72,400		110,000	
3. Remove excavated materials off site	m ³	350 - 700		N/A		125 - 160		84,700		50,000	
4. Hardcore bed blinded with fine materials	m ³	1,400 - 1,800		4,900 - 5,200		680 - 790		280,900		700,000	
5. Mass concrete grade 15	m ³	4,500		6,850		2,300 - 2,700		1,847,360		1,015,000	
6. Reinforced concrete grade 30	m ³	6,300		8,590		2,800 - 3,470		2,199,135		1,175,000	
7. Mild steel rod reinforcement	kg	51 - 54		78		28 - 31		23,010		13,500	
8. High tensile rod reinforcement	kg	51 - 54		70 - 73		28 - 31		23,010		13,800	
9. Sawn formwork to soffits of suspended slabs	m ²	950 - 1,200		715 - 765		450 - 500		240,000		250,000	
10. Sawn formwork to columns and walls	m ²	1,200		810 - 840		450 - 500		290,000		210,000	
11. 112.5mm thick brick walls	m ²	N/A		1,275 - 1,320		650 - 890		312,780		270,000	
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	1,500		1,950 - 2,010		1,200		480,000 - 680,000		370,000	

13. Aluminium casement windows, single glazed	m ²	16,000 Ω		6,600 - 7,000		7,600		6,630,750		1,750,000	
14. Structural steelwork- beams, stanchions and the like	kg	180		148		55 - 80		49,500		36,000	
15. Steelwork- angles, channels, flats and the like	kg	160		148		55 - 80		49,500		38,000	
16. 25mm cement and sand (1:3) paving	m ²	650		550 - 620		220 - 275		105,000		100,000	
17. 20mm cement and sand (1:4) plaster to walls	m ²	500 - 700		490 - 540		250 - 295		144,000		100,000	
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	1,800 - 2,000		1,880 - 1,945		1,200		674,180		220,000	
19. 12mm fibrous plasterboard ceiling lining	m ²	1,400 - 1,700		1,510 - 1,690		850 - 950		255,700		215,000	
20. Two coats of emulsion paint to plastered surfaces	m ²	500 - 800		220 - 250		140 - 180		96,000		35,000	
Average expected preliminaries	%	12 - 18		9 - 13		12 - 18		8 - 12		8 - 10	

The above costs are at **4th Quarter 2022** 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.

Ⓔ Based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

Rates are nett of VAT.

Source of data: **India** - Arkind LS Private Limited. **Bangkok** - Mentabuild Limited. **Ho Chi Minh** - DLS Consultant Company Limited. **Jakarta** - PT Lantera Sejahtera Indonesia.

CONSTRUCTION COST SPECIFICATION

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

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

CONSTRUCTION COST SPECIFICATION (Cont'd)

BUILDING TYPE	OUTLINE SPECIFICATION
OTHERS	
Underground/basement car parks (<3 levels)	RC structure
Multi storey car parks, above ground (<4 levels)	RC structure, natural ventilation, no facade enclosure
Schools (primary and secondary)	Government standard and provisions
Students' residences	University standard
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. The costs include foundation and substructure.
4. All buildings are assumed to have no basements (except otherwise stated) and are built on flat ground, with normal soil and site conditions. The costs exclude site formation works, external works, land cost, professional fees, finance and legal expenses.
5. The standard for each category of building varies from region to region and do not necessary follow that of each other.
6. Fluctuation in exchange rates may lead to changes in construction costs expressed in U.S. dollars.

2 GENERAL CONSTRUCTION DATA

2023 Outlook
(China, Hong Kong and Macau)

Building Cost Trends in Hong Kong

Material Prices in Hong Kong

Labour Index in Hong Kong

Labour Wages in Hong Kong

Estimating Rules of Thumb & 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 Ratio for
Hong Kong

China: Green Buildings, Climate Change and
Regulatory Developments

Procurement Strategies and
Form of Contracts

Construction Workdone Forecast



2023 OUTLOOK

CHINA

In the first three quarters of 2022, China had recorded an overall GDP growth of (+)3.0% YOY with the quarterly growth at (+)4.8%, (+)0.4% and (+)3.9% in Q1, Q2 and Q3 respectively. The GDP growth rate had shrunk in Q2 2022 as the resurgence of Covid-19 cases in Shanghai and key manufacturing hubs in Eastern China had caused a prolonged lockdown. Industrial activities and their supply chains had been disrupted and construction works in many areas had been forced to suspend.

On 26th December 2022, the National Health Commission of China announced that China would downgrade the management of COVID-19 to a Class-B infectious disease from 8th January 2023 onwards. The anticipated ease of quarantine control had boost market sentiment.

As of November 2022, real estate investment and the sales of commercial buildings had declined by 9.8% and 26.6% YOY respectively. The area of land sale had also decreased by 53.8% YOY. According to the National Bureau of Statistics, the completed construction area and new commencement area had decreased by 6.5% and 38.9% respectively. Land sales area had been declining for four consecutive years, and the construction output is anticipated to reduce accordingly. While China had launched a series of policies, such as easing the restrictions on the purchase of properties, relaxing credit requirements and providing deed tax subsidies, to revive the real estate market in 2022, it will take quite some time for it to rebound to the pre-pandemic level.

The construction wage had remained stable in most cities in China. However, in areas affected by COVID-19 lockdown such as Shanghai, the construction wage had an increase of 10% in 2022. Basic construction product prices YoY had also reduced. With steel (-)21% and rebar (-)17% recorded the most significant drop, followed by concrete (-)6%, cement (-)10%, Copper (-)5%, Aluminium (-)2%. Tender prices recorded an average decrease of 2% of in 2022.

The growth of construction wages is estimated at (+)2% and above in the coming year. In addition, material prices are anticipated to rise from low level as the real estate market has gradually recovered. We anticipate that the cost of major construction materials will go up and the construction costs will increase by 3% in both 2023 and 2024.

2023 OUTLOOK

HONG KONG

The economy of Hong Kong has been experiencing a downturn in 2022 and is now the road of recovery from the global COVID-19 crisis. After a year of continued growth, the Gross Domestic Product (GDP) had decreased for four consecutive quarters and hit the trough in Q3 2022, representing a drop of 4.5% year-on-year. The Consumer Price Index (CPI) had increased in 2022, peaking at (+)4.4% year-on-year in September and narrowed to (+)2.0% year-on-year in December.

Construction activity in the private and public sectors

The level of construction activity in Hong Kong had been recovering in 2022. The overall gross value of works performed and the gross value of works performed in the private sector had risen by 3.67% and 2.7% respectively for the 12 months ending Q3 2022. However, the works performed at locations other than sites had reduced by 7.1%. On the other hand, completion of construction floor areas of private works had increased by 119% for the 12 months ending December 2022. In the same period, the construction floor areas with consent to commencement and notification of commencement of private works had dropped by 45% and 67% respectively. The outlook for the amount of construction activity in the private sector in 2023 is not optimistic.

For the 12 months ending Q3 2022, the gross value of works performed in public sector had increased by 19% year-on-year. As of Q3 of the Financial Year 2022/23, the Hong Kong Legislative Council had approved a total of HK\$80.4 billion Capital Works Reserve Fund for proposed public works. The approved fund had been reduced by 38% compared to the same period of preceding year. As the projects supported by approved funding in the Financial Year of 2021/22 will commence construction works progressively, it is anticipated the level of construction output in public sector will remain stable in 2023.

Housing and land supply

In the 2022-23 Budget, the government has set aside HK\$100 billion to expedite the implementation of infrastructure works relating to land, housing and transportation within the Northern Metropolis. Furthermore, pursuant to the Chief Executive's 2022 Policy Address, the government will continue to alleviate the housing problem. It has introduced the new Light Public Housing (LPH) and planned to build 30,000 LPH units in next five years. Combining the LPH and traditional public rental housing (PRH) development pipeline, the overall public housing production will surge by 50% and hit 158,000 units in the next five years. The government also proposed to go ahead with the three major road projects (i.e., the Northern Metropolis Highway, Shatin Bypass and the TKO Yau Tong Tunnel) as well as the three strategic railway projects (i.e., Hong Kong-Shenzhen Western Rail Link, the Central Rail Link and the TKO Line Southern Extension) to improve the territory-wide transport network and drive development.

