

JUBM & Arcadis Construction Cost Handbook MALAYSIA 2020

JUBM Sdn Bhd (27638-X)

Arcadis (Malaysia) Sdn Bhd (520443-H)

Arcadis Projekts Sdn Bhd (233819-K)

KDN PP10466/05/2013(032500)



Imperia
Condominium &
Office, Puteri Harbour,
Johor

Etiqa Office Tower,
Kuala Lumpur

Four Seasons, Kuala Lumpur

Women Children Hospital, Kuala Lumpur

Central Plaza I-City, Selangor

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

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

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

As Arcadis (Malaysia) Sdn Bhd, we are one of the largest and longest established Quantity Surveying practices in the country. Together with our collaborative partner, JUBM Sdn Bhd, we offer a multi-disciplinary construction cost consultancy service and provides integrated solutions to our clientele throughout Malaysia working from five offices in Kuala Lumpur, Penang, Johor Bahru, Kota Kinabalu and Kuching.

We provide our specialist services to nearly all market segments in the construction industry from religious buildings to residential homes, hospitality to corporate headquarters, mixed use developments to master planning.

The diverse range of project experience provides us with a rich and extensive construction cost database which enables the company to handle the simplest to the most complex projects entrusted by clients who recognized our value and dynamism.

(Log on to www.arcadis.com for more details.)

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.

A Selection of Our Projects

Commercial

1. Mercu 3, KL Eco City, Kuala Lumpur 2017
2. Damansara City 2 Office Tower, Kuala Lumpur 2017
3. Imperia Office Tower, Puteri Harbour, Johor 2015
4. Environmental Preservation and Innovation Centre (EPIC), Negeri Sembilan 2017
5. Etiqa Office Tower, Kuala Lumpur 2018
6. Sunway Nexis, Selangor 2014

Retail

7. KLP Fashion Avenue, Kuala Lumpur 2012
8. Sunway Velocity, Kuala Lumpur 2016
9. Central Plaza I-City, Selangor 2019
10. Setia Walk, Selangor 2014

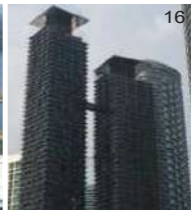
Residential

11. Pandora Service Apartment, Selangor 2016
12. Imperia Condominium, Puteri Harbour, Johor 2015
13. Pantai Sentral Park, Kuala Lumpur 2018
14. Irama Wangsa Condominiums, Kuala Lumpur 2018
15. Setia Sky Residences, Kuala Lumpur 2016
16. Le Nouvel Condominium, Kuala Lumpur 2016

Hospitality, Sports & Leisure

17. Legoland Malaysia Theme Park, Johor 2012
18. Four Seasons, Kuala Lumpur 2018
19. St. Regis, Kuala Lumpur 2017
20. Sofitel Damansara City, Kuala Lumpur 2017
21. Setia Subterranean Penang International Convention & Exhibition Centre (SPICE), Penang 2017
22. Malaysia International Trade and Exhibition Centre (MITEC), Kuala Lumpur 2016
23. Pavilion Hotel, Kuala Lumpur 2018
24. Ritz Carlton Langkawi, Kedah 2017
25. Impression Theatre, Melaka 2018





(Cont'd)

(Cont'd)

A Selection of Our Projects

Healthcare

- 26. Women Children Hospital, Kuala Lumpur 2017
- 27. Sunway Medical Centre, Selangor 1998
- 28. Pantai Hospital (Extension), Kuala Lumpur 2015
- 29. UCSI Hospital, Negeri Sembilan 2019

Private Educational

- 30. Universiti Teknologi Petronas, Perak 2003
- 31. Sunway Monash University, Selangor 2007
- 32. Tropicana International School, Selangor 2016
- 33. Asia Pacific Univeristy Campus, Kuala Lumpur 2016
- 34. Wesley Methodist International School, Penang 2018

Transport & Infrastructure

- 35. Electrified Double Track-Padang Besar to Ipoh (Station Building) 2014
- 36. 6 Stations for Kelana Jaya LRT Line Extension, Kuala Lumpur 2014
- 37. KVMRT Sungai Buloh - Kajang Line 2017
- 38. KVMRT Sungai Buloh - Putrajaya Line 2022
- 39. Semangar Water Treatment Plant (Extension), Johor 2017
- 40. Integrated Water Supply, Kuala Lumpur 2008
- 41. Bus Rapid Transit (BRT) Sunway 2015

Industrial

- 42. PML Production Facility, Selangor 2011
- 43. Giant Distribution Centre (Sepang), Selangor 2009
- 44. Perodua - Second National Car Plant, Selangor 1994

Religious Buildings

- 45. Masjid Jamek Abdullah Hukum, KL Eco City, Kuala Lumpur 2016
- 46. Lutheran Bible Training Institute, Selangor 2010

Public

- 47. Brunei Chancery, Putrajaya 2017
- 48. Citizenship and Immigration Canada (CIC) Annexe of Canadian High Commission, Kuala Lumpur 2004
- 49. Federal Government Administrative Centre, Putrajaya 2010
- 50. IBS Housing, Putrajaya 2011



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45



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2020

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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2021

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S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31	



CONSTRUCTION COST DATA

1

Construction Cost Specification

Kuala Lumpur Construction Cost Trend
(2009 - 2019)

Construction Costs for Kuala Lumpur

Construction Costs for Johor Bahru

Construction Costs for Penang

Construction Costs for Kota Kinabalu

Construction Costs for Kuching

Construction Costs for Selected
Asian Cities

Major Rates for Malaysia

Major Rates for Selected Asian Cities

ACMV Costs for Various Designs &
Developments in Kuala Lumpur

M&E Costs for Selected Asian Cities

Unit Costs for Ancillary Facilities
for Kuala Lumpur

Fit-Out Costs for Kuala Lumpur

CONSTRUCTION COST SPECIFICATION

BUILDING TYPE		OUTLINE SPECIFICATION
DOMESTIC	Apartment, high rise, average standard	Apartment units with fit-out, but excluding decorative light fittings and loose furniture. (Malaysia only) 6-12 units per floor, excluding air-conditioning, kitchen cabinets and home appliances.
	Apartment, high rise, high end	Apartment units with good quality fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings and loose furniture.
	Terraced houses, average standard	Houses with fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings, loose furniture, garden and parking. (Malaysia only) Excluding air-conditioning, kitchen cabinets and home appliances.
	Detached houses, high end	Houses with good quality fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings, loose furniture, garden and parking.
	Medium/high rise offices, average standard High rise offices, prestige quality	RC structure, curtain wall, including public area fit-out, tenant area with raised floor/carpet, painted wall and false ceiling. (Malaysia only) Average standard quality offices exclude tenant fit-out and raised floor. Prestige quality offices exclude tenant fit-out.
OFFICE/ COMMERCIAL	Out-of-town shopping centre, average standard Retail malls, high end	Including public area fit-out and M&E, but excluding shop fit-out.
	Budget hotels - 3-star, mid market Business hotels - 4/5 -star Luxury hotels - 5-star	1) Interior decoration 2) Furniture (fixed and movable) 3) Special light fittings (chandeliers, etc.) 4) Operating Supplies and Equipment (OS&E) excluded .
HOTELS	Industrial units, shell only (Conventional single storey framed units)	RC structure with steel roof and M&E to main distribution, but excluding air-conditioning, heating and lighting.
	Owner operated factories, low rise, light weight industry	RC structure, including small office with simple fit-out and M&E, but excluding air-conditioning and heating.
INDUSTRIAL		

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)	Including fit-out and air-conditioning, but excluding educational equipment. (Malaysia only) Schools with standard government provisions.
Students' residences	Including fit-out, loose furniture and air-conditioning. (Malaysia only) Student hostels to 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.

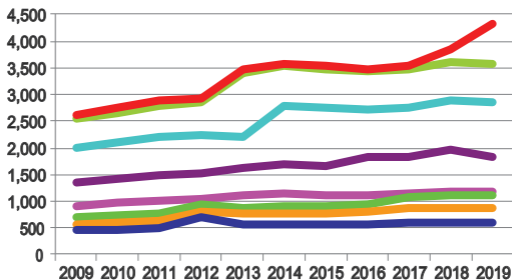
Notes:

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. All buildings are assumed to have no basements (except otherwise stated) and are built on flat ground, with normal soil and site condition. The cost excludes site formation works, external works, land cost, professional fees, finance and legal expenses.
4. The standard for each category of building varies from region to region and do not necessary follow that of each other.
5. All costs are in US\$/m² CFA unless otherwise stated. Fluctuation in exchange rates may lead to changes in construction costs expressed in U. S. dollars.

KUALA LUMPUR CONSTRUCTION COST TREND (2009 - 2019)

Domestic

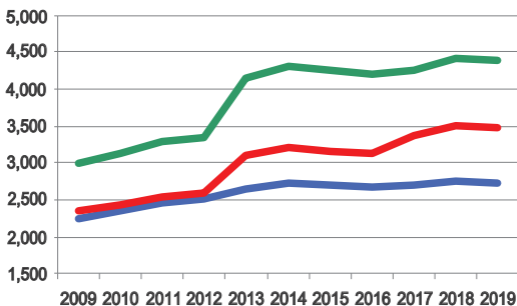
RM/m²



- Bungalows (mass housing)
- Terraced houses
- Average standard apts high rise
- Low cost flats, low rise (<6 levels)
- Detached houses and bungalows
- Luxury apts, high rise
- Low cost flats, high rise (<15 levels)
- Low cost housing

Office/Commercial

RM/m²

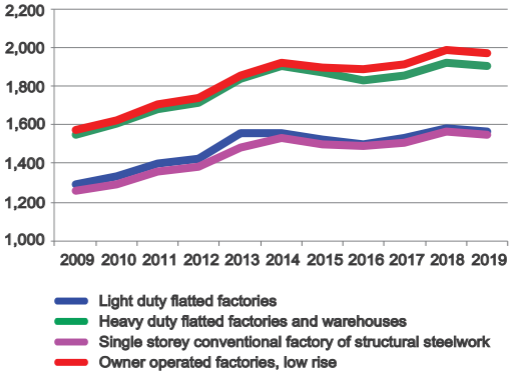


- Average standard offices, high rise
- Prestige offices, high rise
- Shopping Centres

All costs are at an average level unless otherwise stated

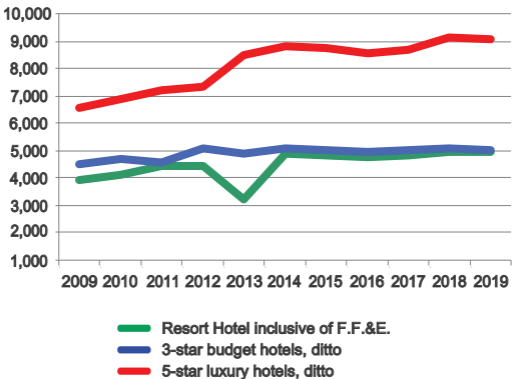
Industrial

RM/m²



Hotels

RM/m²



All costs are at an average level unless otherwise stated

1 CONSTRUCTION COST DATA

CONSTRUCTION COSTS FOR KUALA LUMPUR

	RM/m ²								
	BUILDING		SERVICES		TOTAL				
<u>DOMESTIC</u>									
Detached houses (mass housing)	1,580	-	2,230	790	-	1,065	2,370	-	3,295
Detached houses (high end)	2,230	-	3,040	795	-	1,065	3,025	-	4,105
Terraced houses	705	-	1,135	195	-	305	900	-	1,440
Average standard apartments, high rise	1,000	-	1,925	240	-	500	1,240	-	2,425
Luxury apartments, high rise	2,115	-	4,550	795	-	1,150	2,910	-	5,700
Low cost housing	440	-	525	110	-	130	550	-	655
Low cost flats, low rise (<6 levels)	615	-	720	180	-	215	795	-	935
Low cost flats, high rise (<15 levels)	720	-	925	250	-	325	970	-	1,250
<u>OFFICE / COMMERCIAL</u>									
Average standard offices, high rise	1,480	-	1,935	880	-	1,170	2,360	-	3,105
Prestige offices, high rise	2,150	-	3,505	1,400	-	1,735	3,550	-	5,240
Shopping centres	1,945	-	2,765	835	-	1,415	2,780	-	4,180
<u>HOTELS</u>									
Resort hotels, inclusive of F.F.&E.	3,170	-	3,725	1,265	-	1,700	4,435	-	5,425
3-star budget hotels, ditto	3,295	-	4,630	875	-	1,210	4,170	-	5,840
5-star luxury hotels, ditto	6,115	-	7,830	1,820	-	2,350	7,935	-	10,180

INDUSTRIAL									
Light duty flatted factories	870	-	1,025	580	-	665	1,450	-	1,690
Heavy duty flatted factories and warehouses	1,135	-	1,315	640	-	725	1,775	-	2,040
Single storey conventional factory of structural steelwork	960	-	1,275	345	-	525	1,305	-	1,800
Owner operated factories, low rise	1,275	-	1,535	490	-	645	1,765	-	2,180
OTHERS									
Basement car parks (<3 levels)	910	-	1,535	370	-	680	1,280	-	2,215
Elevated car parks (<4 levels)	715	-	1,105	185	-	335	900	-	1,440
Primary and Secondary schools	820	-	1,040	200	-	245	1,020	-	1,285
Student hostels	970	-	1,175	245	-	340	1,215	-	1,515
Sports clubs inclusive of F.F.&E.	1,880	-	2,320	550	-	725	2,430	-	3,045

The above costs are at 4th Quarter 2019 levels, inclusive of preliminaries (10%) but exclusive of contingencies.

CONSTRUCTION COSTS FOR JOHOR BAHRU

	RM/m ²			TOTAL
	BUILDING	SERVICES		
<u>DOMESTIC</u>				
Detached houses (mass housing)	1,600	750	950	2,350
Detached houses (high end)	2,250	800	1,000	3,050
Terraced houses	800	200	350	1,000
Average standard apartments, high rise	1,200	300	550	1,500
Luxury apartments, high rise	2,435	600	900	3,035
Low cost housing	450	105	145	555
Low cost flats, low rise (<6 levels)	600	155	215	755
Low cost flats, high rise (<15 levels)	685	230	260	915
<u>OFFICE / COMMERCIAL</u>				
Average standard offices, high rise	1,500	775	1,100	2,275
Prestige offices, high rise	2,150	1,350	1,650	3,500
Shopping centres	1,950	855	1,190	2,805
<u>HOTELS</u>				
Resort hotels, inclusive of F.F.&E.	3,250	1,250	1,600	4,500
3-star budget hotels, ditto	3,350	780	1,450	4,130
5-star luxury hotels, ditto	6,050	1,900	2,050	7,950

INDUSTRIAL									
Light duty flattened factories	900	-	915	520	-	675	1,420	-	1,590
Heavy duty flattened factories and warehouses	1,150	-	1,250	580	-	750	1,730	-	2,000
Single storey conventional factory of structural steelwork	980	-	1,175	350	-	500	1,330	-	1,675
Owner operated factories, low rise	1,300	-	1,430	500	-	600	1,800	-	2,030
OTHERS									
Basement car parks (<3 levels)	1,000	-	1,300	300	-	400	1,300	-	1,700
Elevated car parks (<4 levels)	650	-	850	210	-	290	860	-	1,140
Primary and Secondary schools	825	-	950	200	-	235	1,025	-	1,185
Student hostels	965	-	1,050	250	-	300	1,215	-	1,350
Sports clubs inclusive of F.F.&E.	1,850	-	2,105	550	-	670	2,400	-	2,775

The above costs are at 4th Quarter 2019 levels, inclusive of preliminaries (10%) but exclusive of contingencies.

