

Construction Cost Handbook **INDONESIA 2018**



PT. Arcadis Indonesia would like to acknowledge the following projects featured on our cover page:

- 1. Semanggi Revitalisation, Jakarta
- 2. Six Senses, Bali
- 3. Mangkuluhur City, Jakarta
- 4. Garuda Wisnu Kencana, Bali
- 5. Sopo Del, Jakarta

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Unless otherwise stated, costs reflected in this handbook are current at 4th Quarter 2017.

Published by
Arcadis Indonesia

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ABOUT US

First established in 1934 in Singapore we have been through our history the pre-eminent cost management consultancy in Asia. Project management followed cost management and expansion into all other major territories in Asia followed Singapore. The office in Indonesia was established in 1972.

Under the legacy names of PT. Rislianto, PT. Davis Langdon & Seah and PT. Langdon and Seah, the company has been involved in many of the best-known and most prestigious projects in the country. Its varied track record takes in a multitude of projects from nearly every sector of the construction industry.

After merging with Arcadis in 2012, and now operating under the name of PT. Arcadis Indonesia, the company is pushing its business lines beyond cost management and project management, now delivering design and engineering in water, infrastructure, transportation, industry and environment.

Arcadis is a global natural and built asset design and consultancy firm working in partnership with clients to deliver sustainable outcomes that help to improve the quality of life. Through the work that we do, we are helping our clients to address the toughest challenges within the built and natural environments, delivering value for them and the communities and cities that we live in.

2017

JANUARY

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PUBLIC HOLIDAYS IN INDONESIA

	2018
INDONESIA	
New Year's Day	01 Jan
Chinese New Year (Imlek)	16 Feb
Hindu Day of Quiet (Nyepi)	17 Mar
Good Friday	30 Mar
Ascension of Prophet Mohammad	14 Apr
International Labour Day	01 May
Ascension Day of Jesus Christ	10 May
Waisak Day	29 May
Pancasila Day	01 Jun
Idul Fitri	15 Jun
	16 Jun
National Independence Day	17 Aug
Idul Adha Day	22 Aug
Hijriyah New Year	11 Sep
Prophet Muhammad's Birthday	20 Nov
Christmas Day	25 Dec



CONSTRUCTION COST DATA

1

Construction Costs for Indonesia

M&E Costs for Indonesia

Cost breakdown for different building types

Construction Costs for Selected Asian Cities

M&E Costs for Selected Asian Cities

Major Rates for Selected Asian Cities

Utility Costs for selected Asian Cities

Electricity Tariffs for Indonesia

Office MEP Cost Components

CONSTRUCTION COSTS FOR INDONESIA

BUILDING TYPE		
	Low IDR'000/m2	High IDR'000/m2
<u>DOMESTIC</u>		
Apartments, high rise, average standard	9,670	10,950
Apartments, high rise, high end	13,310	15,030
<u>OFFICE / COMMERCIAL</u>		
Medium/high rise offices, average standard	9,540	10,550
High rise offices, prestige quality	14,040	15,700

The above costs are at 4th Quarter 2017 levels. Exchange rate used US\$ = Rp 13,535

<u>HOTELS</u>		
Budget hotels - 3-star, mid market	16,570	19,850
Business hotels - 4/5-star	22,600	24,420
Luxury hotels - 5-star	24,020	27,080
<u>INDUSTRIAL</u>		
Industrial units, shell only (conventional single storey framed units)	4,410	4,800
Owner operated factories, low rise, light weight industry	4,780	5,270
<u>OTHERS</u>		
Underground/basement car parks (<3 levels)	6,800	8,350
Retail malls, high-end	9,050	9,780
Hospitals (non-public sector)	-	-

The above costs are at 4th Quarter 2017 levels. Exchange rate used US\$ = Rp 13,535

M&E COSTS FOR INDONESIA

BUILDING TYPE	IDR'000/m ²					
	MECHANICAL SERVICES	ELECTRICAL SERVICES	HYDRAULIC SERVICES	FIRE SERVICES	LIFTS/ ESCALATORS	BAS / COMS
<u>RESIDENTIAL</u>						
Low Rise Apartments (D2)	877 - 959	841 - 1,055	851 - 1,077	282 - 328	415 - 764	103 - 236
High Rise Apartments (D1)	969 - 1,231	913 - 1,067	969 - 1,149	303 - 328	687 - 856	123 - 308
<u>OFFICE</u>						
Average Standard Office High Rise (A2)	985 - 1,133	795 - 1,015	200 - 282	272 - 359	426 - 1,021	200 - 282
Office Super High Rise (A1)	1,021 - 1,159	846 - 1,062	210 - 303	287 - 400	564 - 1,139	226 - 303