In relation to the private sector, the 2022-23 Budget set out the target to churn out an average of 19,000 private residential units annually in the five years starting from 2022. Such production target represents an increase of approx. 14% compared to the previous five years. The projected first-hand private residential unit supply for the next three to four years is 98,000 units – a new high in recent years. It is expected that railway property development and land sales will remain the main sources of private housing supply in the coming years.

Cost of material and labour

As of Q4 2022, the Tender Price Index (TPI) had increased by 4.5% year-on-year. After a prolonged growth in the previous few years, the price of steel in October 2022 had declined by 20% from the peak in March 2022. Meanwhile, the prices of cement, concrete blocks, tiles and diesel fuel had gone up by 17% to 22% year-on-year. The prices of plywood formwork, sand and basic materials had also increased gradually in the same period.

The construction labour wage had remained stable in 2022. The wage of bricklayers had a mild increase while that of plumbers and painters had dropped. In October 2022, the Hong Kong Construction Industry Employees General Union announced an overall positive adjustment to the major work trades after three consecutive years of salary freeze. Moreover, the unemployment rate in the construction sector had fallen significantly from 8.7% in between February and April to 4.8% in between October and December in 2022.

Looking forward

Looking ahead to 2023, Arcadis is cautiously optimistic about the level of construction activity in the public sector, whilst the performance of the private sector will depend on the pace of recovery of the property market. It is anticipated that the upward trend of the material and labour costs will sustain in the coming year due to the war in Ukraine, global inflation and the shortage of local construction labour. With all these in mind, the construction cost is estimated to increase by 4% and 3% in 2023 and 2024 respectively.

2023 OUTLOOK

MACAU

In 2022, Macao suffered from a historical economic slump caused by the COVID-19 pandemic and global economic slowdown. The economy of Macao had contracted by 27.8% YOY in real terms and recorded a Gross Domestic Product (GDP) of MOP 128.39 billion in the first three quarters of 2022. The total number of visitors plunged by 24.2% Year-on-Year (YOY) to 4.36 million in the first three quarters of 2022, according to the Economic Outlook of Macao. Meanwhile, the gross revenue of games of fortune had plummeted by 53.1% YOY to MOP 31.82 billion.

Notwithstanding the above, there was good news in December 2022, when Macao announced to ease its epidemic restrictions, allowing foreigners to enter Macao with only five days of home isolation. Furthermore, the Macao Government signed a new 10-year gaming contract with the six existing concessionaires in December 2022. As stipulated by the contract, the concessionaires are required to make MOP 118.8 billion investment in the next 10 years, among which the investment for non-gambling projects should be MOP 108.7 billion. Non-gaming projects can include convention and exhibition centers, sports facilities, art and cultural attractions and other non-gaming attractions.

Looking back in 2022, public investments in the form of public housing, government offices, and other civil projects, had been the key driver of the construction market in Macao. Since the government has signed the 10-year gaming contract with the six incumbent concessionaires in December 2022, investment atmosphere has become more positive and a number of hotel and gaming alteration and additions (A&A) projects and new non-gambling projects are under planning.

According to the Macao Government Statistics and Census Service (DSCE), the overall price of construction materials had increased by 0.21% YOY in Q3 2022. The inflation had mainly been driven by the increase of material prices of concrete and sand. The wage of construction workers had remained steady as of Q3 2022.

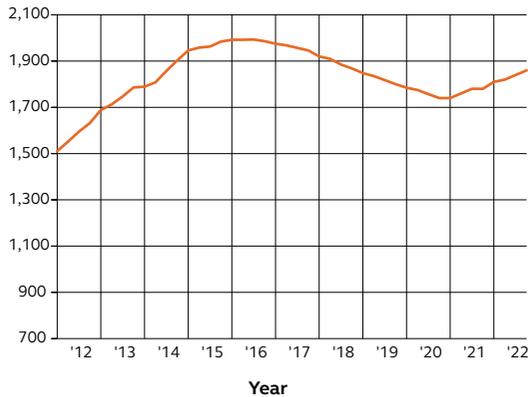
Looking forward to 2023, Macao will face multiple challenges, including the uncertainty stemmed from coexisting with the COVID-19 pandemic and the risk of further variants of coronavirus. It will also need to revitalize its tourism industry by resuming the individual visit scheme and group tours for mainland travelers. In addition, it will need to exploit investment opportunities for non-gambling projects from the contract made between the government and the concessionaires.

The ease of COVID-19 restrictions and the opportunities brought by the gaming industry will boost the economy of Macao, which could see a sharp recovery in economic growth in 2023. We anticipate that the construction costs will increase by 2% and 2.5% in 2023 and 2024 respectively.

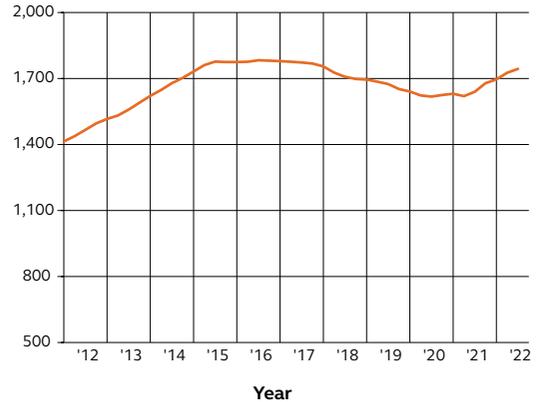
CONSTRUCTION COST TREND PREDICTION			
REGION	2022	2023	2024
China	(-)2%	(+)3%	(+)3%
Hong Kong	(+)4.5%	(+)4%	(+)3%
Macao	(+)0.5%	(+)2%	(+)2.5%

BUILDING COST TRENDS IN HONG KONG

Arcadis Tender Price Index



ArchSD Building Works Tender Price Index



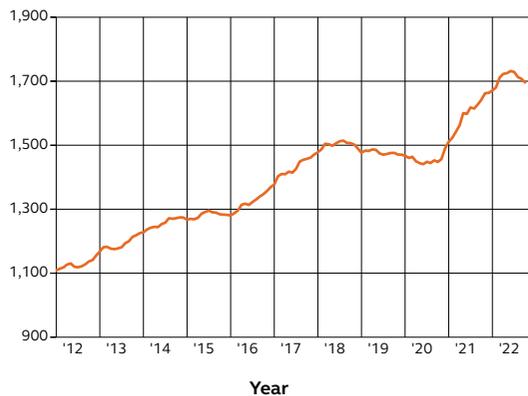
YEAR	INDEX (Base = 100, at Year 1970)			
	Q1	Q2	Q3	Q4
2011	1,385	1,425	1,452	1,491
2012	1,511	1,552	1,595	1,632
2013	1,688	1,713	1,747	1,786
2014	1,789	1,808	1,857	1,903
2015	1,946	1,958	1,963	1,984
2016	1,992	1,992	1,993	1,986
2017	1,975	1,968	1,957	1,946
2018	1,920	1,910	1,885	1,868
2019	1,848	1,835	1,818	1,800
2020	1,785	1,775	1,757	1,740
2021	1,740	1,760	1,780	1,780
2022	1,810	1,820	1,840	1,860

YEAR	INDEX (Base = 100, at Year 1970)			
	Q1	Q2	Q3	Q4
2011	1,273	1,320	1,369	1,408
2012	1,414	1,438	1,467	1,496
2013	1,516	1,532	1,559	1,590
2014	1,621	1,648	1,679	1,703
2015	1,732	1,761	1,777	1,775
2016	1,775	1,776	1,783	1,781
2017	1,779	1,776	1,773	1,768
2018	1,755	1,727	1,708	1,698
2019	1,695	1,686	1,675	1,652
2020	1,641	1,623	1,618	1,625
2021	1,631	1,620	1,640	1,679
2022	1,696	1,726	1,744	

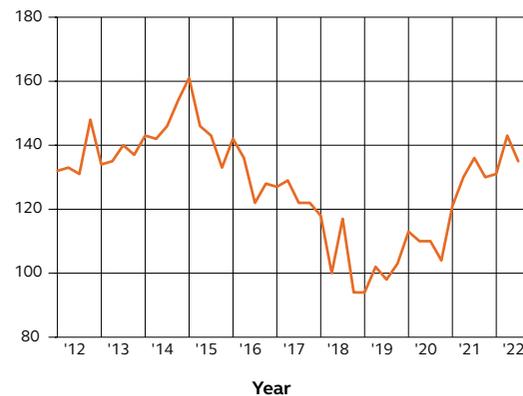
Source : Architectural Services Department, Hong Kong, SAR
Refer to www.archsd.gov.hk for further information.