1 CONSTRUCTION COST DATA

CONSTRUCTION COSTS FOR PENANG

	RM/m ²			
	BUILDING	SERVICES	TOTAL	
<u>DOMESTIC</u>				
Detached houses (mass housing)	1,455	920	2,375	2,755
Detached houses (high end)	1,940	825	2,765	2,925
Terraced houses	715	150	865	1,320
Average standard apartments, high rise	1,070	320	1,390	1,755
Luxury apartments, high rise	1,635	755	2,390	3,160
Low cost housing	460	85	545	595
Low cost flats, low rise (<6 levels)	565	145	710	805
Low cost flats, high rise (<15 levels)	785	120	905	995
<u>OFFICE / COMMERCIAL</u>				
Average standard offices, high rise	1,435	865	2,300	2,805
Prestige offices, high rise	1,950	1,350	3,300	4,335
Shopping centres	1,575	850	2,425	3,110
<u>HOTELS</u>				
Resort hotels, inclusive of F.F.&E.	2,905	1,150	4,055	4,755
3-star budget hotels, ditto	2,945	970	3,915	5,585
5-star luxury hotels, ditto	5,715	1,920	7,635	9,170

<u>INDUSTRIAL</u>									
Light duty flattened factories	775	-	915	530	-	715	1,305	-	1,630
Heavy duty flattened factories and warehouses	925	-	1,125	595	-	760	1,520	-	1,885
Single storey conventional factory of structural steelwork	785	-	950	495	-	570	1,280	-	1,520
Owner operated factories, low rise	1,020	-	1,265	510	-	615	1,530	-	1,880
<u>OTHERS</u>									
Basement car parks (<3 levels)	845	-	1,385	325	-	565	1,170	-	1,950
Elevated car parks (<4 levels)	625	-	845	190	-	325	815	-	1,170
Primary and Secondary schools	670	-	895	200	-	255	870	-	1,150
Student hostels	870	-	985	215	-	280	1,085	-	1,265
Sports clubs inclusive of F.F.&E.	1,580	-	1,800	545	-	715	2,125	-	2,515

The above costs are at 4th Quarter 2019 levels, inclusive of preliminaries (10%) but exclusive of contingencies.

1 CONSTRUCTION COST DATA

CONSTRUCTION COSTS FOR KOTA KINABALU

	RM/m ²			
	BUILDING	SERVICES	TOTAL	TOTAL
<u>DOMESTIC</u>				
Detached houses (mass housing)	1,540	430	1,970	2,190
Detached houses (high end)	2,350	1,015	3,365	4,110
Terraced houses	790	285	1,075	1,390
Average standard apartments, high rise	1,050	355	1,405	2,010
Luxury apartments, high rise	2,460	945	3,405	4,060
Low cost housing	420	120	540	625
Low cost flats, low rise (<6 levels)	540	165	705	775
Low cost flats, high rise (<15 levels)	610	210	820	890
<u>OFFICE / COMMERCIAL</u>				
Average standard offices, high rise	1,580	880	2,460	2,805
Prestige offices, high rise	2,240	1,465	3,705	4,995
Shopping centres	1,610	880	2,490	3,195
<u>HOTELS</u>				
Resort hotels, inclusive of F.F.&E.	3,350	1,190	4,540	5,010
3-star budget hotels, ditto	4,080	1,450	5,530	6,155
5-star luxury hotels, ditto	6,320	2,330	8,650	9,950

INDUSTRIAL									
Light duty flattened factories	930	-	990	430	-	525	1,360	-	1,515
Heavy duty flattened factories and warehouses	1,190	-	1,260	500	-	570	1,690	-	1,830
Single storey conventional factory of structural steelwork	990	-	1,240	355	-	430	1,345	-	1,670
Owner operated factories, low rise	1,330	-	1,500	430	-	510	1,760	-	2,010
OTHERS									
Basement car parks (<3 levels)	1,000	-	1,190	250	-	285	1,250	-	1,475
Elevated car parks (<4 levels)	670	-	860	185	-	220	855	-	1,080
Primary and Secondary schools	720	-	850	235	-	370	955	-	1,220
Student hostels	960	-	1,030	260	-	285	1,220	-	1,315
Sports clubs inclusive of F.F.&E.	1,910	-	2,050	720	-	880	2,630	-	2,930

The above costs are at 4th Quarter 2019 levels, inclusive of preliminaries (10%) but exclusive of contingencies.

CONSTRUCTION COSTS FOR KUCHING

	RM/m ²			TOTAL
	BUILDING	SERVICES		
<u>DOMESTIC</u>				
Detached houses (mass housing)	1,175 -	480 -	630	1,655 -
Detached houses (high end)	1,785 -	830 -	1,000	2,615 -
Terraced houses	1,030 -	170 -	220	1,200 -
Average standard apartments, high rise	1,215 -	310 -	410	1,525 -
Luxury apartments, high rise	1,815 -	945 -	1,200	2,760 -
Low cost housing	575 -	115 -	145	690 -
Low cost flats, low rise (<6 levels)	795 -	160 -	190	955 -
Low cost flats, high rise (<15 levels)	845 -	165 -	240	1,010 -
<u>OFFICE / COMMERCIAL</u>				
Average standard offices, high rise	1,570 -	930 -	1,095	2,500 -
Prestige offices, high rise	1,870 -	1,570 -	1,690	3,440 -
Shopping centres	1,765 -	810 -	1,005	2,575 -
<u>HOTELS</u>				
Resort hotels, inclusive of F.F.&E.	2,815 -	1,405 -	1,690	4,220 -
3-star budget hotels, ditto	3,010 -	1,590 -	1,740	4,600 -
5-star luxury hotels, ditto	4,805 -	2,435 -	2,590	7,240 -

INDUSTRIAL									
Light duty flattened factories	1,040	-	1,255	360	-	390	1,400	-	1,645
Heavy duty flattened factories and warehouses	1,120	-	1,310	415	-	490	1,535	-	1,800
Single storey conventional factory of structural steelwork	925	-	1,020	310	-	450	1,235	-	1,470
Owner operated factories, low rise	1,130	-	1,280	440	-	525	1,570	-	1,805
OTHERS									
Basement car parks (<3 levels)	1,070	-	1,320	365	-	390	1,435	-	1,710
Elevated car parks (<4 levels)	835	-	945	220	-	245	1,055	-	1,190
Primary and Secondary schools	980	-	1,070	210	-	340	1,190	-	1,410
Student hostels	1,155	-	1,320	240	-	315	1,395	-	1,635
Sports clubs inclusive of F.F.&E.	1,815	-	1,990	720	-	875	2,535	-	2,865

The above costs are at 4th Quarter 2019 levels, inclusive of preliminaries (10%) but exclusive of contingencies.

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

	US\$/m ²			
	KUALA LUMPUR	BANGKOK*	MANILA@	SINGAPORE^
DOMESTIC				
Apartments, high rise, average standard	300 - 585	801 - 951	968 - 1,197	1,340 - 1,485
Apartments, high rise, high end	700 - 1,375	1,068 - 1,319	1,287 - 2,276	2,065 - 3,045
Terraced houses, average standard	215 - 345	501 - 618	942 - 1,153	1,740 - 1,920
Detached houses, high end	730 - 990	868 - 1,052	1,830 - 3,103	2,210 - 2,900
OFFICE / COMMERCIAL				
Medium/high rise offices, average standard	570 - 750	801 - 951	958 - 1,152	1,740 - 1,920 ⁺
High rise offices, prestige quality	855 - 1,265	1,002 - 1,285	1,287 - 1,616	1,955 - 2,100 ⁺
Out-of-town shopping centre, average standard	540 - 720	684 - 885	814 - 1,014	1,955 - 2,030
Retail malls, high end	670 - 1,005	918 - 968	1,112 - 1,558	2,065 - 2,245
HOTELS				
Budget hotels - 3 star, mid market	1,005 - 1,405	1,252 - 1,385	1,216 - 1,356	2,175 - 2,355
Business hotels - 4/5 star	1,325 - 2,190	1,602 - 1,836	1,371 - 2,290	2,790 - 3,115
Luxury hotels - 5 star	1,910 - 2,455	1,869 - 2,170	1,884 - 3,158	2,790 - 3,115

INDUSTRIAL							
Industrial units, shell only. (Conventional single storey framed units).	315 - 435	534 - 688	519 - 584	760 - 930			
Owner operated factories, low rise, light weight industry	425 - 525	N/A	697 - 872	N/A			
OTHERS							
Underground/basement car parks (<3 levels)	310 - 535	601 - 801	502 - 750	940 - 1,255			
Multi storey car parks, above ground (<4 levels)	215 - 345	200 - 327	483 - 683	650 - 930 ⁺⁺			
Schools (primary & secondary)	245 - 310	N/A	713 - 984	N/A			
Students' residences	295 - 365	N/A	755 - 968	1,595 - 1,705			
Sports clubs, multi purpose sports/leisure centres (dry sports)	585 - 735	N/A	1,207 - 1,756	1,995 - 2,100			
General hospitals - public sector	840 - 1,160	N/A	1,450 - 1,665	2,790 - 2,900			
Exchange Rate Used : US\$1 =	RM 4.15	BAHT 29.96	PHP 51.05	S\$ 1.38			

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

* Rates exclude VAT and contingencies.

@ Rates are exclusive of contingencies & include 12% VAT.

^ Rates are nett of GST and exclusive of contingencies.

+ Includes raised floor and ceiling to tenanted areas but excludes office carpets (normally under tenant's fit-out)

++ Open all sides with parapet.

(Cont'd)

1 CONSTRUCTION COST DATA

(Cont'd)

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

	US\$/m ²			
	HO CHI MINH#	INDIA *	HONG KONG ^	MACAU\$
<u>DOMESTIC</u>				
Apartments, high rise, average standard	650 - 806	570 - 653	3,020 - 3,490	2,233 - 2,731
Apartments, high rise, high end	827 - 948	860 - 1,035	3,910 - 4,550	3,118 - 4,765
Terraced houses, average standard	438 - 514	394 - 414	4,120 - 4,770	3,805 - 4,541
Detached houses, high end	500 - 610	520 - 544	6,040 up	4,641 - 6,038
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	760 - 880	430 - 465	2,950 - 3,410	2,570 - 3,318
High rise offices, prestige quality	877 - 1,195	538 - 570	3,550 - 4,120	3,318 - 3,630
Out-of-town shopping centre, average standard	N/A	420 - 455	2,940 - 3,450	2,420 - 3,630
Retail malls, high end	710 - 930	585 - 632	3,840 - 4,580	3,805 - 4,591
<u>HOTELS</u>				
Budget hotels - 3 star, mid market	1,410 - 1,725	808 - 895	3,800 - 4,040	3,381 - 3,830
Business hotels - 4/5 star	N/A	1,258 - 1,491	3,940 - 4,580	4,591 - 5,488
Luxury hotels - 5 star	1,780 - 2,137	1,590 - 1,740	4,580 - 5,270	5,488 - 6,487

INDUSTRIAL						
Industrial units, shell only. (Conventional single storey framed units).	312 - 393	336 - 394	N/A	N/A	N/A	
Owner operated factories, low rise, light weight industry	353 - 465	357 - 420	2,290 - 2,880	N/A	N/A	
OTHERS						
Underground/basement car parks (<3 levels)	645 - 770	285 - 305	3,200 - 3,840	2,008 - 2,944		
Multi storey car parks, above ground (<4 levels)	415 - 455	227 - 249	1,920 - 2,280	1,110 - 1,460		
Schools (primary & secondary)	545 - 595	282 - 320	2,490 - 2,690	2,220 - 2,570		
Students' residences	545 - 700	305 - 335	2,860 - 3,250	1,759 - 2,046		
Sports clubs, multi purpose sports/leisure centres (dry sports)	806 - 862	595 - 620	3,750 - 4,320	N/A		
General hospitals - public sector	N/A	653 - 715	4,800 - 5,350	N/A		
Exchange Rate Used : US\$1 =	VND 23,300	INR 71.11	HK\$ 7.82	MOP 8.06		

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

Rates are nett of VAT and contingencies.

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

^ Rates are exclusive of contingencies. Offices of average standard are built to the following provisions:

(i) Curtain wall/window wall facade.

(ii) Tenant are with screeded floor, painted wall and ceiling.

Schools (primary and secondary) are of public authority standard, no a/c and complete with basic external works.

\$ Rates are exclusive of contingencies and any management contract fee.

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CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

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

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

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

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

MAJOR RATES FOR MALAYSIA

	RM				
	KUALA LUMPUR	PENANG	JOHOR BAHRU	KOTA KINABALU	KUCHING
1. Excavating basement ≤ 2m deep	m ³ 15.0 - 25.0	18.0 - 30.0	20.0 - 35.0	14.0	22.0
2. Excavating for footings ≤ 1.5m deep	m ³ 15.0 - 25.0	18.0 - 25.0	18.0 - 30.0	20.0	22.0
3. Remove excavated materials off site	m ³ 18.0 - 30.0	15.0 - 30.0	18.0 - 28.0	18.5	24.0
4. Hardcore bed blinded with fine materials	m ³ 72.0 - 100.0	80.0 - 100.0	75.0 - 110.0	100.0	105.0
5. Mass concrete grade 15	m ³ 220.0 - 295.0	240.0 - 280.0	265.0	350.0	360.0
6. Reinforced concrete grade 30	m ³ 240.0 - 300.0	260.0 - 300.0	290.0	395.0	400.0
7. Mild steel rod reinforcement	kg 3.25 - 3.70	3.20 - 3.80	3.40 - 3.80	4.00	3.95
8. High tensile rod reinforcement	kg 3.25 - 3.70	3.20 - 3.80	3.40 - 3.80	4.00	3.95
9. Sawn formwork to soffits of suspended slabs	m ² 36.0 - 46.0	38.0 - 45.0	42.0 - 50.0	45.0	48.0
10. Sawn formwork to columns and walls	m ² 36.0 - 46.0	38.0 - 45.0	42.0 - 50.0	45.0	48.0
11. 112.5mm thick brick walls	m ² 42.0 - 50.0	42.0 - 50.0	45.0 - 55.0	51.0	50.0
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ² 70.0 - 85.0	75.0 - 95.0	85.0	96.0	100.0
13. Aluminium casement windows, single glazed	m ² 380.0 - 600.0	280.0 - 420.0	300.0 - 350.0	300.0 - 350.0	360.0

14. Structural steelwork - beams, stanchions and the like	kg	6.00 - 9.00	6.50 - 8.00	5.50 - 7.00	7.00 - 7.50	9.00
15. Steelwork - angles, channels, flats and the like	kg	6.00 - 9.00	6.50 - 8.00	5.50 - 6.50	6.50 - 7.00	9.00
16. 25mm cement and sand (1:3) paving	m ²	17.0 - 26.0	20.0 - 28.0	25.0	25.0	26.0
17. 20mm cement and sand (1:4) plaster to walls	m ²	18.0 - 26.0	22.0 - 28.0	28.0	25.0	26.0
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	50.0 - 75.0	60.0 - 90.0	65.0 - 80.0	80.0	100.0
19. 12mm fibrous plasterboard ceiling lining	m ²	35.0 - 45.0	35.0 - 45.0	38.0 - 45.0	48.0	62.0
20. Two coats of emulsion paint to plastered surfaces	m ²	3.40 - 5.00	4.00 - 8.50	3.50 - 5.50	7.80	10.0
Average expected preliminaries	%	6 - 15	3 - 7	6 - 10	5 - 7	10