The above costs are at 4th Quarter 2017 levels. Exchange rate used US\$ = Rp 13,535

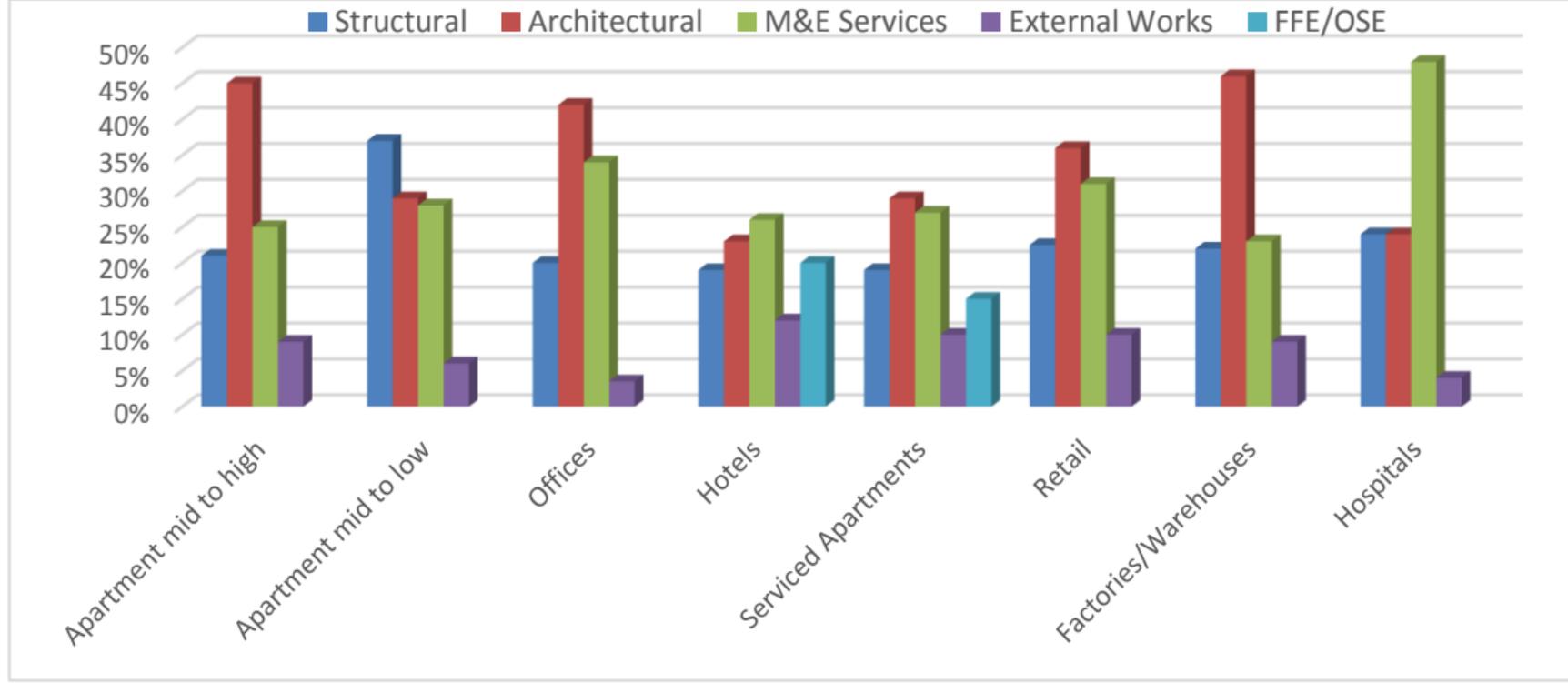
<u>HOTELS</u>						
Resort Hotels (C1)	1,010 - 1,513	1,010 - 1,790	1,682 - 2,241	179 - 256	436 - 672	236 - 538
3-Star Hotels (C3)	980 - 1,159	800 - 897	800 - 1,010	272 - 318	415 - 677	215 - 246
5-Star Hotels (C2)	1,015 - 1,318	821 - 1,128	959 - 1,128	318 - 395	677 - 1,056	267 - 508
<u>INDUSTRIAL</u>						
Factories (E2)	446 - 713	564 - 703	133 - 205	144 - 205	N/A	56 - 82
Warehouses (E3)	303 - 451	451 - 590	113 - 169	113 - 179	N/A	56 - 82
<u>OTHERS</u>						
Shopping Centres (B1)	867 - 1,041	692 - 872	190 - 292	267 - 313	313 - 841	87 - 113
Hospitals (G1) (non-public sector)	723 - 1,231	462 - 923	513 - 1,026	185 - 226	308 - 923	103 - 267
Basement Car Parks (L3)	462 - 564	549 - 667	92 - 179	123 - 272	190 - 313	123 - 256