BUILDING COST TRENDS IN HONG KONG

Highways Department Construction Cost Index



CEDD Civil Engineering Works Tender Price Index



YEAR	HyD CONST. COST INDEX (Nov. 1975 Value = 100)
2011	1,075
2012	1,127
2013	1,191
2014	1,256
2015	1,282
2016	1,323
2017	1,429
2018	1,501
2019	1,477
2020	1,455
2021	1,597
2022*	1,709

* 1/22 to 10/22 only

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

YEAR	CEDD CIVIL ENGINEERING WORKS TENDER PRICE INDEX (2010 Q1 = 100)			
	Q1	Q2	Q3	Q4
2011	129	129	111	104
2012	132	133	131	148
2013	134	135	140	137
2014	143	142	146	154
2015	161	146	143	133
2016	142	136	122	128
2017	127	129	122	122
2018	118	100	117	94
2019	94	102	98	103
2020	113	110	110	104
2021	121	130	136	130
2022	131	143	135*	

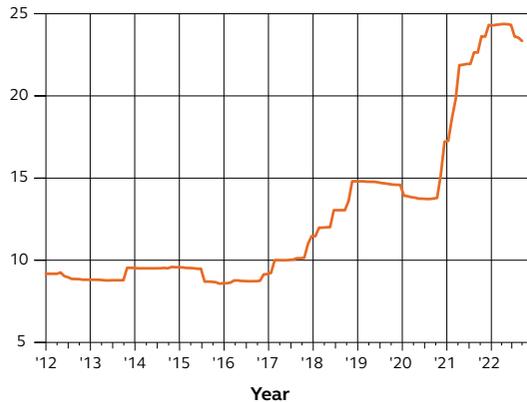
* Provisional

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

MATERIAL PRICES IN HONG KONG

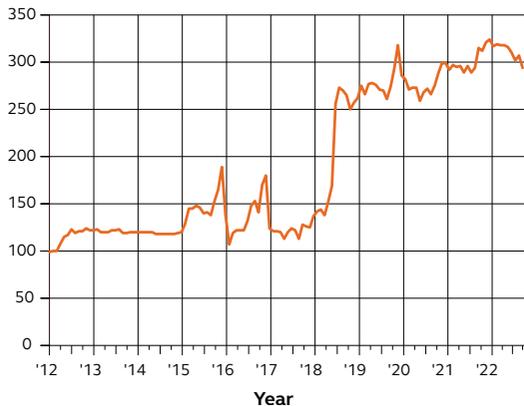
GALVANIZED MILD STEEL PLATE

HKD('000)/tonne



SAND

HKD/tonne



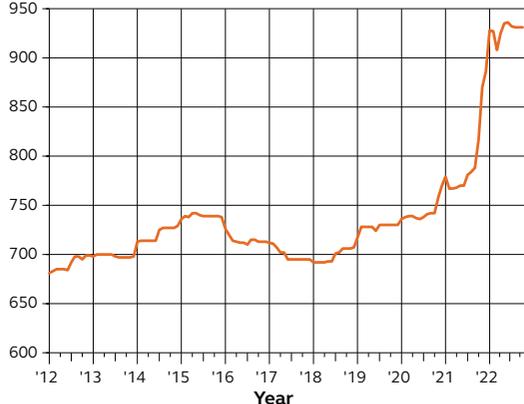
REBAR

HKD('000)/tonne



ORDINARY PORTLAND CEMENT

HKD/tonne



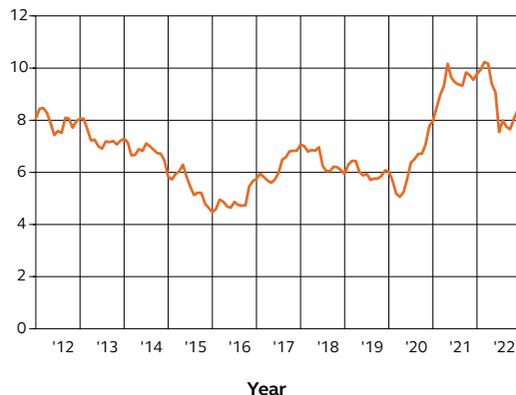
Source: Census and Statistics Department, Hong Kong, SAR
Refer to www.censtatd.gov.hk for further information.

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

MATERIAL PRICES IN HONG KONG

COPPER GRADE A

US\$('000)/tonne



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

CRUDE OIL

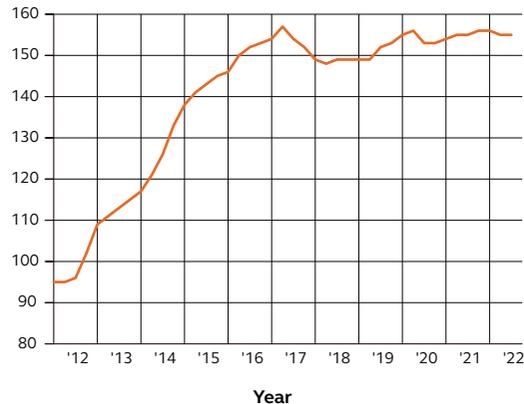
US\$/barrel



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

LABOUR INDEX IN HONG KONG

Index



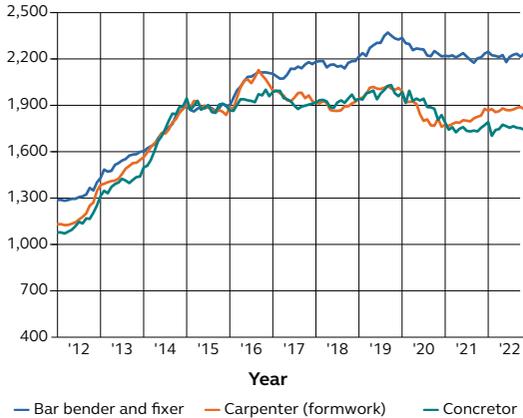
YEAR	INDEX (Base = 100, at April 2003)			
	Q1	Q2	Q3	Q4
2011	90	90	91	94
2012	95	95	96	102
2013	109	111	113	115
2014	117	121	126	133
2015	138	141	143	145
2016	146	150	152	153
2017	154	157	154	152
2018	149	148	149	149
2019	149	149	152	153
2020	155	156	153	150
2021	154	155	155	156
2022	156	155	155	