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

MAJOR RATES FOR SELECTED ASIAN CITIES

	KUALA LUMPUR RM	BANGKOK* BAHT	MANILA PHP	SINGAPORE® S\$
1. Excavating basement ≤ 2m deep	m ³ 15 - 25	120 - 140	270	20
2. Excavating for footings ≤ 1.5m deep	m ³ 15 - 25	120 - 140	538	20
3. Remove excavated materials off site	m ³ 18 - 30	120 - 150	350	15 - 20
4. Hardcore bed blinded with fine materials	m ³ 72 - 100	650 - 750	1,400 - 1,600	50
5. Mass concrete grade 15	m ³ 220 - 295	2,300 - 2,500	4,400	177 - 187*
6. Reinforced concrete grade 30	m ³ 240 - 300	2,800 - 3,200	4,899	117 - 122
7. Mild steel rod reinforcement	kg 3.25 - 3.70	25 - 28	51 - 55	1.25 - 1.35
8. High tensile rod reinforcement	kg 3.25 - 3.70	24 - 27	52 - 55	1.25 - 1.35
9. Sawn formwork to soffits of suspended slabs	m ² 36 - 46	450 - 500	950 - 1,200	40
10. Sawn formwork to columns and walls	m ² 36 - 46	450 - 500	1,200	40
11. 112.5mm thick brick walls	m ² 42 - 50	650 - 750	N/A	35 - 40
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ² 70 - 85	1,200	1,500	43
13. Aluminium casement windows, single glazed	m ² 380 - 600	7,000	12,500#	290
14. Structural steelwork - beams, stanchions and the like	kg 6.00 - 9.00	60 - 75	180	4.00 - 4.50
15. Steelwork - angles, channels, flats and the like	kg 6.00 - 9.00	60 - 75	160	4.00 - 4.50
16. 25mm cement and sand (1:3) paving	m ² 17 - 26	200 - 240	650	21

17. 20mm cement and sand (1:4) plaster to walls	m ²	18 - 26	220 - 260	500 - 700	22
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	50 - 75	1,200	1,800	74
19. 12mm fibrous plasterboard ceiling lining	m ²	35 - 45	750 - 850	1,400 - 1,645	30
20. Two coats of emulsion paint to plastered surfaces	m ²	3.40 - 5.00	140 - 180	500 - 800	3.50 - 4.00
Average expected preliminaries	%	6 - 15	12 - 18	12 - 18	12 - 15

The above costs are based on lump sum fixed price contract rate exclusive of preliminaries and contingencies unless otherwise stated.

- * Rates are nett of VAT.
- # Aluminium with anodized finish; 6mm thick.
- @ Rates are nett of GST.
- + Rate for lean concrete blinding.

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MAJOR RATES FOR SELECTED ASIAN CITIES

	HO CHI MINH ^A VND	INDIA* INR	HONG KONG HK\$	MACAU MOP
1. Excavating basement ≤ 2m deep	m ³ 92,400	197	220	150
2. Excavating for footings ≤ 1.5m deep	m ³ 92,400	223	200	180
3. Remove excavated materials off site	m ³ 84,700	N/A	300 [#]	150
4. Hardcore bed blinded with fine materials	m ³ 280,900	4,570	950	1,300
5. Mass concrete grade 15	m ³ 1,696,400	6,180	1,100	1,500
6. Reinforced concrete grade 30	m ³ 1,912,291	7,735	1,200	1,400
7. Mild steel rod reinforcement	kg 19,764	70	9.70	9.00
8. High tensile rod reinforcement	kg 19,908	71	9.70	9.00
9. Sawn formwork to soffits of suspended slabs	m ² 225,750	700	410	280
10. Sawn formwork to columns and walls	m ² 257,250	753	410	280
11. 112.5mm thick brick walls	m ² 312,780	1,140	400	450
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ² 401,110 - 597,600	1,765	1,000	N/A
13. Aluminium casement windows, single glazed	m ² 6,315,000	6,230	3,800	4,000
14. Structural steelwork - beams, stanchions and the like	kg 52,650	125	35	35
15. Steelwork - angles, channels, flats and the like	kg 52,650	125	42	40
16. 25mm cement and sand (1:3) paving	m ² 94,000	493	155	120

17. 20mm cement and sand (1:4) plaster to walls	m ²	144,000	405	160	150
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	674,180	1,765	400	450
19. 12mm fibrous plasterboard ceiling lining	m ²	245,700	1,400	580	650
20. Two coats of emulsion paint to plastered surfaces	m ²	88,900	250	90	200
Average expected preliminaries	%	8 - 12	9 - 13	10 - 15	10

The above costs are based on lump sum fixed price contract rate exclusive of preliminaries and contingencies unless otherwise stated.

^ Rates are nett of VAT.

* Rates are supply & fix based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

Rate including dumping charges.

(Cont'd)

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MAJOR RATES FOR SELECTED ASIAN CITIES

	BEIJING RMB	SHANGHAI RMB	SHENZHEN/ GUANGZHOU RMB	CHONGQING/ CHENGDU RMB
1. Excavating basement ≤ 2m deep	30	30	30	30
2. Excavating for footings ≤ 1.5m deep	33	30	30	30
3. Remove excavated materials off site	100	135	110	65
4. Hardcore bed blinded with fine materials	180	190	190	180
5. Mass concrete grade 15	595	740	740	550
6. Reinforced concrete grade 30	615	780	805	580
7. Mild steel rod reinforcement	5.60	5.60	6.00	6.10
8. High tensile rod reinforcement	5.60	5.60	6.00	6.10
9. Sawn formwork to soffits of suspended slabs	90	95	90	65
10. Sawn formwork to columns and walls	85	90	85	60
11. 112.5mm thick brick walls	80	90*	80	80
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	N/A	N/A	N/A	N/A
13. Aluminium casement windows, single glazed	815+	700	700	670+
14. Structural steelwork - beams, stanchions and the like	11	10	12.50	11.50
15. Steelwork - angles, channels, flats and the like	9.50	8.50	11.50	10.00
16. 25mm cement and sand (1:3) paving	32	35	35	30

17. 20mm cement and sand (1:4) plaster to walls	m ²	32	35	30	28
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	145	160	155	140
19. 12mm fibrous plasterboard ceiling lining	m ²	162	160	190	150
20. Two coats of emulsion paint to plastered surfaces	m ²	32	40	35	35
Average expected preliminaries	%	7 - 12	6 - 12	7 - 10	6 - 12

The above costs are based on lump sum fixed price contract rate exclusive of preliminaries and contingencies unless otherwise stated.

* Rate for 120mm thick concrete block walls.

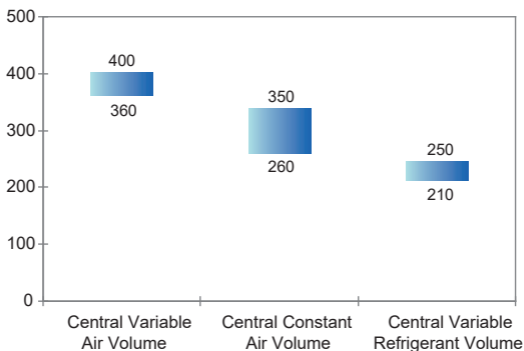
+ Rate for double glazed window.

1 CONSTRUCTION COST DATA

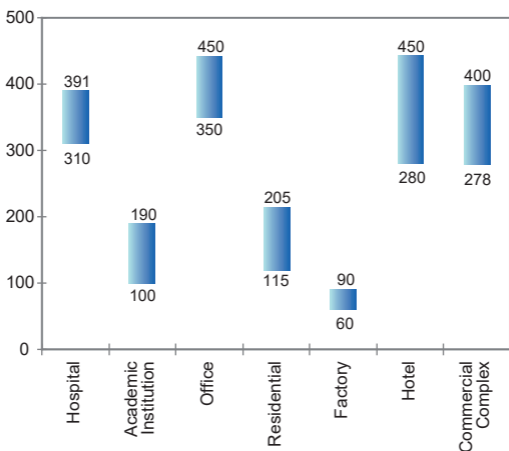
ACMV COSTS FOR VARIOUS DESIGNS & DEVELOPMENTS IN KUALA LUMPUR

ACMV : Air Conditioning & Mechanical Ventilation System

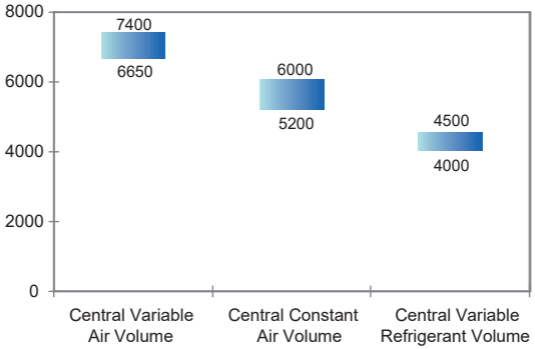
RM/m² of Construction Floor Area



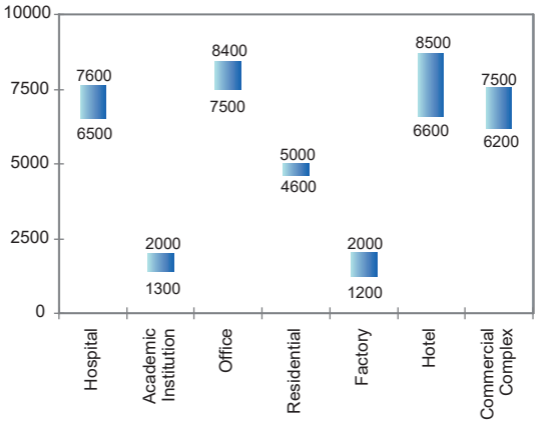
RM/m² of Construction Floor Area



RM/Tonne of Refrigeration



RM/Tonne of Refrigeration



M&E COSTS FOR SELECTED ASIAN CITIES

	KUALA LUMPUR RM/m ²	BANGKOK [®] BAHT/m ²	MANILA ^{\$} PHP/m ²	SINGAPORE [^] S\$/m ²
<u>MECHANICAL SERVICES</u>				
Offices	320 - 490	4,400 - 4,800	4,000 - 6,800	153 - 249
Industrial*	85 - 190	1,550 - 1,600	800 - 1,600	34 - 117
Hotels	300 - 590	4,600 - 5,200	3,500 - 11,190	215 - 278
Shopping Centres	300 - 475	4,600 - 4,800	2,890 - 7,070	147 - 246
Apartments	120 - 210	4,300 - 4,500	1,360 - 4,450	90 - 170
<u>ELECTRICAL SERVICES</u>				
Offices	290 - 460	3,400 - 3,800	3,500 - 7,200	158 - 258
Industrial**	145 - 190	1,950 - 2,200	2,000 - 3,500	55 - 136
Hotels	295 - 550	3,800 - 4,500	4,900 - 10,200	277 - 367
Shopping Centres	295 - 460	2,800 - 3,200	3,060 - 6,600	160 - 304
Apartments	105 - 210	2,800 - 3,350	3,600 - 6,300	109 - 236
<u>HYDRAULIC SERVICES</u>				
Offices	35 - 65	780 - 900	1,230 - 2,200	26 - 55
Industrial	40 - 50	750 - 790	800 - 1,400	18 - 36
Hotels	175 - 270	1,400 - 1,650	2,250 - 6,820	122 - 172
Shopping Centres	30 - 35	790 - 950	1,220 - 1,650	46 - 80
Apartments	50 - 100	1,200 - 1,400	2,250 - 4,100	79 - 143

<u>FIRE SERVICES</u>						
Offices	60 - 80	780 - 850	980 - 1,560	33 - 56		
Industrial	45 - 65	730 - 750	1,000 - 2,500	23 - 51		
Hotels	65 - 90	780 - 890	1,100 - 2,030	28 - 55		
Shopping Centres	55 - 80	780 - 820	1,090 - 1,730	37 - 56		
Apartments	15 - 30	750 - 850	980 - 1,350	25 - 51		
<u>LIFTS / ESCALATORS</u>						
Offices	125 - 350	1,100 - 1,400	1,800 - 4,930	63 - 162		
Industrial	55 - 180	N/A	0 - 590	41 - 104		
Hotels	100 - 285	1,100 - 1,400	1,800 - 3,500	49 - 82		
Shopping Centres	95 - 120	300 - 450	1,600 - 3,010	56 - 90		
Apartments	65 - 110	600 - 800	850 - 3,440	41 - 113		

The above costs are at 4th Quarter 2019 levels, exclusive of contingencies unless otherwise stated.

* Generally without air condition.

** Excludes special power supply.

@ Based upon nett enclosed area and nett of VAT.

\$ Transformer included in Electrical Services.

^ Rates are nett of GST and excluding BAS.

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

	HO CHI MINH VND('000)/m ²	INDIA# INR/m ²	HONG KONG HK\$/m ²	MACAU MOP/m ²
<u>MECHANICAL SERVICES</u>				
Offices	2,090 - 2,975	4,750 - 6,730	1,880 - 2,650	N/A
Industrial*	N/A	2,185 - 3,880	160 - 260	N/A
Hotels	N/A	5,815 - 6,350	2,100 - 2,550	2,590 - 2,990
Shopping Centres	N/A	4,535 - 5,940	2,100 - 2,650	2,350 - 2,940
Apartments	1,570 - 2,150	2,590 - 3,210	850 - 2,000up	900 - 1,200
<u>ELECTRICAL SERVICES</u>				
Offices	2,320 - 2,780	4,200 - 5,775	1,720 - 2,400	N/A
Industrial**	N/A	2,470 - 4,105	620 - 860	N/A
Hotels	N/A	4,660 - 6,355	1,900 - 2,500	2,590 - 3,090
Shopping Centres	N/A	4,005 - 5,360	1,750 - 2,400	2,590 - 2,940
Apartments	2,040 - 2,572	2,120 - 2,775	1,050 - 2,100up	1,000 - 1,290
<u>HYDRAULIC SERVICES</u>				
Offices	340 - 630	730 - 1,120	700 - 850	N/A
Industrial	N/A	505 - 880	480 - 650	N/A
Hotels	N/A	3,825 - 5,760	1,800 - 2,800	1,790 - 2,190
Shopping Centres	N/A	1,090 - 1,970	700 - 900	600 - 790
Apartments	660 - 770	1,725 - 2,385	1,350 - 2,100	1,490 - 1,990

<u>FIRE SERVICES</u>					
Offices	720 - 1,185	1,170 - 1,530	550 - 700		N/A
Industrial	N/A	535 - 735	400 - 500		N/A
Hotels	N/A	1,360 - 1,740	600 - 850		910 - 1,120
Shopping Centres	N/A	1,120 - 1,295	550 - 700		610 - 810
Apartments	490 - 615	625 - 745	100 - 600		250 - 300
<u>LIFTS / ESCALATORS</u>					
Offices	680 - 1,300	975 - 1,240	700 - 1,150		N/A
Industrial	N/A	630 - 815	550 - 750		N/A
Hotels	N/A	1,415 - 2,060	550 - 850		610 - 810
Shopping Centres	1,390 - 1,960	1,655 - 2,120	850 - 1,000		460 - 710
Apartments	770 - 1,120	880 - 1,140	450 - 850		460 - 610

The above costs are at 4th Quarter 2019 levels, exclusive of contingencies unless otherwise stated.