The above costs are at 4th Quarter 2017 levels. Exchange rate used US\$ = Rp 13,535

COST BREAKDOWN FOR DIFFERENT BUILDING TYPES

BUILDING TYPE	STRUCTURAL	ARCHITECTURAL	M&E SERVICES	EXTERNAL WORKS	FFE/OSE*
Apartment mid to high	21%	45%	25%	9%	-
Apartment mid to low	37%	29%	28%	6%	-
Offices	20%	42%	34%	4%	-
Hotels	19%	23%	26%	12%	20%
Serviced Apartments	19%	29%	27%	10%	15%
Retail	23%	36%	31%	10%	-
Factories/Warehouses	22%	46%	23%	9%	-
Hospitals	24%	24%	48%	4%	-

- Note:
- a) Structural includes piling, foundation and structure
 - b) Architectural includes external walls, internal walls, roof, wall, floor and ceiling finishes, sanitary, windows and doors and joinery fittings
 - c) M&E includes electrical services, communications, fire protection and prevention, plumbing, vertical transportation and ACMV
 - d) *Furniture, fixtures and equipment/operating supplies and equipment



CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m2			
	JAKARTA \$	INDIA G	MANILA O	HO CHI MINH &
<u>DOMESTIC</u>				
Apartments, high rise, average standard	714 - 809	550 - 630	923 - 1,088	630 - 780
Apartments, high rise, high end	983 - 1,110	830 - 1,000	1,227 - 1,712	800 - 920
Terraced houses, average standard	378 - 493	380 - 400	760 - 906	425 - 500
Detached houses, high end	1,029 - 1,151	500 - 525	1,570 - 2,353	485 - 590
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	705 - 779	415 - 450	897 - 1,048	735 - 855
High rise offices, prestige quality	1,037 - 1,160	520 - 550	1,264 - 1,385	850 - 1,160
Out-of-town shopping centre, average standard	606 - 670	405 - 440	727 - 888	N/A
Retail malls, high end	669 - 723	565 - 610	1,059 - 1,504	690 - 900
<u>HOTELS</u>				
Budget hotels - 3-star, mid market	1,224 - 1,447	780 - 865	1,193 - 1,335	1,370 - 1,670
Business hotels - 4/5-star	1,670 - 1,804	1,215 - 1,440	1,322 - 1,650	N/A
Luxury hotels - 5-star	1,776 - 2,001	1,535 - 1,680	1,612 - 2,175	1,725 - 2,070

<u>INDUSTRIAL</u>				
Industrial units, shell only (conventional single storey framed units)	326 - 355	325 - 380	445 - 501	305 - 380
Owner operated factories, low rise, light weight industry	353 - 389	345 - 405	598 - 677	370 - 490
<u>OTHERS</u>				
Underground/basement car parks (<3 levels)	502 - 617	275 - 295	499 - 568	625 - 750
Multi storey car parks, above ground (<4 levels)	326 - 355	210 - 230	457 - 678	400 - 440
Schools (primary and secondary)	N/A	260 - 295	693 - 798	525 - 575
Students' residences	N/A	295 - 325	750 - 895	525 - 680
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,064 - 1,595	575 - 600	1,200 - 1,585	780 - 835
General hospitals - public sector	N/A	630 - 690	1,301 - 1,504	N/A
Exchange rate used : US\$1 =	IDR 13,535	INR 65	PHP 50.50	VND 22,600

The above costs are at 4th Quarter 2017 levels, inclusive of preliminaries but exclusive of contingencies.