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

LABOUR WAGES IN HONG KONG

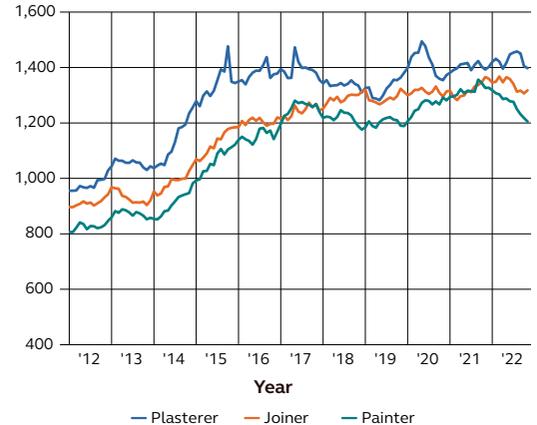
STRUCTURAL

HK\$/Day



ARCHITECTURAL - DECORATIVE WORKS

HK\$/Day



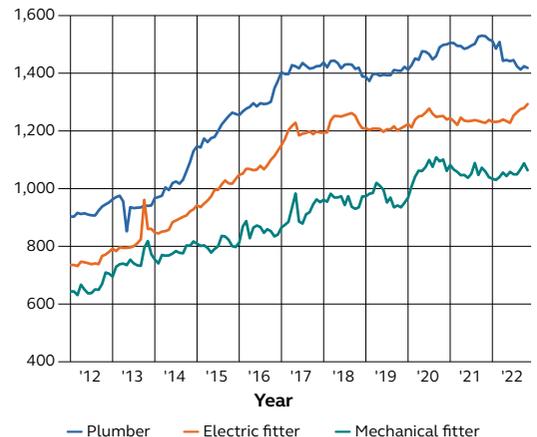
ARCHITECTURAL - BASIC WORKS

HK\$/Day



M&E

HK\$/Day



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

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

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

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 AND HONG KONG

Minimum Imposed Loads (kPa) for Building Design

Building Type	China [®]	Hong Kong [*]
DOMESTIC		
Apartments	2.0	2.0
OFFICE / COMMERCIAL		
Office	2.0	3.0
Shopping Arcade	3.5	5.0
HOTELS		
Hotel	2.0	2.0
INDUSTRIAL		
Industrial, light duty	4.0	5.0
OTHERS		
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 :

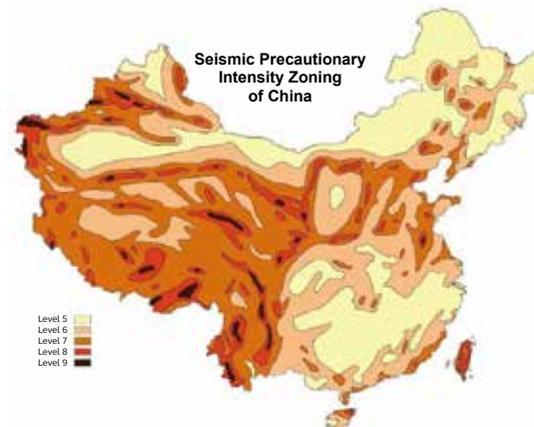
® Load Code for the Design of Building Structures, GB 50009-2012, Ministry of Housing and Urban-Rural Development, PRC

* 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.

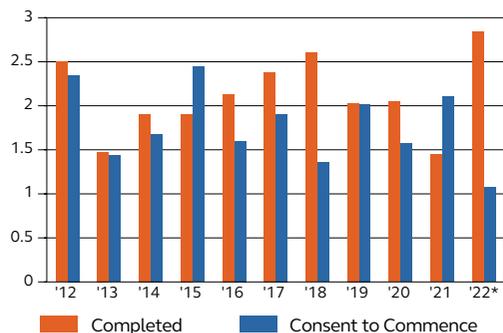


Geographic Regions	Intensity Level	Geographic Regions	Intensity Level
Beijing	7 - 8	Hong Kong	7
Changsha	6	Macau	7
Chengdu	7 - 8	Qingdao	6 - 7
Chongqing	6 - 7	Shanghai	7
Dalian	6 - 8	Shenyang	7
Foshan	7	Shenzhen	6 - 7
Guangzhou	6 - 7	Suzhou	6 - 7
Haikou	8	Tianjin	7 - 8
Hangzhou	6 - 7	Wuhan	6 - 7
Hengqin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

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

CONSTRUCTION ACTIVITY IN HONG KONG

Gross Floor Area (Million m²)



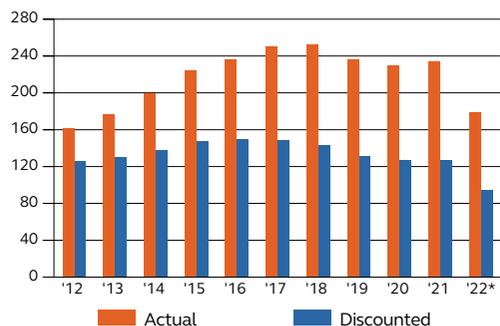
YEAR	COMPLETED m ²	CONSENT TO COMMENCE m ² #
2011	1,650,000	1,232,000
2012	2,507,000	2,343,000
2013	1,472,000	1,437,000
2014	1,908,000	1,679,000
2015	1,897,000	2,445,000
2016	2,134,000	1,597,000
2017	2,379,000	1,900,000
2018	2,600,000	1,358,000
2019	2,028,000	2,020,000
2020	2,048,000	1,572,000
2021	1,445,000	2,104,000
2022*	2,843,000	1,068,000

* 1/22 to 11/22 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

Gross Value of Construction Work Performed (HK\$ Millions)



YEAR	VALUE IN NOMINAL TERMS HK\$ MILLIONS	VALUE IN CONSTANT (2000) MARKET PRICE HK\$ MILLIONS
2011	128,535	108,263
2012	161,449	126,414
2013	176,575	129,868
2014	199,737	138,285
2015	223,947	146,978
2016	236,491	149,973
2017	249,919	148,943
2018	252,176	143,136
2019	236,437	131,111
2020	229,869	127,146
2021	233,721	126,606
2022*	179,013	94,873

* Up to Q3 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

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
BA14B	Certificate on completion of demolition works (streamlined procedure).	B(A)R 25

Source : Buildings Department, Hong Kong, SAR. Refer to www.bd.gov.hk for further information.

SPECIFIED FORMS FOR BUILDINGS ORDINANCE OR REGULATIONS FOR HONG KONG

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(D)WR 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 ground water drainage works.	BOs 28B(1)
BA23	Application for grant/renewal of licence for an oil storage installation.	B(OS)R 6(1) & 7(3)
BA24	Notification of change of business address / Contact information.	B(A)R 45

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

Source : Buildings Department, Hong Kong, SAR. Refer to www.bd.gov.hk for further information.

SUMMARY OF BUILDING REGULATIONS FOR
HONG KONG

DESCRIPTION	NUMBER OF REGULATIONS
Administration	49
Appeal	13
Construction	93
Demolition Works	14
Energy Efficiency	5
Minor Works	97
Minor Works (Fees)	20
Inspection and Repair	35
Oil Storage Installations	15
Planning	74
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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.

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

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

Source: Buildings Ordinance, Hong Kong, SAR
Refer to www.legislation.gov.hk for further information.

CHINA: GREEN BUILDINGS, CLIMATE CHANGE AND REGULATORY DEVELOPMENTS

Overview

China promulgated its first national green building evaluation standard in 2014. In promoting green buildings, China and all other countries share the same underlying sustainability goals, namely, environmental protection, reduction of wastes, well-being of building users, conservation of energy, adapting and mitigating climate change impacts. Now that climate change is a forefront issue for all governments and businesses worldwide, decarbonisation and adapting to renewable energies are becoming the measurements, drivers and direction of the development of green buildings in China.

For a number of years China has been the world's largest emitter of carbon dioxide and other greenhouse gases. Hence it was a very significant moment for the global climate change movement that President Xi Jinping of China announced at the 75th Session of the UN General Assembly in September 2020 that China will target to peak its carbon emissions by 2030 and to attain carbon neutrality by 2060. In fact, historically, China has always been highly proactive and supportive of international developments in climate change and decarbonisation. When the three most important international conventions for climate change were agreed and promulgated by the United Nations, namely, the 1992 UN International Intergovernmental Panel on Climate Change, the 1997 Kyoto Protocol and the 2015 Paris Agreement, China formally acceded to them within one year of their promulgation.