* Generally without air condition.

** Excludes special power supply.

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

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

	BEIJING RMB/m ²	SHANGHAI RMB/m ²	SHENZHEN/ GUANGZHOU RMB/m ²	CHONGQING/ CHENGDU RMB/m ²
<u>MECHANICAL SERVICES</u>				
Offices	775 - 1,200	814 - 1,035	775 - 1,150	750 - 1,020
Industrial*	170 - 280	181 - 304	155 - 285	145 - 240
Hotels	950 - 1,224	1,040 - 1,356	1,080 - 1,350	960 - 1,320
Shopping Centres	806 - 970	1,102 - 1,160	715 - 910	920 - 1,040
Apartments	143 - 459	330 - 436	152 - 410	155 - 310
<u>ELECTRICAL SERVICES</u>				
Offices	470 - 850	639 - 721	540 - 795	465 - 680
Industrial**	326 - 459	320 - 453	320 - 459	270 - 370
Hotels	719 - 962	697 - 890	715 - 980	600 - 855
Shopping Centres	490 - 690	556 - 697	500 - 690	525 - 680
Apartments	258 - 406	270 - 395	285 - 500	235 - 350
<u>HYDRAULIC SERVICES</u>				
Offices	97 - 143	115 - 171	128 - 184	88 - 125
Industrial	97 - 143	92 - 135	89 - 124	88 - 125
Hotels	377 - 490	386 - 613	390 - 500	340 - 465
Shopping Centres	143 - 204	144 - 194	114 - 168	105 - 155
Apartments	173 - 234	176 - 238	150 - 280	105 - 185

<u>FIRE SERVICES</u>						
Offices	184 - 270	239 - 335	230 - 350	248 - 300		
Industrial	153 - 230	165 - 276	143 - 272	135 - 240		
Hotels	224 - 383	303 - 408	285 - 425	260 - 360		
Shopping Centres	224 - 383	271 - 403	248 - 383	260 - 380		
Apartments	71 - 138	58 - 108	72 - 152	60 - 115		
<u>LIFTS / ESCALATORS</u>						
Offices	294 - 577	294 - 578	295 - 517	310 - 570		
Industrial	145 - 400	142 - 410	150 - 440	155 - 360		
Hotels	232 - 520	230 - 520	250 - 480	258 - 445		
Shopping Centres	327 - 520	342 - 520	325 - 470	300 - 455		
Apartments	175 - 289	173 - 306	130 - 500	145 - 250		

The above costs are at 4th Quarter 2019 levels, exclusive of contingencies unless otherwise stated.

* Generally without air condition.

** Excludes special power supply.

UNIT COSTS FOR ANCILLARY FACILITIES FOR KUALA LUMPUR

DESCRIPTION	UNIT	RM
<p><u>PLAYGROUND EQUIPMENTS</u> Outdoor playground equipments comprising various activities and safety mat including fitness park. Age group: 4 to 12 Child Capacity: 15 - 20 * Price varies according to equipment and design.</p>	per set	55,700
<p><u>SAUNAS</u> Sauna room complete with timber finishes (Finland Spruce), Finland Harvia sauna heater with built-in control panel and all accessories. Size: 8'x8'x7'6"</p>	per room	15,700
<p><u>STEAM BATHS</u> Steam bath complete with stainless steel steam generator, aluminium frame glass door, aluminium finishes, starry-lite. aroma pump, auto drain system, lighting and all accessories. Size 8'x8'x7'6"</p>	per room	22,700
<p><u>GOLF SIMULATOR</u> Complete high performance, commercial grade impact hitting screen. Durable, lush green, premium nylon putting turf (9.0 stimp meter). TruTrac revolutionary tracking system with illuminated hitting area. 21" touchscreen monitor, computer, and projector.</p>	per set	230,200

DESCRIPTION	UNIT	RM
<u>SQUASH COURTS</u>		
Single court with glass back wall including associated mechanical and electrical services but excluding any public facilities (enclosing structure not included)	per court	70,100
<u>TENNIS COURTS</u>		
Single court on grade with acrylic surfacing complete excluding chain link fence	per court	75,000
<u>SWIMMING POOLS</u>		
Size: 25m x 10.5m Depth: approx. 1.2m to 1.8m Outdoor swimming pool built on ground, concrete grade 30, Y10 BS steel bar, fully tiled, mechanical and electrical system, excluding deck	per pool	720,000
Extra for heating equipment (solar)	per pool	150,000
Extra for ozone system	per pool	50,000

FIT-OUT COSTS FOR KUALA LUMPUR

DESCRIPTION	RM/m ²
<u>HOTELS</u>	
Public Area (Front of House):	
3 - star Hotel	2,360 - 3,360
4 - star Hotel	3,110 - 4,100
5 - star Hotel	4,000 - above
Guest Rooms:	
3 - star Hotel	1,180 - 1,770
4 - star Hotel	1,620 - 2,700
5 - star Hotel	2,600 - above
Notes:	
<ol style="list-style-type: none"> 1. Includes furniture, floor, wall and ceiling finishes, drapery, sanitary fittings and light fittings. 2. Excludes partitioning, M&E works, chandelier, building shell, operational items and equipment (e.g. bed, cutlery, crockery, linen, television, refrigerator etc.), opening expenses, stage equipment and computer systems. 	
<u>OFFICES</u>	
General Office	460 - 640
Executive Office	620 - 1,060
Prestige Office	1,050 - above
Notes:	
<ol style="list-style-type: none"> 1. Local furniture allowed for general offices. 2. Includes furniture, partitioning, minor alteration to fire services, air-conditioning and suspended ceiling to suit layout. 3. Excludes telephones, Local Area Network, office equipment (e.g. computers, photocopies, fax machines, UPS, etc). 	
<u>RESTAURANTS</u>	
General dining restaurant	2,370 - 3,750
Fine dining restaurant	5,500 - above
Notes:	
<ol style="list-style-type: none"> 1. Includes furniture, floor, wall and ceiling finishes, minor alteration to air-conditioning and fire services installation to suit layout, exhaust for kitchen but excludes exhaust flue, operational items (e.g. cutlery, crockery, linen, utensils, etc.). 	



GENERAL CONSTRUCTION DATA **2**

JUBM - Arcadis Building Works
Composite Tender Price Index (BWCTPI)

JKR Tender Price Index

Value of Construction Work Done by
Type of Construction Activity

Performance of The Construction Sector

Estimating Rules of Thumb

Technical Specifications

Average Unit Prices

Unit Price Index

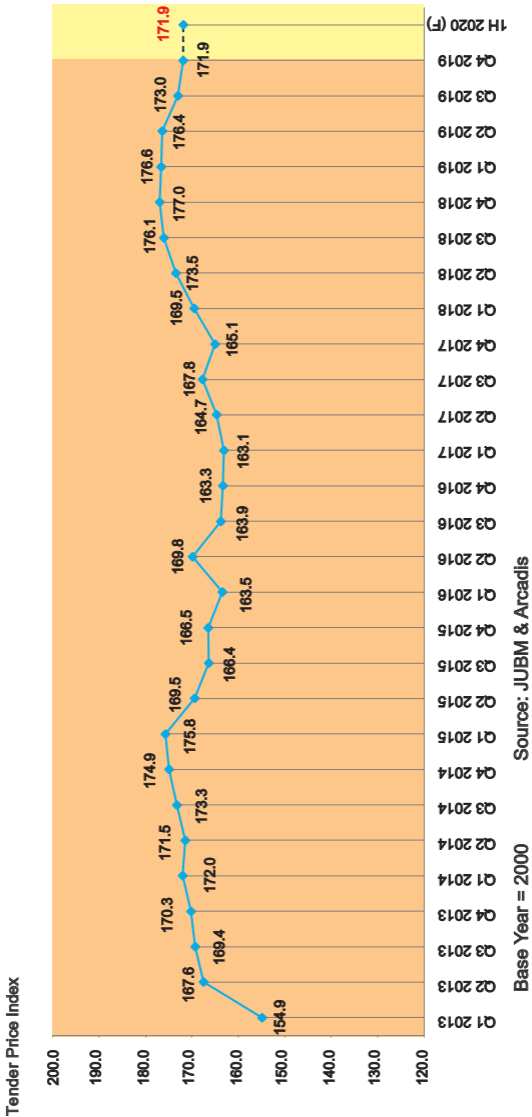
Construction Sector Indicators

Commodities Price Trend
(Jan to Oct 2019)

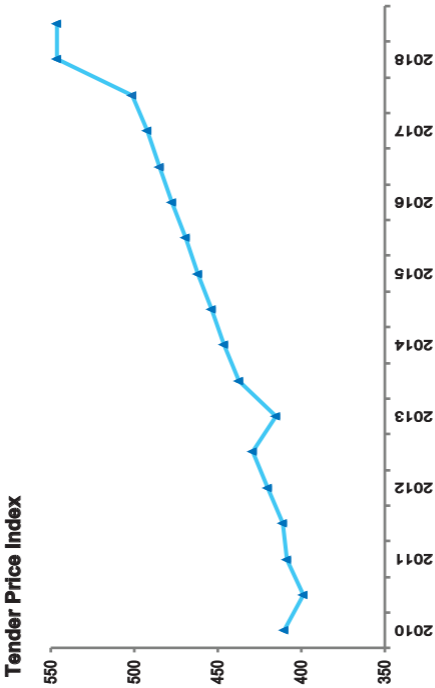
Malaysia Construction Sector
- Employment & Gross Domestic Product

Progress Payments

JUBM - ARCADIS BUILDING WORKS COMPOSITE TENDER PRICE INDEX (BWCTPI)



JKR TENDER PRICE INDEX



Year	TENDER PRICE INDEX	
	1/2	2/2
2010	410.18	398.59
2011	408.49	411.36
2012	420.49	429.32
2013	415.24	437.35
2014	446.03	453.99
2015	461.82	469.54
2016	477.15	484.69
2017	491.96	491.96
2018	546.30	546.30

Base Year = 1980

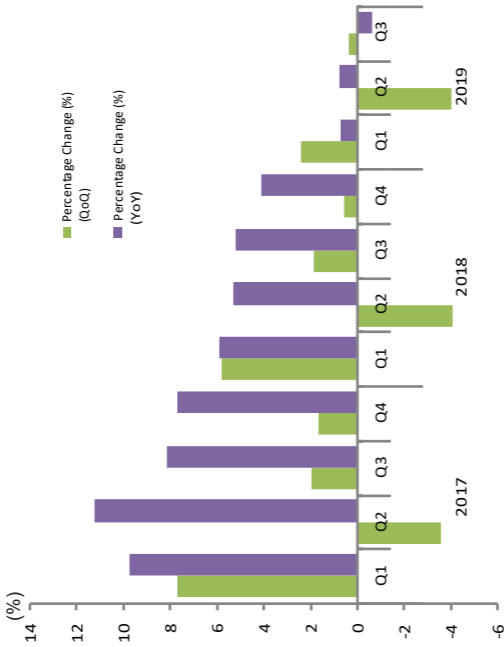
Source: Contract and Quantity Survey Branch, Public Works Department (JKR), Malaysia

VALUE OF CONSTRUCTION WORK DONE BY TYPE OF CONSTRUCTION ACTIVITY

Quarter / Year	Residential Buildings		Non-residential Buildings		Engineering		Special Trades		Total	
	RM million	(%)	RM million	(%)	RM million	(%)	RM million	(%)	RM million	(%)
Q1/2015	8,606	29.9	10,006	34.8	8,753	30.5	1,376	4.8	28,741	100.0
Q2/2015	8,253	30.3	9,418	34.6	8,288	30.4	1,280	4.7	27,239	100.0
Q3/2015	8,227	28.5	9,937	34.5	9,330	32.4	1,340	4.6	28,834	100.0
Q4/2015	8,760	29.1	9,719	32.3	10,217	33.9	1,433	4.8	30,129	100.0
Q1/2016	9,331	29.2	10,382	32.5	10,615	33.2	1,613	5.1	31,941	100.0
Q2/2016	9,283	30.5	9,615	31.6	10,075	33.1	1,453	4.8	30,427	100.0
Q3/2016	9,579	30.0	9,801	30.7	11,133	34.9	1,397	4.4	31,910	100.0
Q4/2016	9,615	29.5	9,964	30.6	11,495	35.3	1,486	4.6	32,560	100.0
Q1/2017	10,220	29.2	10,817	30.9	12,314	35.1	1,702	4.9	35,053	100.0
Q2/2017	9,639	28.5	10,546	31.2	12,018	35.5	1,622	4.8	33,825	100.0
Q3/2017	9,729	28.2	10,080	29.2	13,142	38.1	1,544	4.5	34,495	100.0
Q4/2017	9,728	27.7	10,109	28.8	13,613	38.8	1,627	4.6	35,078	100.0
Q1/2018	9,876	26.6	10,685	28.8	14,715	39.6	1,848	5.0	37,124	100.0
Q2/2018	8,906	25.0	10,036	28.2	14,855	41.7	1,827	5.1	35,625	100.0
Q3/2018	8,981	24.7	10,118	27.9	15,463	42.6	1,726	4.8	36,287	100.0
Q4/2018	8,829	24.2	10,362	28.4	15,560	42.6	1,760	4.8	36,511	100.0
Q1/2019	9,144	24.5	10,210	27.3	16,117	43.1	1,927	5.2	37,398	100.0
Q2/2019	8,807	24.5	9,103	25.3	16,075	44.8	1,934	5.4	35,919	100.0
Q3/2019	8,735	24.2	8,945	24.8	16,622	46.1	1,775	4.9	36,077	100.0

Source: Quarterly Construction Statistics, Department of Statistics Malaysia

PERFORMANCE OF THE CONSTRUCTION SECTOR



	No. of Projects	Value of Work Done (RM'000)	Percentage Change (QoQ) (%)	Percentage Change (YoY) (%)	
2017	Q1	9,572	35,053,464	7.7	9.7
	Q2	9,405	33,825,084	-3.5	11.2
	Q3	8,844	34,495,002	2.0	8.1
	Q4	8,747	35,077,956	1.7	7.7
2018	Q1	9,259	37,123,931	5.8	5.9
	Q2	9,580	35,624,699	-4.0	5.3
	Q3	9,905	36,287,482	1.9	5.2
	Q4	9,892	36,511,049	0.6	4.1
2019	Q1	9,939	37,397,513	2.4	0.7
	Q2	10,579	35,919,139	-4.0	0.8
	Q3	11,018	36,076,604	0.4	-0.6

Source: Quarterly Construction Statistics, Department of Statistics Malaysia

2 GENERAL CONSTRUCTION DATA

ESTIMATING RULES OF THUMB

Composition of Concrete (per m³)

Mix	Cement	Sand	Aggregate
1:3:6	216kg	0.45m ³	0.90m ³
1:2:4	308kg	0.43m ³	0.86m ³
1:1:2	540kg	0.38m ³	0.75m ³

Weight of Concrete Items

Item	Weight
Concrete	2,400 kg/m ³
Cement	1,441 kg/m ³
Sand	1,600 kg/m ³
Aggregate	1,350 kg/m ³
Steel	7,843 kg/m ³

Average Loads

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

Dimensions for Standard Parking Space, Loading/Unloading Bays and Lay-bys

	Length	Width	Minimum Headroom
Private Cars, Taxis and Light Vans	5 m	2.5 m	2.4 m
Coaches and Buses	12 m	3.0 m	3.8 m
Lorries	11 m	3.5 m	4.1 m
Container Vehicles	16 m	3.5 m	4.5 m

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

Structure Design - Concrete Ratios

The following is a range of concrete ratios for building superstructure design:

Concrete/floor area	0.3 m ³ /m ²	to	0.6 m ³ /m ²
Formwork/floor area	2.2 m ² /m ²	to	3.0 m ² /m ²
Reinforcement/concrete vol.	160 kg/m ³	to	250 kg/m ³

Average External Wall/Floor Ratio

Residential Apartments	1.0 m ² /m ²
Office, Hotel	0.4 m ² /m ²
Industrial	0.4 m ² /m ²

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

Air - Conditioning

Average	0.05 tonne/m ² of floor area
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The above ratios are indicative and for reference purposes only. They do not account for buildings with special shapes, configurations or particular small foot prints.