Since China's public announcement of its 2030/2060 decarbonisation commitments, China has issued a series of national policy documents to implement and fulfil its commitments, such as:

- the Outline of the 14th Five-Year Plan and the Long-Range Objectives Through the Year 2035 (中华人民共和国国民经济和社会发展第十四个五年规划和2035年远景目标纲要) (March 2021)
- the Opinions on Full Implement of Decarbonisation (关于完整准确全面贯彻新发展理念做好碳达峰碳中和工作的意见) (September 2021)
- the Action Plan for Peaking Carbon Emissions before 2030 (2030年前碳达峰行动方案) (October 2021)

- the National Climate Change Adaptation Strategy 2035 (国家适应气候变化战略 2035) (May 2022)

In connection with these macro decarbonisation policy documents, a number of national policy documents have been issued to actively implement decarbonisation in the building and construction sectors, such as:

- the 2020 Green Building Promotion Action Plan (2020年绿色建筑创建行动方案) (July 2020)
- the Opinions on Driving Green Developments in Urban and Rural Areas (关于推动城乡建设绿色发展的意见) (October 2021)

Green Building Certifications and Green Building Regulations

Energy conservation and efficiency performance is naturally the initial focus of China's green building regime. China has established its national legal framework in this area through 1997 Energy Conservation Law (节约能源法) and the 2008 Civilian Buildings Energy Conservation Regulations (民用建筑节能条例). All civil buildings are required to meet the relevant mandatory energy conservation standards and specifications for building materials, equipment and techniques, failing which local construction authorities shall not grant relevant approvals at the building design, planning, work commencement or completion stage.

Residential and commercial buildings are major source of carbon emissions due to the huge amount of electricity (and fossil fuel for heat generation in the colder regions of China) consumed for living and economic activities which take place in buildings. To address such operational carbon emission of buildings, China promulgated its first Green Building Action Plan in 2013, and then promulgated its first national Green Building Evaluation Standard scheme in 2014. The latest Green Building Evaluation Standard (绿色建筑评价标准) (GB-T50378-2019) was updated in 2019. It provides technical standards for different types of civil buildings. A building can obtain green building rating of Basic-Grade, One-Star, Two-Star to Three-Star (being the highest rating). Similar to other international rating systems, China green building rating is granted in two stages: initially, a tentative rating at the design stage, and then a formal rating after completion of construction.

Currently only limited types of buildings are mandatorily required to achieve a certain green building rating. Pursuant to the 2020 Green Building Promotion Action Plan (绿色建筑创建行动方案) and other policy documents, China targets that 70% and then 100% of

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(Cont'd)

CHINA: GREEN BUILDINGS, CLIMATE CHANGE AND REGULATORY DEVELOPMENTS

all new buildings in China shall attain a green building rating by end of 2022 and 2025 respectively.

Concurrent with various mandatory requirements to attain green building ratings, local authorities have also been granting financial incentives for green buildings, such as exemption of gross floor area used to construct green building facilities in calculating project plot ratio as well as cash subsidies for projects which can attain higher green building ratings.

All regions in China now have green building regulations of varying degree of sophistication, e.g. the Guangdong Provincial Green Building Regulations (广东省绿色建筑条例) (January 2021). In 2022 there were at least seven new building regulations issued by provincial-level authorities in China.

The most progressive green building regulations in China, namely, the Shenzhen Green Building Regulations (深圳经济特区绿色建筑条例), has entered into effect on 1 July 2022. It stipulates a comprehensive green building regulatory local regime which is more progressive/stringent than all other national and local green building regulations. Its salient features include:

- Categorizing green building as a strategic new industry sector and mandating the Shenzhen real estate and construction authorities to establish a green building development plan.
- Apart from commercial and residential buildings, industrial buildings are now also regulated.
- Setting higher green building certification standard for all new buildings – specifically, all new buildings must attain not lower than One-Star standard and all new state-funded new buildings must attain not lower than Two-Star standard.
- Setting higher standards for carbon emission, energy and water consumption, indoor air quality and noise abatement for all new buildings, and mandating energy audit and retrofitting if the applications standards are not complied with.
- Requiring utility companies and building owners/users to provide data on their consumption of energy, water and other resources to the local green building authority.

- Setting specific carbon emission targets for major/iconic buildings, and (in the near future) including certain major players in the building sector into the carbon emission quota management system.
- Apart from regulating building developers, building users, managers and professionals are now also imposed with green building related legal obligations with respect to building construction, use and demolition.
- Granting plot-ratio concessions for construction areas necessitated by green building facilities and technologies.
- Permitting higher mortgage loan amounts from housing provident fund for purchase of residential properties with green building standard higher than One-Star.

In response to the ever-rising climate change awareness internationally and in China, some major landlords and tenants of commercial real estate have started to adopt green lease. However, there is yet any government regulatory requirements or incentives for adoption of green lease in leasing of real estate.

Green Construction Materials

From the perspective of the whole life cycle of a building, the carbon emission "embedded" in construction phase of a building is often much more than the carbon emission during the operational phase of a building. In November 2022 the Action Plan on Peaking Carbon Dioxide Emissions in the Building Materials Industry (建材行业碳达峰实施方案) was issued to address the embedded carbon emission of construction materials. The Action Plan stipulates measures to enhance the regulatory framework for certification and use of green building materials, promotes green building technology development, and supports the use of renewable energy in production of construction materials.

In this connection, the Circular on Extending the Implementation Scope of Policies on Government's Procurement of Green Building Material to Improve Building Quality (关于扩大政府采购支持绿色建材促进建筑品质提升政策实施范围的通知) (October 2022) and the Catalogue of Industries for Encouraging Foreign Investment (2022 Version) (鼓励外商投资产业目录 (2022年版)) were issued to provide incentives for investment in and use of green construction materials.

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CHINA: GREEN BUILDINGS, CLIMATE CHANGE AND REGULATORY DEVELOPMENTS

Carbon Emissions of Buildings

Following China's accession for the Kyoto Protocol in 1998, in 2011 China has set up seven local carbon emissions trading exchanges in Beijing, Tianjin, Shanghai, Chongqing, Guangdong, Hubei and Shenzhen. Certain building and hotel projects have been selected to participate in the local carbon emissions trading exchanges in Beijing, Shanghai and Shenzhen on a trial basis.

In 2019, the Building Carbon Emissions Computation Standard (GB/T51366-2019) (建筑碳排放计算标准) was promulgated. The General Rules for Building Energy Conservation and Use of Renewable Energies (建筑节能与可再生能源利用通用规范) (GB 55015-2021) was further issued in September 2021. These General Rules are highly significant in several respects:

- the energy efficiency and carbon emission standards for all building types will be raised quite significantly and mandatorily with effect from 1 April 2022
- national and local authorities will start to set up online platforms to collect, analyse and report carbon emissions data of buildings.

Based on the experience of these local exchanges, China issued the Management Measures for Trading of Carbon Emission Rights (Trial Implementation) (碳排放权交易管理办法(试行)) in 2020 to set up the China National Carbon Emissions Trading Scheme (ETS) in Shanghai. Trading on the National ETS Exchange started in July 2021 while trading on the local exchanges continues.

At this stage only the major electricity power generation companies are mandated to participate to trade the carbon emissions quotas at the National ETS Exchange. Other sectors with heavy carbon emissions (such as steel, cement and chemicals) will also be mandated to participate in the National ETS Exchange. If the 2021 General Rules for Building Energy Conservation and the 2021 Notice for Full Implementation of Decarbonisation mentioned above are successful in setting up online platforms for the carbon emissions data for the building sector, it will highly facilitate more building projects to trade their carbon emissions in local ETS exchanges, and perhaps also in the National ETS Exchange further down the road.

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Green Finance for Buildings

China is well aware of the important role of finance in achieving its climate change transition goals. In 2016, the People's Bank of China and various other national ministries issued the Guiding Opinions on Creating the Green Finance Framework (关于构建绿色金融体系的指导意见) to set up a supportive policy framework for promoting green finance in China. Since then many national and local regulations and policy documents have been issued in support of green finance in China, e.g. the 2021 Shenzhen Green Finance Regulations (深圳经济特区绿色金融条例). China is the world's second-largest country in terms of quantity of green bond and green finance, with USD 86 billion issued in 2021 and a total of USD 2.31 trillion outstanding

In all these national and local regulations, green building is always included as one of the specific sectors to receive green finance support. A principal way for a building project to prove that it can meet the green financing criteria set by regulations and lenders is that it has obtained the required national or local green building rating.

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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 Hong Kong Government used to have its own standard forms of contract but now the NEC forms have become increasingly popular in the public sector of Hong Kong. The Development Bureau continually advocated "collaborative partnership" in delivering public works projects in Hong Kong by way of introducing the "New Engineering Contract" (NEC) form aiming to elevate management efficiency and cost effectiveness.

As of November 2022, there have been over 400 public works contracts adopting NEC form with a total value of over \$250 billion.

In recent years NEC have also been adopted by non-public clients such as Airport Authority HK, CLP, MTR, etc.

PROCUREMENT STRATEGIES AND FORM OF CONTRACTS

New Engineering Contract (NEC) (Cont'd)

The NEC form continues to have a significant impact by its extensive usage in different works categories (including building works, civil engineering works etc.) by the Hong Kong Government. The NEC contract suites covers not only construction and engineering contracts between employers and contractors but also professional service contracts for employers to engage consultants or other suppliers under NEC contracts.

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.

In 2017, the NEC4 contract suite was published built upon updates to NEC3 contract suite. The NEC3 contracts are updated by taking account on the constructive feedback from users and industry experts with amendments for improvement in flexibility, clarity and ease of contract administration. The Hong Kong Government has started using NEC4 since 2018.

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 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 among project stakeholders.

Procurement Strategy Table

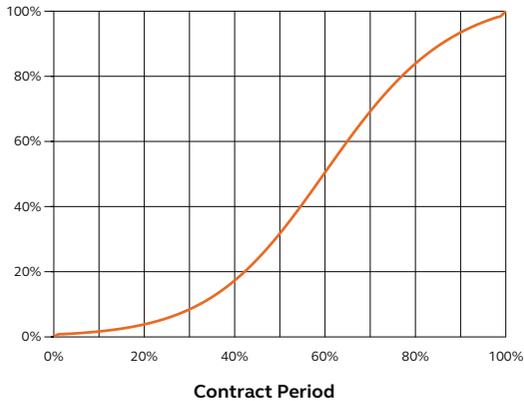
PROJECT CRITERIA		RELATIVE DEGREE OF APPROPRIATENESS				
		Traditional	Management Contracting	Construction Management	Design and Construct	
Parameter	Objectives					
Timing	Early Completion	Low	High	High	High	High
Cost	Pre construction price certainty	High	Low	Low	High	High
Quality	Design prestige	High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

CONSTRUCTION WORKDONE FORECAST

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

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

Construction Workdone Forecast



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



3 PROPERTY

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 2022

Economy

The Hong Kong economy had a visible contraction in 2022. The poor external environment and tightened financial conditions following from sharp interest rate hikes by major central banks counted heavily on the economy.

In Q3, the value of total exports of goods dropped by 6.4% YoY. GDP dropped 4.5% YoY in the third quarter of 2022, after a drop of 1.3% YoY in the preceding quarter. Q3's GDP figure marked the worst result since Q2 2020.

The labour market was affected by the emigration wave with loss of talents across different sectors. Hong Kong saw a 3% population decline in the past two years, from 7.481 million in mid-2020 to 7.292 million in mid-2022.

In terms of unemployment rate, it continued to improve in Q3. The unemployment rate declined to 3.7% in the rolling three-month period between September and November, edged down 0.1 percentage points compared with the previous period ending in October. It was the lowest since the pandemic began in early 2020. Private consumption expenditure remained unchanged YoY in Q3. The factors such as poor market conditions, quiet property market and the stock market underwent a sharp correction have weighted on investment sentiment. Heng Seng Index plunged by 21.2% in Q3. On the other hand, retail businesses remained fragile. Despite the support by the consumption vouchers scheme and improved labour market, the total retail sales decreased by 1.1% to HK\$316 billion in the first eleven months of 2022, reflecting that the retail sector has not yet fully recovered.

On a positive note, with the further relaxation of epidemic-related measures in Q4 2022, the total number visitor arrivals between January and November 2022 increased 441.8% YoY from 81,950 to 443,986, reflecting that the tourism sector is progressively improving and the expected increase in visitor arrivals should boost the retail sales performance.

In November, the Hong Kong government predicted the GDP growth forecast for 2022 conservatively to -3.2%. Yet, we believe as long as the epidemic situation remains under control and related restrictive measures are relaxed further, economic activities should gradually return to normalcy in 2023. Nevertheless, Hong Kong's property market will continue to face external challenges such as global inflation, further interest rate rises and currency volatility.

PROPERTY COMMENTARY 2022

Residential

Amid the fluctuation of the local stock market, shrinking labour force, rising mortgage rates and deterioration of the external environment, a “wait-and-see” attitude was prevalent among buyers and homeowners, leading to a poor performance in both transaction volume and home prices in 2022. According to the government statistics, a total of 45,050 residential transactions were recorded in 2022, plunged 39.4% YoY. Supported by the low starting prices of new projects offered by developers, primary sales supported the overall market sentiment in 2022. On the contrary, the purchase confidence was weak among secondary homebuyers and some of the property owners were desperate to cash in by selling their units, thus exerting further pressure on home prices. The government statistics showed the overall residential home prices dropped 13.8% year-to-date in November 2022. The November figure reached a 5-year low. In 2022, Hong Kong’s overall stamp duty revenue from home sales recorded 2,972 cases, down 41.9% YoY, according to the Inland Revenue Department. The revenue was around HK\$5.94 billion, plunged 54.1% YoY. Both the number of cases and consideration hit a record low since 2014. It has begun to impose a certain impact on the purchasing power of the homeowners given the current actual interest rate has exceeded 3%. Yet, with the border relaxation with Chinese mainland in early January 2023, we expect market activity will gradually pick up. Looking forward to 2023, we forecast the mass and luxury residential property prices in Hong Kong to fall by 5% to 10% and 0 to 5%, respectively. The transaction volume ratio of first-hand to second-hand homes will be around 30:70, and the total residential transaction volume will be approximately 48,000 to 53,000 units in 2023.

Office

In 2022, the global economy has deteriorated significantly, resulting in poor market sentiment, affecting the overall leasing performance of Grade A office buildings. Rents in Kowloon were more stable compared to HK Island. The average rent of Hong Kong Island and Kowloon in December 2022 recorded a drop of 8.2% and 3.6% YoY, respectively, according to Knight Frank Research. In the down market, the trend of flight-to-quality persisted as occupiers continued looking for office quality upgrades at lower rents, especially in prime locations. In addition, the record-high existing vacancies and abundant upcoming supply will continue to encourage office landlords to lower rental expectations and offer flexibility to retain and attract tenants. In the next couple of years, the office market will see a supply boom. Around 3.5 million sq ft of new office supply will enter the Hong Kong Island market, mainly in Central and Quarry Bay districts. Coupled with the existing high vacancy rate, rents are expected to face a downward pressure. In the short term, some landlords will deploy substantial price reductions and offer flexibility to retain and attract tenants given the unfavorable demand-supply dynamics. Considering the global and local economic situations, the market lacks positive factors to drive market recovery. We expect office demand to remain sluggish in 2023, and the overall rents of Hong Kong Island will fall by 3% to 5% for the whole year. The Kowloon market to remain weak in the short term but see signs of bottoming out. With the border reopened with Chinese mainland and lifting of travel restrictions in place, Chinese mainland and MNCs tenants are expected to return, and Kowloon rents will slightly increase by 0% to 3% in 2023.