Indicative Dimensions for Sports Grounds

	Length	Width
Tennis Court	40 m	20 m
Squash Court	13 m	6 m
Basketball Court	38 m	23 m
Volleyball Court	30 m	20 m
Badminton Court	20 m	10 m
Rink	61 m	26 m
Soccer Playing Feld	110 - 120 m	70 - 80 m
Futsal	25 - 42 m	15 - 25 m

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

TECHNICAL SPECIFICATIONS

Table for Standard BRC Fabrics

BRC Ref. No.	BS 4483 or SS-32 Ref No.	Main Wire		Cross Wire		Cross-Sectional Area		Mass Per Unit Area Kg/m ²
		Size mm	Spacing mm	Size mm	Spacing mm	Main mm ² /m	Cross mm ² /m	
SQUARE MESHES								
A 10	A 393	10.0	200	10.0	200	393	393	6.16
A 9	-	9.0	200	9.0	200	318	318	4.99
A 8	A 252	8.0	200	8.0	200	252	252	3.95
A 7	A 193	7.0	200	7.0	200	193	193	3.02
A 6/5	-	6.5	200	6.5	200	166	166	2.61
A 5	A 142	6.0	200	6.0	200	142	142	2.22
A 4	A 98	5.0	200	5.0	200	98	98	1.54
	-	4.0	200	4.0	200	63	63	0.99
RECTANGULAR MESHES								
B 12	B 1131	12.0	100	8.0	200	1,131	252	10.90
B 10	B 385	10.0	100	8.0	200	785	252	8.14
B 9	-	9.0	100	8.0	200	636	252	6.97
B 8	B 503	8.0	100	8.0	200	503	252	5.93
B 7	B 385	7.0	100	7.0	200	385	193	4.53
B 6	B 283	6.0	100	7.0	200	283	193	3.73
B 5	B 196	5.0	100	7.0	200	196	193	3.05
C 10	C 785	10.0	100	6.0	400	785	71	6.72
C 9	C 636	9.0	100	6.0	400	636	71	5.55
C 8	C 503	8.0	100	5.0	400	503	49	4.34
C 7	C 385	7.0	100	5.0	400	385	49	3.41
C 6	C 283	6.0	100	5.0	400	283	49	2.61
C 5	-	5.0	100	5.0	400	196	49	1.93

STANDARD SIZES**Rolls**

(Ref. No's: A4, A5, A6, A6/5 only)

Length : 40.0 metres

Width : 2.0 metres

Sheets

(all Ref. No's)

Length : 6.0 metres

Width : 2.2 metres

Weight Tables for Mild Steel Round Bar & High Tensile Deformed Bar

Std. Size (mm)		Cross Sectional Area (mm ²)	Unit Weight (kg/m)	No. of Pcs. 12m Length Per Bundle	Weight Per Bundle (MT)
High Yield Deformed	Mild Steel Round				
D 6	Ø 6	28.3	0.222	376	1.002
D 8	Ø 8	50.3	0.395	210	0.995
D 9	Ø 9	63.6	0.499	168	1.006
D 10	Ø 10	78.5	0.616	138	1.020
D 12	Ø 12	113.1	0.888	96	1.023
D 16	Ø 16	201.1	1.579	54	1.023
D 20	Ø 20	314.2	2.466	34	1.006
D 22	Ø 22	380.1	2.984	28	1.003
D 25	Ø 25	490.9	3.854	22	1.017
D 28	Ø 28	615.8	4.834	18	1.044
D 32	Ø 32	804.2	6.313	14	1.061
D 35	Ø 35	962.1	7.553	12	1.088
D 38	Ø 38	1,134.1	8.903	10	1.068
D 40	-	1,256.6	9.864	9	1.065

* High Yield Deformed Bar Standard Length : 12 metres straight.

* Mild Steel Round Bar Standard Length : 12 metres straight or 12 metres once folded.

* Special cut length can be produced from 6m to 15m on a certain min. quality per size per order upon request.

AVERAGE UNIT PRICES

2019	Automotive Gas Oil RM/Litre			Sand RM/Metric Ton			Cement RM/50 kg Bag		
	Diesel Retail Price			River Sand			Ordinary Portland		
	A	B	C	A	B	C	A	B	C
Region									
Jan	2.12	2.12	2.12	49.49	49.89	41.50	17.39	18.26	19.18
Feb	2.18	2.18	2.18	49.49	49.89	43.00	17.25	17.81	19.18
Mar	2.18	2.18	2.18	51.69	49.89	43.00	17.13	17.81	19.18
Apr	2.18	2.18	2.18	51.69	45.95	43.50	17.15	17.81	19.18
May	2.18	2.18	2.18	51.69	43.98	46.00	17.15	17.81	19.18
Jun	2.18	2.18	2.18	51.69	42.00	46.00	17.14	17.84	19.18
Jul	2.18	2.18	2.18	51.69	42.00	46.00	17.20	17.84	19.18
Aug	2.18	2.18	2.18	51.69	42.00	46.00	17.25	17.84	19.18
Sep	2.18	2.18	2.18	51.69	42.00	46.00	17.30	17.66	19.18
Oct	2.18	2.18	2.18	51.69	42.00	45.00	17.32	17.66	19.18

Region: A = Central Peninsular Malaysia; B = Kota Kinabalu; C = Kuching

November & December rates are not available at time of printing.

Source: Special Release 1, For Civil Engineering Works, Department of Statistics, Malaysia.

		Aggregates RM/Metric Ton											
2019	Region	Granite 10mm (3/8")			Granite 20mm (3/4")			Granite 40mm (1 1/2")			Crusher run		
		A	B	C	A	B	C	A	B	C	A	B	C
	Jan	32.47	29.60	29.43	33.35	65.89	31.17	32.78	32.20	25.40	25.59	36.10	24.00
	Feb	32.47	29.60	26.20	33.35	65.89	31.17	32.78	32.20	25.40	25.59	36.10	24.00
	Mar	32.47	29.60	26.20	33.35	65.89	31.17	32.78	32.20	23.30	25.57	36.10	24.50
	Apr	32.47	30.10	27.01	33.35	65.89	31.81	32.78	33.90	25.40	25.57	37.60	24.50
	May	32.47	30.10	27.01	33.35	57.39	30.21	32.78	35.60	25.40	25.57	37.60	24.50
	Jun	32.47	30.10	26.20	33.35	57.39	31.17	32.78	35.60	25.40	25.57	37.60	24.50
	Jul	32.03	31.00	30.30	33.35	65.89	31.17	32.78	31.00	25.40	25.82	32.50	24.50
	Aug	32.16	31.00	26.20	33.32	65.89	31.17	32.78	31.00	25.40	25.42	32.50	24.50
	Sep	32.24	31.00	26.20	32.72	65.89	31.17	32.96	31.00	25.40	25.50	32.50	24.50
	Oct	32.24	31.00	26.20	32.59	65.89	31.17	32.96	31.00	25.40	25.50	32.50	26.40

Region: A = Central Peninsular Malaysia; B = Kota Kinabalu; C = Kuching
November & December rates are not available at time of printing.

Source: Special Release 1, For Civil Engineering Works, Department of Statistics, Malaysia.

UNIT PRICE INDEX

2019	Bricks & Wall	Glass	Ceiling Materials	Roofing Materials	Timber	Plywood	Sanitary Fittings	Floor & Wall Tiles	Plumbing Materials	Steel & Metal Sections	Paints
Jan	97.0	100.0	97.0	101.0	94.4	90.0	96.0	100.2	99.1	108.0	101.0
Feb	97.0	101.2	97.0	101.0	95.1	90.0	96.0	100.2	99.1	108.0	101.0
Mar	97.2	101.2	97.1	101.0	95.8	91.7	96.0	100.2	99.1	108.1	101.0
Apr	97.2	101.2	97.1	101.0	97.4	91.7	96.0	100.2	99.1	108.3	101.1
May	97.2	101.2	97.1	101.0	98.2	92.7	96.0	100.2	99.1	108.3	101.2
Jun	97.2	101.2	97.1	101.0	98.9	92.7	96.0	100.2	99.1	108.4	101.5
Jul	97.2	101.2	97.3	101.0	99.2	92.7	96.0	100.4	99.0	108.4	101.5
Aug	97.2	101.2	97.3	101.0	99.2	92.7	96.0	100.4	99.0	108.4	101.5
Sep	97.2	101.2	97.3	101.0	99.2	92.7	96.0	100.4	99.0	108.2	101.5
Oct	96.1	101.2	97.5	101.0	99.2	92.7	96.0	100.4	99.0	107.7	101.5

Note: July 2017 = 100

Unit Price Index above are applicable for Wilayah Persekutuan Kuala Lumpur, Melaka, Negeri Sembilan and Selangor region.
November & December rates are not available at time of printing.

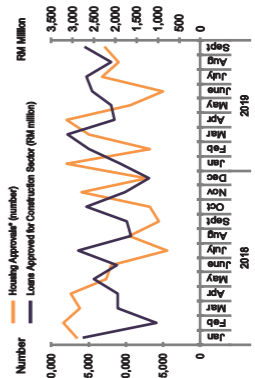
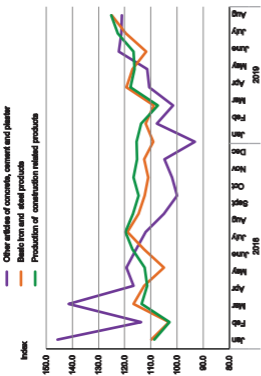
Source: Special Release 2, For Building and Structural Works, Department of Statistics, Malaysia.

CONSTRUCTION SECTOR INDICATORS

2019	Production* (Index)			Construction Related Products	Housing Approvals* (number)	Loans Approved for Construction Sector (RM million)
	Other Articles of Concrete, Cement & Plaster	Basic Iron and Steel Products	Other Articles of Concrete, Cement and Plaster			
Jan	107.8	112.0	113.8	113.8	17,948	1,878
Feb	101.6	108.9	107.4	107.4	6,838	2,625
Mar	110.6	119.5	117.9	117.9	15,012	3,121
Apr	111.5	117.1	116.3	116.3	17,912	2,013
May	122.4	111.9	116.7	116.7	9,457	2,090
Jun	121.5	119.6	122.7	122.7	4,977	2,538
Jul	121.2	125.0	125.1	125.1	13,218	2,669
Aug	124.5	118.9	122.0	122.0	10,930	2,086
Sep	N/A	N/A	N/A	N/A	12,757	2,696

Note: # Based on Industrial Production Index (2015 = 100).

* Number of housing units by private developers approved for construction in Peninsular Malaysia by the Ministry of Housing and Local Government.
Source: Central Bank of Malaysia.



COMMODITIES PRICE TREND (JAN TO OCT 2019)

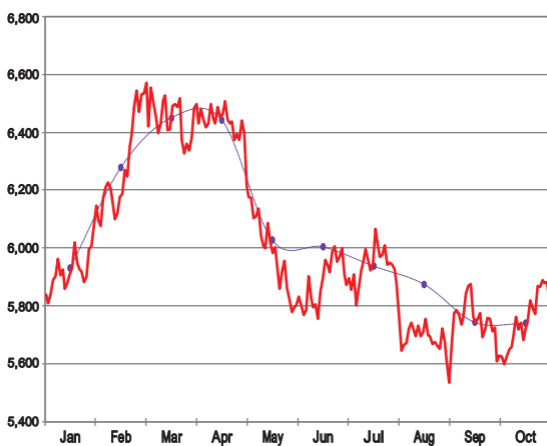
Nickel

USD/Tonne



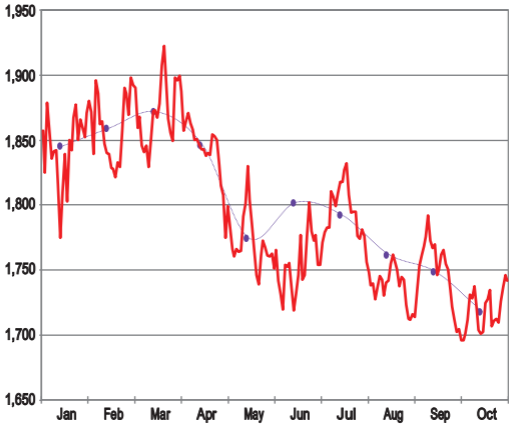
Copper (Grade A)

USD/Tonne



Aluminium

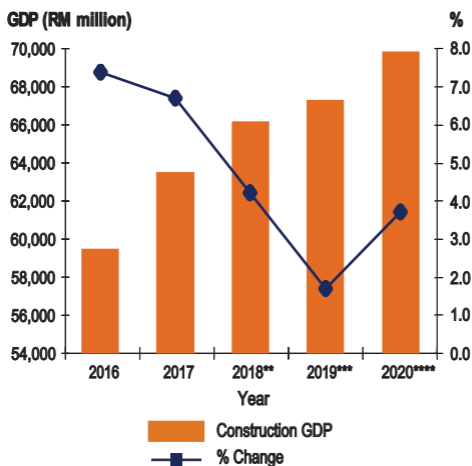
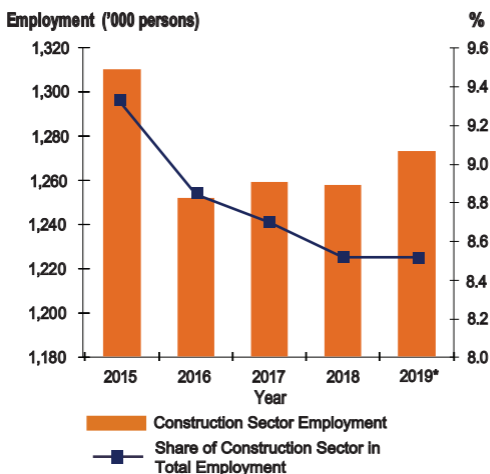
USD/Tonne



Year 2019	Aluminium	Copper (Grade A)	Nickel
	Monthly Average (USD / Tonne)		
Jan	1,845.14	5,931.14	11,449.32
Feb	1,858.90	6,277.33	12,643.25
Mar	1,871.52	6,449.60	13,051.90
Apr	1,846.08	6,441.11	12,793.42
May	1,774.57	6,027.10	11,991.90
Jun	1,802.00	6,005.00	12,660.00
Jul	1,792.20	5,938.54	13,454.78
Aug	1,762.00	5,875.50	17,850.00
Sep	1,748.86	5,744.50	17,663.10
Oct	1,718.13	5,741.89	17,101.74

Source: London Metal Exchange

MALAYSIA CONSTRUCTION SECTOR - EMPLOYMENT & GROSS DOMESTIC PRODUCT



Note: * For the first half of 2019

** Preliminary

*** Estimate

**** Forecast

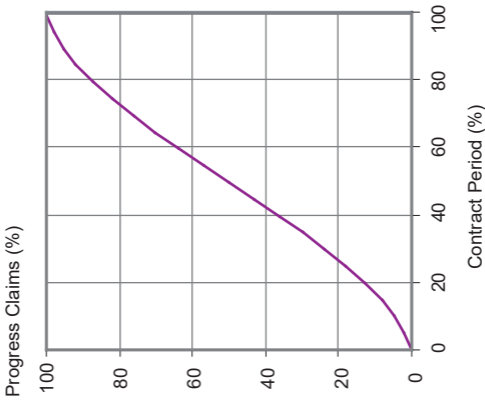
Source: Economic Outlook 2020, Ministry of Finance Malaysia

PROGRESS PAYMENTS

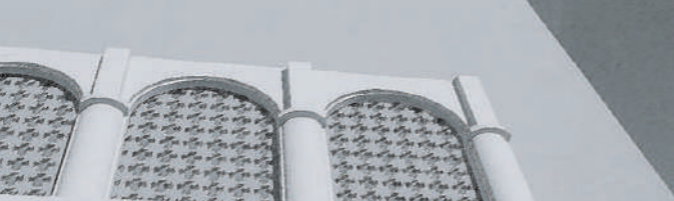
The following graph and table are an indication of the rate of expenditure for construction projects.