PROPERTY COMMENTARY 2022

Retail

Overall, Hong Kong's retail market was sluggish in 2022. Stringent anti-epidemic measures during the pandemic, the volatile stock market, inflation, and emigration wave were the major reasons for the poor retail sales in 2022. According to the latest official statistics, total retail value reached HK\$316 billion in the first eleven months of 2022, decreased 1.1% compared to the same period last year. Given the inconvenience and restrictions created by the social-distancing measures, the value of total receipts of the restaurant sector in Q3 2022 decreased by 1.8% YoY to \$24.1 billion. In Q1-Q3 2022, restaurant receipts totalled HK\$ 61.3 billion, decreasing by 9.2% YoY. The sales value of luxury goods totalled HK\$35.2 billion for January to November 2022, rose by only 0.7% from the same period last year, as luxury retailers has switched from Mainland consumers towards high-net locals with fresher concepts products and more affordable price. Online sales remained robust, online retail sales increased 21.9% in the first 11 months of the year compared with the same period in 2021, implying that consumers are increasingly opting for online purchases as the pandemic has induced a rapid development of e-commerce. Transactions for retail property fell significantly in 2022. The sales number of retail transactions in 2022 decreased by 58% YoY while the total consideration in the same period also decreased 42%. Since the social-distancing rules have been further relaxed and restrictions lift on arrivals, coupled with the partial and gradual reopening of borders, we believe retail sales are set to pick up. |In 2023, we expect to see a stable recovery trend in the retail market, but not a significant rebound. Overall, retail rents will remain under pressure owing to the longstanding vacancy rates across the board.

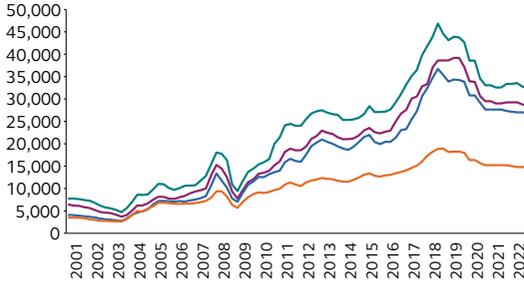
Industrial

Amid the COVID-19 pandemic and stringent social-distancing measures, people rely heavily on consumer good especially for frozen foods, driving the immediate demand for logistics sectors as cold storage usage in 2022. Hence, the industrial leasing market continued to thrive in 2022. In Q4, General industrial buildings recorded \$12.1 per sq ft per month, up 6.4% YoY. The area of Kowloon East saw the largest growth in rents which rose by 12.3% YoY. Moreover, rents of modern logistics stood at HK16.4 per sq ft per month, rose 1.4% YoY, according to Knight Frank Research. Leasing activity in 2022 was mainly supported by sizeable transactions from the logistics sector. For examples, a tenant rented 144,000 sq ft of space at Set Win Automobile Plaza in Yuen Long and another tenant rented a 140,000 sq ft space at Sun Hing Hung Kai Godown in Tuen Mun at around HK\$14 per sq ft per month. In terms of new supply, Goodman Westlink logistics in Tuen Mun received its occupation permit in Q3, which added 1,500,000 sq ft of space to the market. Yet, relocation demand of brownfield sites operators raised from land resumptions in locations like Tin Shui Wai, Yuen Long and Tuen Mun may provide some support on rents in the short term. Looking ahead, with strong leasing demand from the logistics sector amid limited supply of space, we expect industrial rents of both general industrial buildings and modern logistics to continue an upward trend in Q1 2023. According to the statistics from the Rating and Valuation Department, the new completion of 70,000 sqm of space will be provided to the industrial property market in 2023. We foresee the rents to remain flat or drop slightly in Q2 - Q4 2023, owing to the massive new supply.

PROPERTY INDICATORS

HONG KONG GRADE-A OFFICE PRICE

HK\$ per sq ft

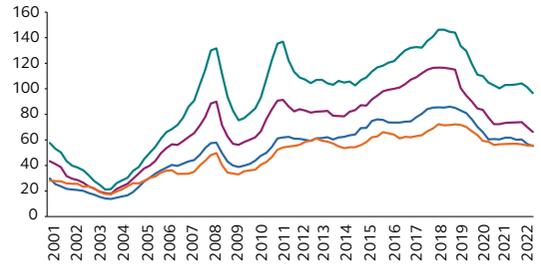


— Central — Admiralty — Sheung Wan — Tsim Sha Tsui

Source: Knight Frank Research

HONG KONG GRADE-A OFFICE RENTAL VALUES

HK\$ per sq ft per month
(net effective)

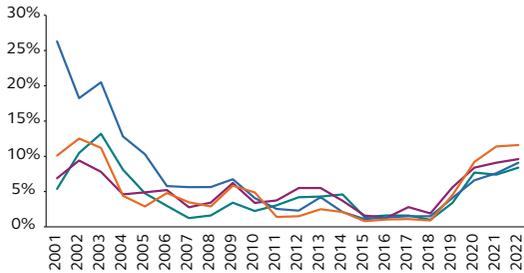


— Central — Admiralty — Sheung Wan — Tsim Sha Tsui

Source: Knight Frank Research

HONG KONG GRADE-A OFFICE VACANCY RATES

Vacancy Rate

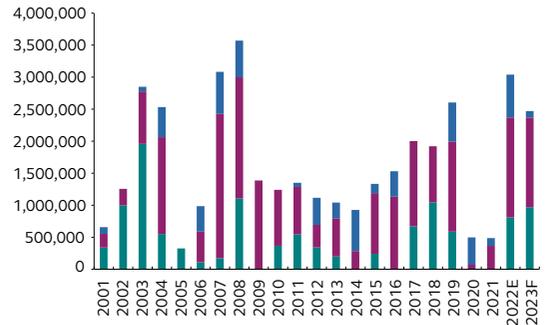


— Central — Admiralty — Sheung Wan — Tsim Sha Tsui

Source: Knight Frank Research

HONG KONG GRADE-A OFFICE SUPPLY

Internal Floor Area (sq ft)



■ Hong Kong Island ■ Kowloon ■ New Territories

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: 1. for residential buildings and with not less than 40% of the perimeter faces into open air; 2. max 50% area can be exempted; 3. the maximum area to be exempted for such platform including portion of such platform per residential unit is 0.75m ² ; 4. the size of any utility platform, including part of which to be exempted from GFA and SC calculations, is not less than 1.5m ² in area.
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 200mm for a domestic building and 250mm for non-domestic building; 4. The external reflectance of the glass used in the system does not exceed 20%; and 5. Safe access and facilities are provided for cleaning, maintenance and repair of the system.
External wall finishes (including bay windows) *	Non-accountable	Non-structural precast facades may, subject to conditions, be excluded from GFA calculation.
Plant rooms	Non-accountable	Subject to justification with reasonable plant layouts.
Staircases and lift shafts	Accountable	Except staircases and lift shafts solely serving non-accountable areas.
Covered public carparking space [#]	Accountable	Underground public car space can be exempted.

Covered private carparking space [#]	Non-accountable	Applicable only for spaces serving users of the building required under local standard and built below ground. Only 50% area can be exempted if above ground. Area above ground can only be 100% exempted under circumstances that site constraints is making underground car parks technically infeasible, or posing no adverse environmental or visual impact.
Lobby *	Accountable	Concession may be granted for lift lobbies subject to conditions.
Refuge floor	Non-accountable	
Loading and unloading bay	Non-accountable	Applicable if required under local standard/lease and built on ground floor or below ground. Only 50% area can be exempted if above ground.
Refuse storage chambers, refuse storage, refuse chutes, refuse hopper rooms	Non-accountable	
Covered area on roof-tops	Accountable	Non-accountable for plant rooms and staircases serving non-accountable area only.
Recreational facilities *	Accountable	Non-accountable subject to conditions.
Spaces for watchmen and management staff *	Accountable	Non-accountable subject to conditions.
Modular Integrated Construction	Accountable	Concession may be granted to 10% of the MIC floor area upon submission of an application.

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

@ Non-mandatory or non-essential plant room, such as A/C plant room, AHU room, are subject to a cap of 10% of the total GFA and prerequisites with sustainability designs.

Provided that the car parking spaces are EV charging-enabling.