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

No account has been made for retention.



Contract Period	Cumulative Progress Claims	Contract Period	Cumulative Progress Claims	Contract Period	Cumulative Progress Claims
5%	2%	40%	36%	75%	82%
10%	5%	45%	43%	80%	87%
15%	8%	50%	50%	85%	92%
20%	13%	55%	57%	90%	95%
25%	18%	60%	64%	95%	98%
30%	24%	65%	70%	100%	100%
35%	30%	70%	76%		



PROPERTY 3



Residential

Hotel

Office

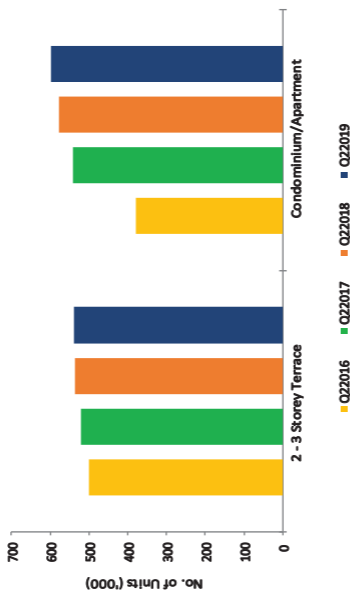
Shopping Complex

Shop

Industrial

RESIDENTIAL

Existing Supply of Residential by Type in Kuala Lumpur & Selangor

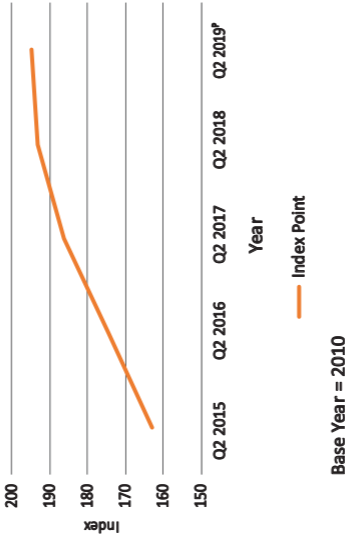


Source: Residential Property Stock Report 2nd Quarter 2016 - 2019, Valuation & Property Services Department

Residential Q2 2019 ^p	Existing Stock (unit)	Incoming Supply (unit)
WP Kuala Lumpur	483,059	38,455
WP Putrajaya	12,612	7,500
WP Labuan	12,530	818
Selangor	1,546,764	117,258
Johor	820,556	69,500
Pulau Pinang	512,253	45,658
Perak	482,490	35,158
Negeri Sembilan	273,910	21,767
Melaka	193,977	18,764
Kedah	331,686	16,566
Pahang	276,244	22,026
Terengganu	100,878	17,409
Kelantan	80,979	13,003
Perlis	26,078	1,105
Sabah	217,040	25,133
Sarawak	256,266	22,837
MALAYSIA	5,627,322	472,957

p = preliminary
Source: Residential Property Stock Report 2nd Quarter 2019, Valuation & Property Services Department

Malaysia House Price Index



Source: Property Market Report 1st Half 2019, Valuation & Property Services Department

Average Asking Rentals and Transacted Prices of Selected Existing High End Condominiums / Service Apartments (1H 2019)

Locality	Average Asking Rental (RM psf/month)	Average Transacted Price (RM psf)*
KL City	2.20 - 5.00	980 - 1,200
Ampang Hilir / U-Thant	2.00 - 3.50	720 - 890
Damansara Heights / Kenny Hills	2.20 - 4.00	690 - 1,010
Bangsar	2.40 - 4.00	940 - 1,140
Mont' Kiara	1.80 - 3.50	660 - 810

Notes:

p = Analysis based on preliminary data and is calculated by weighted average approach based on recorded transactions of selected scheme

Source: Knight Frank Real Estate Highlights 1st Half 2019

HOTEL

Tourist Arrivals & Receipts to Malaysia

Year	Arrivals (million)	Receipts (RM billion)
1Q 2019	6.70	21.4
2018	25.83	84.1
2017	25.95	82.1
2016	26.76	82.1
2015	25.72	69.1
2014	27.44	72.0
2013	25.72	65.4
2012	25.03	60.6
2011	24.71	58.3
2010	24.58	56.5
2009	23.65	53.4
2008	22.05	49.6
2007	20.97	53.4

Source: Tourism Malaysia

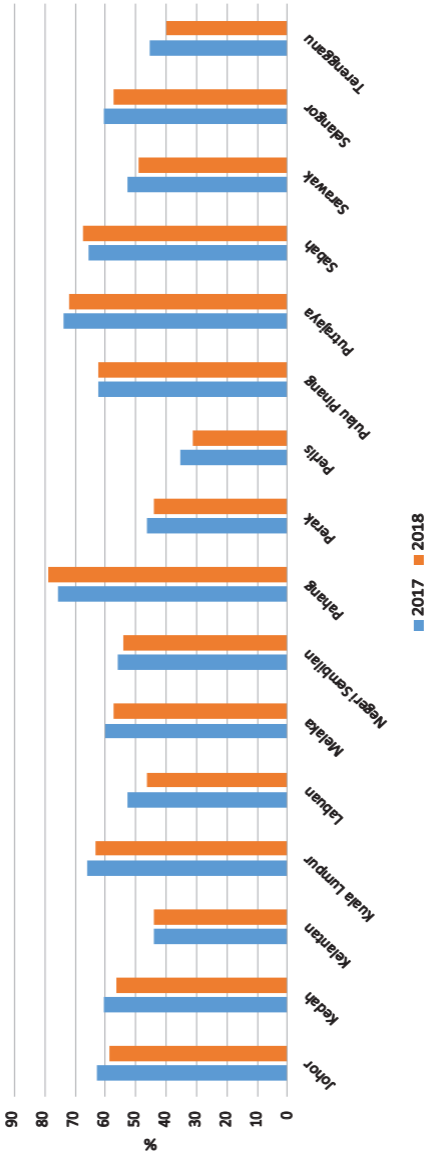
No of Hotel Rooms in Malaysia

Hotel Q2 2019 ^p	Existing Stock (Rooms)	Incoming Supply (Rooms)
WP Kuala Lumpur	41,742	5,517
WP Putrajaya	1,026	290
WP Labuan	1,749	264
Selangor	22,415	1,843
Johor	30,095	3,025
Pulau Pinang	19,708	3,543
Perak	16,005	959
Negeri Sembilan	10,024	1,498
Melaka	17,032	1,120
Kedah	13,401	900
Pahang	24,395	70
Terengganu	8,578	302
Kelantan	4,360	144
Perlis	1,233	120
Sabah	22,743	1,784
Sarawak	20,018	318
MALAYSIA	254,524	21,697

p = preliminary

Source: Leisure Property Stock Report 2nd Quarter
2019, Valuation & Property Services Department

Performance of Hotels - Average Occupancy Rates (%)



Source: Tourism Malaysia

OFFICE

Purpose-Built Office Rental Index

State / Sub-Region	Q2 2018	Q2 2019 ^p	% Change (Y-o-Y)
Klang Valley	127.0	130.6	2.9
Kuala Lumpur	134.7	139.0	3.2
City Centre	135.0	139.3	3.1
Outside City Centre	133.7	138.0	3.2
Selangor	121.9	125.2	2.7
Petaling Jaya / Subang Jaya	127.1	129.0	1.5
Shah Alam	117.6	121.5	3.4
Seri Kembangan	121.1	125.0	3.2
Johor Bahru	128.8	130.0	1.0
George Town	124.3	128.5	3.4

p = preliminary, 2010=100

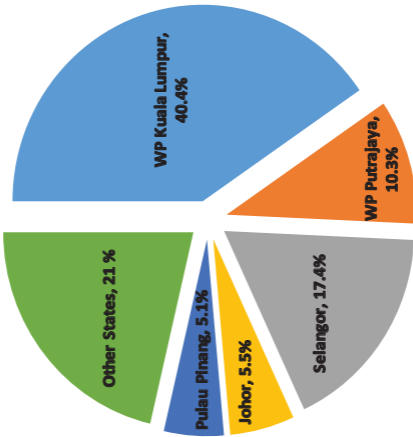
Source: Property Market Report 1st Half 2019, Valuation & Property Services Department

Selected Grade A Offices Asking Rentals (1H2019)

	Asking Gross Rental (RM psf/month)
KL City	
Integra Tower	11.00
Menara Binjai	8.80
Menara Khuan Choo	8.50
G Tower	7.50
Menara Maxis	9.50 - 10.00
Menara Hap Seng 2	7.00
KL Fringe	
Menara Shell	8.50
Platinum Sentral	8.50
Menara Southpoint	8.00
The Gardens North & South Towers	7.50
Menara LGB	6.50
UOA Corporate Tower A	6.20
Mercu 2 / Mercu 3	6.00 - 6.50
Selangor	
1 First Avenue	6.00
The Pinnacle	6.00
Surian Tower	5.80
Nucleus Tower	5.80
Plaza 33	5.50
The Ascent @ Paradigm	5.50
Quill 18 (Block A & Block B)	5.50

Source: Knight Frank Real Estate Highlights 1st Half 2019

Distribution of Existing Stock of Purpose Built Office in Malaysia as at Q2 2019



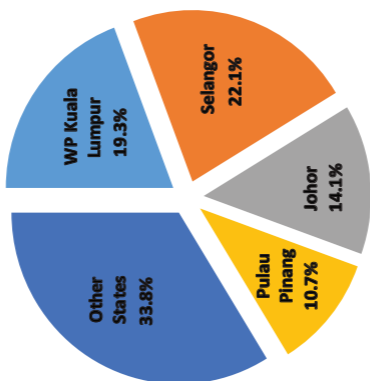
Purpose Built Office Q2 2019 ^p	Existing Stock Total Space (m ²)	Incoming Supply Total Space (m ²)
WP Kuala Lumpur	8,936,298	1,112,815
WP Putrajaya	2,274,451	324,616
WP Labuan	66,427	19,222
Selangor	3,834,440	296,888
Johor	1,212,925	165,636
Pulau Pinang	1,123,156	11,612
Perak	626,910	45,039
Negeri Sembilan	331,118	9,487
Melaka	402,247	0
Kedah	428,672	0
Pahang	420,221	36,375
Terengganu	360,520	63,767
Kelantan	394,546	0
Perlis	131,038	11,933
Sabah	821,994	47,624
Sarawak	733,745	65,894
MALAYSIA	22,098,708	2,210,908

p = preliminary

Source: Commercial Property Stock Report 2nd Quarter 2019, Valuation & Property Services Department

SHOPPING COMPLEX

Distribution of Existing Stock of Shopping Complex in Malaysia as at Q2 2019^p

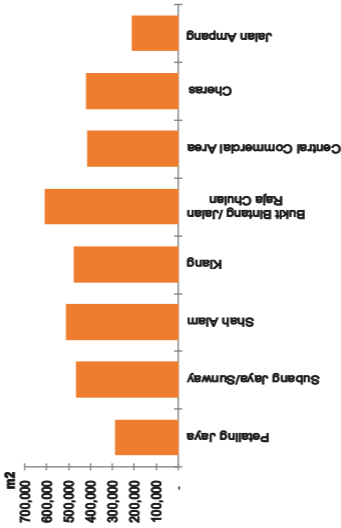


Shopping Complex Q2 2019 ^p	Existing Stock Total Space (m ²)	Incoming Supply Total Space (m ²)
WP Kuala Lumpur	3,128,716	150,544
WP Putrajaya	86,017	0
WP Labuan	28,434	0
Selangor	3,589,894	441,188
Johor	2,298,558	106,416
Pulau Pinang	1,741,513	77,130
Perak	956,465	100,438
Negeri Sembilan	580,838	15,042
Melaka	596,074	128,465
Kedah	584,860	4,895
Pahang	394,008	40,027
Terengganu	164,697	121,696
Kelantan	341,440	108,393
Perlis	55,872	13,493
Sabah	755,587	95,192
Sarawak	947,109	68,266
MALAYSIA	16,250,082	1,471,185

p = preliminary

Source: Commercial Property Stock Report 2nd Quarter 2019, Valuation & Property Services Department

**Shopping Complex's Existing Stock
in Kuala Lumpur & Selangor (By Location)
as at Q2 2019^p**



p = preliminary

Source: Commercial Property Stock Report 2nd Quarter 2019, Valuation & Property Services Department

Retail Space Supply in 2019

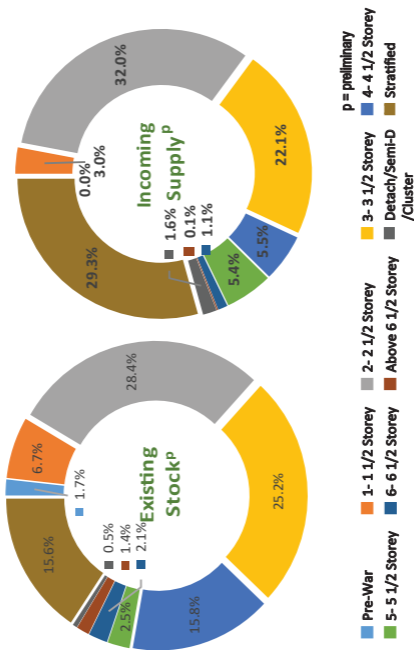
New Projects	Estimate Area (sf)*
Star Boulevard, KL	126,000
Central i-City, Selangor	940,000
Pinnacle Selangor	140,000
Shaftsbury @ Putrajaya	300,000
TRX Financial Quarter (Mulia Exchange 106), KL	126,000
Queensville, KL	412,000
Tropicana Gardens, Selangor	1,000,000
Pacific Star, Selangor	240,000
Quarza @ Melawati, KL	360,000