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

NATIONAL STANDARD-
STANDARD MEASUREMENT
FOR CONSTRUCTION AREA
OF BUILDING
(GB/T 50353-2005)

REMARKS FOR BEIJING, SHANGHAI AND GUANGZHOU

FEATURE	ACCOUNTABILITY	REMARKS
General floor area	Accountable	Area within outer surface of external insulation. Shanghai : External insulation is exempted from calculation of plot ratio.
Basement	Accountable	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. Arcades 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.



4 OTHER INFORMATION

Utility Costs for Selected Asian Cities

Directory of Offices

Health & Safety Management System

Quality Management System

Environmental Management System

UTILITY COSTS FOR SELECTED ASIAN CITIES

CITY	EXCHANGE RATE	ELECTRICITY	
		DOMESTIC	COMMERCIAL/ INDUSTRIAL
	US\$1=	US\$/kWh	US\$/kWh
Hong Kong	HK\$ 7.84	0.11	0.13
Macau	MOP8.01	0.18	0.18
Shanghai	RMB 7.20	0.136 (peak) / 0.043 (normal)	4.725 Basic Tariff / 0.082 (Summer) / 0.077 (Non-Summer)
Beijing	RMB 7.20	0.060-0.098	0.169-0.171 (peak) / 0.105-0.107(normal)
Guangzhou	RMB 7.20	0.081-0.122	0.087-0.108
Chongqing	RMB 7.20	0.071-0.114	0.077-0.091

The above costs are at 4th Quarter 2022 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\$ 0.13/kWh;
1,000-1,800kWh= US\$ 0.15/kWh; 1,800-2,600kWh=US\$ 0.19/kWh;
2,600-3,400kWh= US\$ 0.22/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\$ 0.53/m³;
43-62m³ =US\$ 0.82/m³; Above 62m³ =US\$ 1.15/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** 92# = US\$1.063/litre; 95# = US\$1.122/litre

WATER		FUEL		
DOMESTIC	COMMERCIAL/ INDUSTRIAL	DIESEL	LEADED	UNLEADED
US\$/m ³	US\$/m ³	US\$/litre	US\$/litre	US\$/litre
0.82	0.58	2.65	N/A	2.95
0.56-0.91	0.75	2.03	N/A	1.79
0.479-0.810	0.69	1.06	N/A	1.17
0.617-1.112	1.112-1.172	1.01	N/A	1.12
0.275-0.55	0.48	1.01	N/A	1.06
0.462-0.78	0.60	1.02	N/A	1.122

Basis of Charges in Shanghai, China

- Electricity - Domestic** (Charge on yearly consumption) :
0-3,120kWh =US\$ 0.108/kWh (peak) / US\$ 0.043/kWh (normal);
3,120-4,800kWh =US\$ 0.119/kWh (peak) / US\$ 0.060/kWh (normal);
Above 4,800kWh =US\$ 0.136/kWh (peak) / US\$0.086/kWh (normal)
- Electricity - Commercial/Industrial** (Charge on yearly consumption):
In dual tariff system; and in rate of 10 kVa
- Unleaded Fuel** = Unleaded fuel rate is for Unleaded 95#

Basis of Charges in Beijing, China

- Electricity - Domestic** (below 1kV) :
1-240kWh = US\$0.060/kWh; 241-400 kWh = US\$0.084/kWh;
Above 400kWh = US\$0.098/kWh
- Electricity - Commercial/Industrial** (1-10kV) :
Central Districts: US\$0.171/kWh(peak); US\$0.107/kWh(normal)
Other Districts= US\$0.169/kWh(peak); US\$0.105/kWh(normal)
- Water - Domestic**: (Charge on yearly consumption) :
1-180m³ = US\$0.617/m³; 181-260m³ = US\$1.094/m³
Above 261m³ = US\$1.112/m³
- Water - Commercial/Industrial** :
Central Districts: US\$1.172/m³; Other Districts= US\$1.112/m³

Basis of Charges in Guangzhou, China

- Unleaded Fuel** = Unleaded fuel rate is for Unleaded gasoline 92# 95# = US\$ 1.144/litre

(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	0.22	0.22
Kuala Lumpur	RM 4.41	0.049-0.130	0.086-0.115
Bangkok	BAHT 34.545	0.068-0.128	0.090-0.092
Manila	PHP 56.12	0.118-0.205	0.180
Ho Chi Minh	VND 23,730	0.12	0.103/0.057
Bangalore	INR 81.50	0.085-0.120	0.110-0.165
New Delhi	INR 81.50	0.023-0.119	0.191
Jakarta	DR 15,538	0.093	0.093

The above costs are at 4th Quarter 2022 levels.

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

- Electricity tariff is based on low tension power supply.
- Domestic water tariff effective from 1 July 2018.
Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for the 1st 40m³
- Domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water borne fee, sanitary appliance fee and is an average for the usage after the 1st 40m³
- Non-domestic water tariff effective from 1 July 2018.
Rate includes water conservation tax, water-borne fee, and sanitary appliance fee
- Diesel fuel = as at 17 November 2021.
- Unleaded Fuel = 98 Unleaded petrol as at 17 November 2021.

Basis of Charges in Kuala Lumpur, Malaysia

- Fuel = Rates for 15-21 December 2022. Unleaded petrol Ron 95.
- Water (Domestic): Rates for residential with individual meter.
- Electricity (Commercial/Industrial): 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
2.06/ 2.77	2.06	1.92	N/A	2.44
0.129-0.454	0.470-0.517	0.488	N/A	0.465
0.246-0.418	0.275-0.458	1.011	N/A	0.997
0.399-0.455	2.179	1.172	N/A	1.225
0.28	0.898/0.51	0.91	N/A	0.87
0.680-0.855	1.65	1.080	N/A	1.301
0.08-0.67	0.55-2.60	1.090	N/A	1.300
0.068-0.479	0.439-0.808	1.21	N/A	0.895

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

Basis of Charges in Manila, Philippines

- **Electricity**
Domestic : 63kWh - 560kWh
Commercial/Industrial : 10,369kWh
- **Water**
Domestic : 20m³-23m³
Commercial/Industrial : 3m³

Basis of Charges in Jakarta, Indonesia

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

Source of data: **Singapore** - Asia Infrastructure Solutions Singapore Pte. Ltd.
Kuala Lumpur - JUBM Group. **Bangkok** - Mentabuild Limited. **Ho Chi Minh** - DLS Consultant Company Limited. **Bangalore** / **New Delhi** - Arkind LS Private Limited.
Jakarta - PT Lantera Sejahtera Indonesia.

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HEALTH & SAFETY MANAGEMENT SYSTEM

Based on the recognized international standards of ISO 45001, We have implemented a Health and Safety Management System which is part of our Integrated 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 enveloped in a supportive culture, our staff is encouraged to not only actively identify the H&S related internal and external factors and conditions that could affect, or be affected by, us, but also feel empowered to talk about their mental health and well-being by reaching out to the Arcadis employee assistance programme (EAP).

Committed to making our business a safe, healthy and sustainable place to work, Arcadis strives to excel ourselves to achieve zero incidents in everything we do ensuring the health, safety and well-being of our staff and stakeholders. We also 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 strive for operation with greater efficiency, we now focus on digitalizing the workflows and processes associated with the documents and quality activities.

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 care about our environment and are committed to conducting all our activities in an environmental friendly manner. With our management system certified to ISO 14001:2015, we have an ambition of reducing our operations' carbon footprint in alignment with limiting global warming to 1.5°C and even achieve net zero by 2035.

In 2020, we set up an Asia Core Sustainability Team to help drive and implement the Asia Sustainability Strategy in each of our markets in Asia. This year a series of Sustainability Knowledge Café sessions, sharing environmental topics such as waste management and climate change, have already been held by inviting all interested staff to join via Teams Meeting. To show our concern over environment, our environmental data is now treated at the same level of importance as our financial data and a year-end external audit for such data will be carried out.

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



About Arcadis

Arcadis is the leading global design & consultancy organization for natural and built assets. We maximize impact for our clients and the communities they serve by providing effective solutions through sustainable outcomes, focus and scale, and digitalization. We are 36,000 people, active in more than 70 countries that generate €4.2 billion in gross revenues.

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