Note: * Expected Completion / Opening

Source: Knight Frank Real Estate Highlights 1st Half 2019

SHOP

Distribution of Existing and Incoming Supply of Shop In Kuala Lumpur and Selangor as at Q2 2019^p



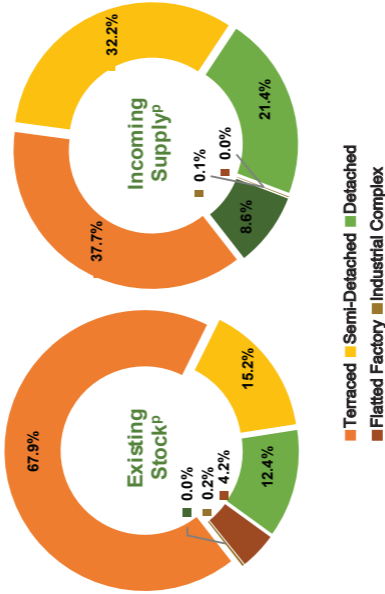
Shop Q2 2019 ^p	Existing Stock (unit)	Incoming Supply (unit)
WP Kuala Lumpur	31,282	2,046
WP Putrajaya	538	0
WP Labuan	975	63
Selangor	106,648	7,259
Johor	87,197	10,831
Pulau Pinang	37,255	2,185
Perak	61,539	4,025
Negeri Sembilan	25,789	1,856
Melaka	22,379	1,541
Kedah	31,217	1,342
Pahang	24,593	2,007
Terengganu	8,192	1,216
Kelantan	13,292	1,525
Perlis	5,291	557
Sabah	31,356	2,041
Sarawak	34,238	2,123
MALAYSIA	521,781	40,617

p = preliminary

Source: Commercial Property Stock Report 2nd Quarter 2019, Valuation & Property Services Department

INDUSTRIAL

Distribution of Existing and Incoming Supply of Industrial Units in Kuala Lumpur and Selangor as at Q2 2019^p



p = preliminary

Industrial Q2 2019 ^p	Existing Stock (unit)	Incoming Supply (unit)
WP Kuala Lumpur	5,138	0
WP Putrajaya	48	0
WP Labuan	635	8
Selangor	40,441	1,069
Johor	17,216	1,487
Pulau Pinang	9,176	312
Perak	8,432	181
Negeri Sembilan	5,516	25
Melaka	7,104	817
Kedah	3,858	22
Pahang	3,556	95
Terengganu	866	47
Kelantan	605	17
Perlis	239	85
Sabah	6,145	323
Sarawak	7,091	188
MALAYSIA	116,066	4,676

p = preliminary
 Source: Industrial Property Stock Report 2nd Quarter 2019, Valuation & Property Services Department



Financial Definitions & Formulae

Mortgage Repayment Table

Malaysia Balance of Payments
- Goods & Services

Consumer Price Index & Producer
Price Index

Prime Rates & Base Lending Rates

Interest Rates : Banking Institutions

Currency Chart

Exchange Rates

FINANCIAL DEFINITIONS

Discount Rate

The rate of return a developer expects when investing in a project.
i.e. opportunity cost

Internal Rate of Return (IRR)

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

The IRR can be compared to the Discount Rate.

Net Present Value (NPV)

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

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

72 Rule

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

e.g. If interest rate = 10% p.a.
Then $72 \div 10 = 7.2$ years
It will take approximately 7.2 years to double your capital if it is invested at 10% p.a.

FINANCIAL FORMULAE

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

PV = present value
 FV = future value
 PMT = payment amount
 n = period (e.g. 10 years with monthly payments,
 $n = 10 \times 12 = 120$)
 i = interest rate per period
 (e.g. 12% p.a. compounded monthly;
 $i = 12\% \div 12 \text{ month} = 1\% \text{ per period}$)

MORTGAGE REPAYMENT TABLE

Based on:

* 1,000 units of currency

* Interest compounded monthly

* Equal monthly repayments

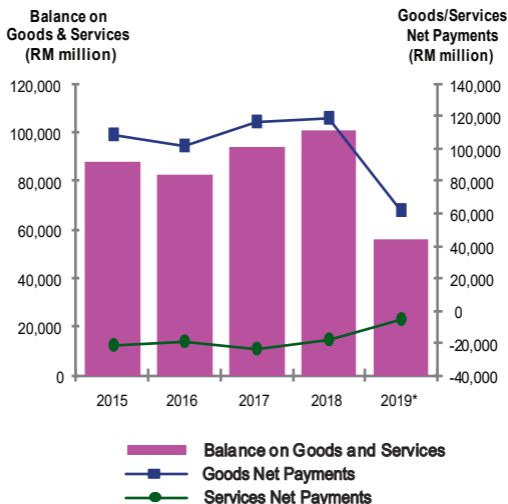
Interest p.a.	REPAYMENT (years)			
	5	10	15	20
5%	18.87	10.61	7.91	6.60
6%	19.33	11.10	8.44	7.16
7%	19.80	11.61	8.99	7.75
8%	20.28	12.13	9.56	8.36
9%	20.76	12.67	10.14	9.00
10%	21.25	13.22	10.75	9.65
11%	21.74	13.78	11.37	10.32
12%	22.24	14.35	12.00	11.01
13%	22.75	14.93	12.65	11.72
14%	23.27	15.53	13.32	12.44
15%	23.79	16.13	14.00	13.17
16%	24.32	16.75	14.69	13.91
17%	24.85	17.38	15.39	14.67
18%	25.39	18.02	16.10	15.43
19%	25.94	18.67	16.83	16.21
20%	26.49	19.33	17.56	16.99
21%	27.05	19.99	18.31	17.78
22%	27.62	20.67	19.06	18.57
23%	28.19	21.35	19.82	19.37
24%	28.77	22.05	20.58	20.17
25%	29.35	22.75	21.36	20.98

Example

Borrow \$1,000,000 to be repaid monthly at 10% p.a.
 over 10 years.

$$\begin{aligned} \text{Repayments} &= 1,000,000 / 1,000 \times \$13.22 \\ &= \$13,220 \text{ per month} \end{aligned}$$

MALAYSIA BALANCE OF PAYMENTS - GOODS & SERVICES

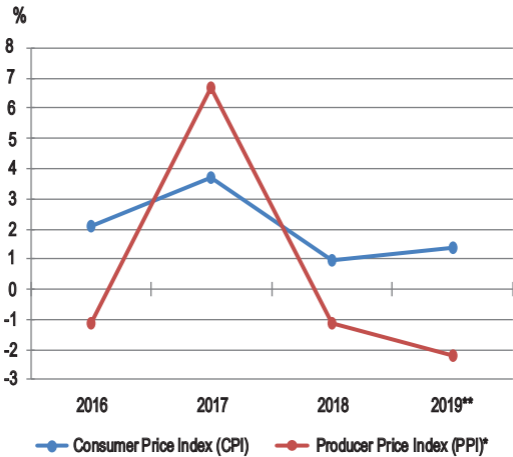


Year	Balance on Goods & Services (RM mil)	Goods Net Payments (RM mil)	Services Net Payments (RM mil)
2015	88,592	109,224	-20,632
2016	83,128	102,046	-18,917
2017	94,255	117,113	-22,858
2018	101,456	119,182	-17,726
2019*	56,679	61,953	-5,274

Note: * January to June 2019

Source: Central Bank of Malaysia

CONSUMER PRICE INDEX & PRODUCER PRICE INDEX



Year	Annual Change (%)	
	CPI	PPI*
2016	2.1 %	-1.1 %
2017	3.7 %	6.7 %
2018	1.0 %	-1.1 %
2019**	1.4 %	-2.2 %

Note: Year 2010=100

* Local Production

** July 2019

Source: Central Bank of Malaysia

PRIME RATES & BASE LENDING RATES

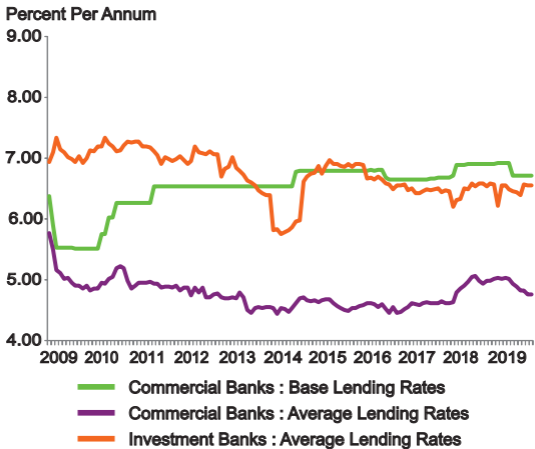
as at 4th Quarter 2019

Country	Rate (%)
China*	4.85
Hong Kong	5.00
India	9.40
Macau	5.25
Malaysia**	4.35
Philippines	5.64
Singapore	5.25
Thailand ⁺	6.60
United Kingdom	0.50
United States of America	5.50
Vietnam [#]	9.00

- * 5-Year Benchmark Lending Rate
- ** Indicative Effective Lending Rate
- + Minimum Loan Rate % pa (Average Based on Local Bank)
- # Minimum and in VND per year

Source:
Arcadis Asia Offices

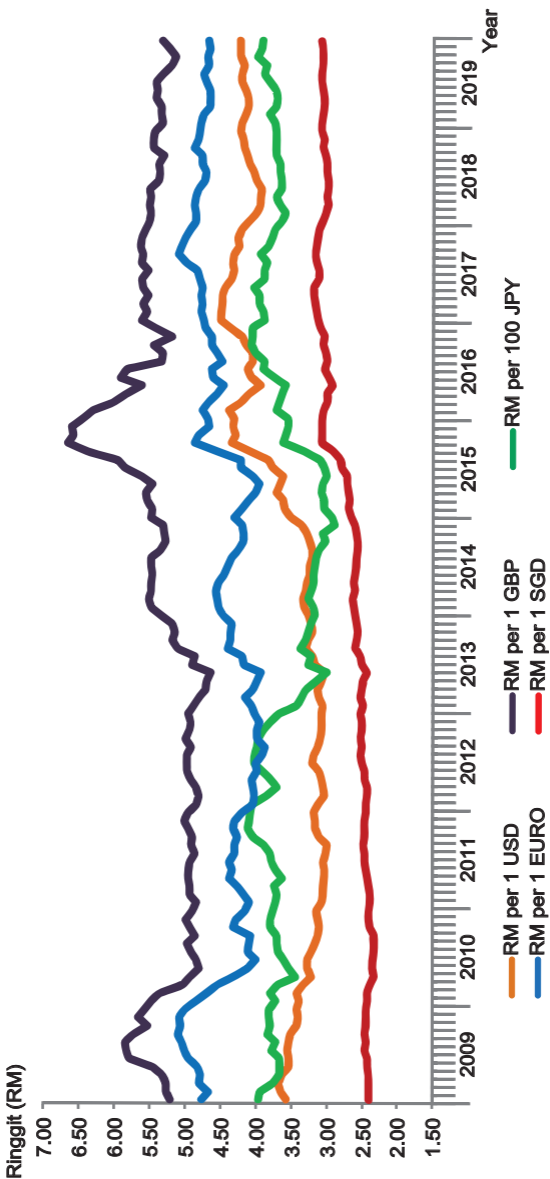
INTEREST RATES: BANKING INSTITUTIONS



2019	Commercial Banks		Investment Banks
	Base Lending Rates (%)	Average Lending Rates (%)	Average Lending Rates (%)
Jan	6.91	5.04	6.22
Feb	6.91	5.02	6.55
Mar	6.91	5.03	6.56
Apr	6.92	5.02	6.49
May	6.71	4.93	6.45
Jun	6.71	4.89	6.45
Jul	6.71	4.82	6.39
Aug	6.71	4.82	6.56
Sep	6.71	4.76	6.55
Oct	6.71	4.76	6.56

Note: Only Jan until Oct rates are available at time of publication.
Source: Monthly Statistical Bulletin, Central Bank of Malaysia

CURRENCY CHART



EXCHANGE RATES

as at 30 November 2019

Country/Region	Currency	RM1	US \$1
Australia	dollar	0.3535	1.4771
Bahrain	dinar	0.0897	0.3747
Brunei	dollar	0.3271	1.3667
China	rmb	1.6821	7.0291
Egypt	pound	3.8502	16.0895
European Currency Unit	ecu	0.2173	0.9082
Hong Kong	dollar	1.8730	7.8272
India	rupees	17.1116	71.5071
Indonesia	rupiah	3,374.74	14,102.60
Japan	yen	26.200	109.500
Kenya	shillings	24.3200	101.630
Lebanon	pound	360.743	1,507.50
Malaysia	ringgit	1.0000	4.1748
New Zealand	dollar	0.3725	1.5566
Pakistan	rupee	37.0152	154.6820
Philippines	peso	12.1555	50.7963
Qatar	riyal	0.8646	3.6129
Singapore	dollar	0.3271	1.3667
South Africa	rand	3.5107	14.6706
South Korea	won	282.334	1,179.840
Sri Lanka	rupee	42.8408	179.0260
Thailand	baht	7.2236	30.1867
United Arab Emirates	dirham	0.8788	3.6725
United Kingdom	pound	0.1853	0.7742
United States of America	dollar	0.2393	1.0000
Vietnam	dong	5,520.48	23,069.40

Source: www.oanda.com/currency/converter/



Utility Costs for Selected Asian Cities

Weight & Measures

Conversion Guide

Public Holidays

Arcadis Asia Leadership Team

Arcadis Asia Services

Directory of Offices

Telephone Directory (Malaysia)

5 OTHER INFORMATION

UTILITY COSTS FOR SELECTED ASIAN CITIES as at 4th Quarter 2019

COUNTRY	Exchange Rate US \$1 =	ELECTRICITY (US\$/kwh)		WATER (US\$/m ³)		FUEL (US\$/litre)		
		Domestic	Commercial/ Industrial	Domestic	Commercial/ Industrial	Diesel	Leaded	Unleaded
KUALA LUMPUR	RM 4.15	0.053 - 0.138	0.092 - 0.123	0.137 - 0.482	0.499 - 0.549	0.525	N/A	0.501
UNLEADED FUEL: Unleaded petrol RON 95 ELECTRICITY (Commercial / Industrial): Tariff A & Tariff D (Low voltage)								
BEIJING	RMB 7.00	0.070 - 0.113	0.195 - 0.197 (peak) 0.121 - 0.123 (normal)	0.714 - 1.286	1.286 - 1.357	0.910	N/A	1.020
ELECTRICITY (Domestic / month) (below 1kV): 1 - 240kWh = US\$0.070; 241 - 400kWh = US\$0.077; 400kWh above = US\$0.113 ELECTRICITY (Commercial / Industrial) (1 - 10kV): Central Districts - Peak = US\$0.197, Normal = US\$0.123; Other Districts - Peak = US\$0.195, Normal = US\$0.121 WATER (Domestic / year): 1 - 180m ³ = US\$0.714; 181 - 260m ³ = US\$1.000; 261m ³ above = US\$1.286 WATER (Commercial / Industrial): Central Districts = US\$1.357; Other Districts = US\$1.286								
GUANGZHOU	RMB 7.00	0.085 - 0.128	0.089 - 0.124	0.285 - 0.571	0.540	0.920	N/A	1.020
UNLEADED FUEL: Unleaded gasoline 97								
HONG KONG	HK\$ 7.82	0.110	0.130	0.830	0.590	1.870	N/A	2.290
ELECTRICITY (Domestic): 0 - 400 kWh = US\$0.11; 400 - 1,000kWh = US\$0.12; 1,000 - 1,800kWh = US\$0.15; 1,800 - 2,600kWh = US\$0.18; 2,600 - 3,400kWh = US\$0.21; 3,400 - 4,200kWh = US\$0.23; Above 4,200 kWh = US\$0.23 (Based on tariff scheme of CLP Holding Limited and is charged on bi-monthly consumption) WATER (Domestic): 0 - 12 m ³ = F.O.C.; 12 - 43m ³ = US\$0.53/m ³ ; 43 - 62m ³ = US\$0.82/m ³ ; Above 62m ³ = US\$1.16/m ³ .								

COUNTRY	Exchange Rate US \$1 =	ELECTRICITY (US\$/kwh)		WATER (US\$/m ³)		FUEL (US\$/litre)		
		Domestic	Commercial/ Industrial	Domestic	Commercial/ Industrial	Diesel	Leaded	Unleaded
MACAU	MOP 8.06	0.170	0.170	0.560-0.900	0.750	1.800	N/A	1.640
<p>ELECTRICITY: Electricity tariff are composition of demand charges, consumption charges, fuel clause adjustment and government tax. 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 infrastructures and other temporary consumption) are excluded.</p> <p>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.</p>								
SHANGHAI	RMB 7.00	0.088 (peak) 0.044 (normal)	4.860 (Basic Tariff) 0.084 (summer) 0.080 (non-summer)	0.493 - 0.833	0.680	0.900	N/A	1.013
<p>ELECTRICITY (Domestic): 0 - 3,120 kWh = US\$0.088 (peak) / US\$0.044 (normal); 3,120 - 4,800kWh = US\$0.097 (peak) / US\$0.048 (normal); Above 4,800 kWh = US\$0.140 (peak) / US\$0.070 (normal). Charged on yearly consumption.</p> <p>ELECTRICITY (Commercial/Industrial): In dual tariff system, Rate of 10KVA</p> <p>WATER (Domestic): 0-220m³ = US\$0.493/m³; 220 - 300m³ = US\$0.690/m³; Above 300m³ = US\$0.833/m³.</p> <p>UNLEADED FUEL: Unleaded 95.</p>								
CHONGQING	RMB 7.00	0.074 - 0.081	0.113 - 0.121	0.5000 - 0.843	0.650	0.778	N/A	0.837
<p>UNLEADED FUEL: Unleaded 90# = US\$0.798/litre; 97# = US\$0.893/litre</p>								

(Cont'd)

5 OTHER INFORMATION

(Cont'd)

UTILITY COSTS FOR SELECTED ASIAN CITIES

COUNTRY	Exchange Rate US \$1 =	ELECTRICITY (US\$/kwh)		WATER (US\$/m ³)		FUEL (US\$/litre)		
		Domestic	Commercial/ Industrial	Domestic	Commercial/ Industrial	Diesel	Leaded	Unleaded
BANGALORE	INR 71.11	0.071 - 0.102	0.088 - 0.129	0.562 - 0.703	1.410	0.965	N/A	1.067
NEW DELHI	INR 71.11	0.020 - 0.1125	0.102	0.350 - 1.060	1.405 - 2.467	0.931	N/A	1.033
BANGKOK	BAHT 29.96	0.078 - 0.148	0.104 - 0.106	0.284 - 0.482	0.317 - 0.528	0.868	N/A	0.900
UNLEADED FUEL: Gasohol 95 ELECTRICITY (Domestic): For normal tariff with consumption not exceeding 150kWh/month.								
HO CHI MINH	VND 23,300	0.130	0.120 0.070	0.260	0.870 / 0.480	0.790	N/A	0.930
All rates are VAT inclusive.								

COUNTRY	Exchange Rate US \$1 =	ELECTRICITY (US\$/kwh)		WATER (US\$/m ³)		FUEL (US\$/litre)		
		Domestic	Commercial/ Industrial	Domestic	Commercial/ Industrial	Diesel	Leaded	Unleaded
MANILA	PHP 51.05	0.180	0.160	0.390 - 0.490	1.820	0.875	N/A	1.108
ELECTRICITY & WATER - Actual Billing: Include misc, charges such as Environmental Charge, Maintenance Service Charge, VAT, etc. ELECTRICITY - (Domestic): 231 kWh - 277 kWh; ELECTRICITY - (Commercial / Industrial): 10,023 kWh; WATER - (Domestic): 11m ³ - 35m ³ ; WATER - (Commercial / Industrial): 15.76m ³								
SINGAPORE	S\$ 1.38	0.170	0.170	1.990* 2.670**	1.990	1.380	N/A	1.960

All rates are nett of GST.

ELECTRICITY: Tariff is based on low tension power supply.

WATER (Domestic) - * Effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for the ≤ 40m³.

WATER (Commercial / Industrial) - ** Effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for the > 40m³.

FUEL (Diesel & 98 Unleaded Petrol) - Effective from 1 July 2018. Rate includes water conservation tax, water borne fee & sanitary appliance fee.

- As at 17 October 2019.

WEIGHT & MEASURES

Metric Measures and Equivalents

LENGTH		
1 millimetre (mm)		= 0.0394 in
1 centimetre (cm)	= 10 mm	= 0.3937 in
1 metre (m)	= 100 cm	= 1.0936 yd
1 kilometre (km)	= 1,000 m	= 0.6214 mile
AREA		
1 sq cm (cm ²)	= 100 mm ²	= 0.1550 in ²
1 sq metre (m ²)	= 10,000 cm ²	= 1.1960 yd ²
1 hectare (ha)	= 10,000 m ²	= 2.4710 acres
1 sq km (km ²)	= 100 ha	= 0.3861 mile ²
VOLUME / CAPACITY		
1 cu cm (cm ³)		= 0.0610 in ³
1 cu decimetre (dm ³)	= 1,000 cm ³	= 0.0353 ft ³
1 cu metre (m ³)	= 1,000 dm ³	= 1.3080 yd ³
1 litre (l)	= 1 dm ³	= 1.76 pt
1 hectolitre (hl)	= 100 l	= 21.997 gal
MASS (WEIGHT)		
1 milligram (mg)		= 0.0154 grain
1 gram (g)	= 1,000 mg	= 0.0353 oz
1 kilogram (kg)	= 1,000 g	= 2.2046 lb
1 tonne (t)	= 1,000 kg	= 0.9842 ton
USA MEASURES AND EQUIVALENTS		
USA Dry Measure Equivalents		
1 pint	= 0.9689 UK pint	= 0.5506 l
USA Liquid Measure Equivalents		
1 fluid ounce	= 1.0408 UK fl oz	= 29.574 ml
1 pint (16 fl oz)	= 0.8327 UK pt	= 0.4723 l
1 gallon	= 0.8327 UK gal	= 3.7854 l

Imperial Measures and Equivalents

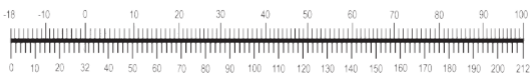
LENGTH		
1 inch (in)		= 2.54 cm
1 foot (ft)	= 12 in	= 0.3048 m
1 yard (yd)	= 3 ft	= 0.9144 m
1 mile	= 1,760 yd	= 1.6093 km
1 int. nautical mile	= 2,025.4 yd	= 1.853 km
AREA		
1 sq inch (in ²)		= 6.4516 cm ²
1 sq foot (ft ²)	= 144 in ²	= 0.0929 m ²
1 sq yard (yd ²)	= 9 ft ²	= 0.8361 m ²
1 acre	= 4,840 yd ²	= 4,046.9 m ²
1 sq mile (mile ²)	= 640 acres	= 2.59 km ²
VOLUME / CAPACITY		
1 cu inch (in ³)		= 16.387 cm ³
1 cu foot (ft ³)	= 1,728 in ³	= 0.0283 m ³
1 fluid ounce (fl oz)		= 28.413 ml
1 pint (pt)	= 20 fl oz	= 0.5683 l
1 gallon (gal)	= 8 pt	= 4.5461 l
MASS (WEIGHT)		
1 ounce (oz)	= 437.5 grains	= 28.35 g
1 pound (lb)	= 16 oz	= 0.4536 kg
1 stone	= 14 lb	= 6.3503 kg
1 hundredweight (cwt)	= 112 lb	= 50.802 kg
1 ton	= 20 cwt	= 1.016 t

Temperature Conversion

$$^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32)$$

$$^{\circ}\text{F} = (9/5 ^{\circ}\text{C}) + 32$$

$^{\circ}\text{C}$



$^{\circ}\text{F}$

CONVERSION GUIDE

Conversion Formulae

To use the conversion formulae simply multiply the Imperial measurement by the factor beside the conversion you wish to make. For example 6 inches into millimetres. 6 inches multiplied by 25.4 equals 152.4 millimetres. Conversely if you wish to convert Metric measure into Imperial measure simply divide by the same factor.

LENGTH	
<i>To Convert</i>	<i>Multiply by</i>
mili-inches into micrometres	25.4
inches into millimetres	25.4
inches into centimetres	2.54
inches into metres	0.0254
feet into millimetres	304.8
feet into centimetres	30.48
feet into metres	0.3048
yards into metres	0.9144
fathoms into metres	1.8288
chains into metres	20.1168
furlongs into metres	201.168
miles, statute into kilometres	1.609344
miles, nautical into kilometres	1.852
VOLUME & CAPACITY	
<i>To Convert</i>	<i>Multiply by</i>
cubic inches into cubic centimetres	16.387064
cubic inches into litres	0.016387
cubic feet into cubic metres	0.0283168
cubic feet into litres	28.316847
UK pints into litres	0.5682613
UK quarts into litres	1.1365225
cubic yards into cubic metres	0.7645549
UK gallons into litres	4.54609
UK gallons into cubic metres	0.0045461
UK fluid ounces into cubic centimetres	28.413063

AREA

<i>To Convert</i>	<i>Multiply by</i>
square inches into square millimetres	645.16
square inches into square centimetres	6.4516
square feet into square centimetres	929.0304
square feet into square metres	0.092903
square yards into square metres	0.836127
square yards into (0.01 hectare)	0.0083613
acres into square metres	4046.8564
acres into hectares	0.4046856
square miles into square kilometres	2.589988

MASS

<i>To Convert</i>	<i>Multiply by</i>
grains into miligrams	64.79891
grains into metric carats	0.323995
grains into grams	0.064799
pennyweights into grams	1.555174
ounces into grams	28.349523
ounces troy into grams	31.103477
ounces into kilograms	0.0283495
pounds into kilograms	0.4535924
stones into kilograms	6.35023932
hundredweights into kilograms	50.802345
tons into kilograms	1016.0469
tons into metric tonnes	1.01605
tahils into grams	37.799
kati into kilograms	0.60479

POWER

<i>To Convert</i>	<i>Multiply by</i>
foot pounds-force per second into watts	1.35582
horsepower into watts	745.7
foot pounds-force per second into kilowatts	0.001356
horsepower into kilowatts	0.7457
horsepower into metric horsepower	1.01387

PUBLIC HOLIDAYS

2020		
MALAYSIA		
New Year's Day**	01	Jan
Chinese New Year	25 - 26	Jan
Labour Day	01	May
Wesak Day	07	May
Hari Raya Aidilfitri*	24 - 25	May
King/Agong's Birthday	06	Jun
Hari Raya Qurban*	31	Jul
Awal Muharam (Maal Hijrah)	20	Aug
National Day	31	Aug
Malaysia Day	16	Sep
Prophet Muhammad's Birthday	29	Oct
Deepavali*	14	Nov
Christmas Day	25	Dec

* Subject to change

** Except Johor, Kelantan, Kedah, Perlis & Terengganu

VIETNAM (Normal Scheduled Holidays)

New Year's Day	01	Jan
Lunar New Year	24 - 29*	Jan
Hung Vuong King Celebration	02	Apr
Liberation Day of Saigon	30	Apr
International Labour Day	01	May
National Day	02	Sep
Christmas Day	24 - 25	Dec

* Substitute (for 28 & 29 January)

2020
HONG KONG

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

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

CHINA

New Year's Day	01	Jan
Chinese New Year's Eve	24	Jan
Chinese New Year	25 - 31	Jan
Women's Day*	08	Mar@
Ching Ming Festival	05 - 07	Apr
Labour Day	01	May
Tuen Ng / Dragon Boat Festival	25	Jun
Mid-Autumn Festival	13	Sep
National Day	01 - 07	Oct
Chung Yeung Festival	25	Oct@

* All women can have half day holiday
@ Non-Statutory Holiday

(Cont'd)

5 OTHER INFORMATION

(Cont'd)

PUBLIC HOLIDAYS

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

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

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

2020
INDIA

New Year's Day	01	Jan
Chandrama Ugadi	25	Mar
May Day	01	May
Ramzan	25	May
Ganesh Chaturthi	21	Aug
Gandhi Jayanthi	02	Oct
Vijay Dashmi	26	Oct
Diwali	16	Nov
Christmas Day	25	Dec

SINGAPORE

New Year's Day	01	Jan
Chinese New Year	25 - 26	Jan [#]
Good Friday	10	Apr
Labour Day	01	May
Vesak Day	07	May
Hari Raya Puasa	24	May [#]
National Day	31	Jul
Hari Raya Haji	09	Aug [#]
Deepavali	14	Nov
Christmas Day	25	Dec

The following Monday will be a public holiday

5 OTHER INFORMATION

(Cont'd)

PUBLIC HOLIDAYS

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

* *Regular Holidays*

Special Non-Working Day

2020
THAILAND

New Year	01	Jan
Makha Bucha Day	10	Feb*
Chakri Memorial Day	06	Apr
Songkran Festival	13 - 15	Apr
Labour Day	01	May
Coronation Day	04	May
Wisakha Bucha Day	06	May
H.M. Queen Suthida Bajrasudhabimalalakshana's Birthday	03	Jun
Asarnha Bucha Day	06	Jul**
H.M. King Maha Vajiralongkorn's Birthday	28	Jul
H.M. Queen Sirikit The Queen Mother's Birthday / Mother's Day	12	Aug
H. M. King Bhumibol Adulyadej Memorial Day	13	Oct
Chulalongkorn Day	23	Oct
H.M. King Bhumibol Adulyadej's Birthday	07	Dec***
Constitution Day	10	Dec
New Year's Eve	31	Dec

* As Makha Bucha Day falls on Saturday (8 Feb), Monday is designated as a general holiday in substitution

** As Asarnha Bucha Day falls on Sunday (5 Jul), Monday is designated as a general holiday in substitution

*** As H.M. King Bhumibol Adulyadej's Birthday falls on Saturday (5 Dec), Monday is designated as a general holiday in substitution

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ARCADIS ASIA SERVICES

BUSINESS ADVISORY

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

COST MANAGEMENT

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

DESIGN & ENGINEERING

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

ENVIRONMENT

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

PROJECT & PROGRAMME MANAGEMENT

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

WATER

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

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Board of Quantity Surveyors Malaysia	03-2610 8140
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