O Rates include 12% VAT.

G Rates are based on projects in Bangalore and are nett of VAT and Service Tax. Mumbai costs are generally 8% higher.

\$ Rates are nett of VAT.

& Rates are nett of VAT and contingencies.



ARCADIS

Design & Consultancy
for natural and
built assets

CONSTRUCTION COSTS FOR SELECTED
ASIAN CITIES

BUILDING TYPE	US\$/m2				
	SHANGHAI +	BEIJING +	GUANGZHOU / SHENZHEN +	CHONGQING / CHENGDU +	HONG KONG
<u>DOMESTIC</u>					
Apartments, high rise, average standard	691 - 766	638 - 701	529 - 585	541 - 648	3,080 - 3,620
Apartments, high rise, high end	1,620 - 1,769	1,545 - 1,760	886 - 971	889 - 1,126	4,150 - 4,830
Terraced houses, average standard	465 - 497	465 - 543	402 - 442	445 - 541	4,220 - 4,920
Detached houses, high end	694 - 771	701 - 780	550 - 605	591 - 682	5,460 - 6,220
<u>OFFICE / COMMERCIAL</u>					
Medium/high rise offices, average standard	898 - 1,195	892 - 1,201	773 - 855	865 - 1,005	3,010 - 3,580
High rise offices, prestige quality	1,195 - 1,492	1,201 - 1,973	1,062 - 1,170	1,089 - 1,476	3,720 - 4,490
Out-of-town shopping centre, average standard	N/A	680 - 909	736 - 808	692 - 894	3,080 - 3,590
Retail malls, high end	1,270 - 1,640	1,230 - 1,693	1,082 - 1,189	1,089 - 1,536	4,080 - 4,850
<u>HOTELS</u>					
Budget hotels - 3-star, mid market	985 - 1,209	1,006 - 1,240	995 - 1,095	958 - 1,189	3,910 - 4,230
Business hotels - 4/5-star	1,619 - 2,205	1,681 - 2,220	1,605 - 1,768	1,839 - 2,303	4,100 - 4,870
Luxury hotels - 5-star	2,205 - 2,644	2,142 - 2,755	2,186 - 2,409	N/A	4,810 - 5,580

INDUSTRIAL					
Industrial units, shell only (conventional single storey framed units)	287 - 350	281 - 343	505 - 556	448 - 571	N/A
Owner operated factories, low rise, light weight industry	446 - 557	543 - 623	N/A	N/A	2,360 - 3,000
OTHERS					
Underground/basement car parks (<3 levels)	762 - 1,062	777 - 854	508 - 812	N/A	2,320 - 2,880
Multi storey car parks, above ground (<4 levels)	392 - 546	467 - 473	364 - 400	309 - 386	1,450 - 1,710
Schools (primary and secondary)	544 - 697	541 - 699	403 - 444	417 - 464	2,530 - 2,740
Students' residences	388 - 543	383 - 541	262 - 294	N/A	2,490 - 2,880
Sports clubs, multi purpose sports/leisure centres (dry sports)	988 - 1,213	927 - 934	747 - 824	N/A	3,850 - 4,360
General hospitals - public sector	1,474 - 1,912	1,218 - 1,525	N/A	N/A	5,000 - 5,640
Exchange rate used : US\$1 =	RMB 6.60	RMB 6.60	RMB 6.60	RMB 6.60	HKD 7.80

The above costs are at 4th Quarter 2017 levels, inclusive of preliminaries but exclusive of contingencies.

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

- £ Offices of average standard are built to the following provisions:
 - (i) Curtain wall/window wall facade
 - (ii) Tenant area with screeded floor, painted wall and suspended ceiling.
 Schools (primary and secondary) are of public authority standard, no a/c and complete with basic external works

CONSTRUCTION COSTS FOR SELECTED
ASIAN CITIES

BUILDING TYPE	US\$/m ²			
	MACAU ^D	SINGAPORE ⁺	KUALA LUMPUR	BANGKOK ^æ
<u>DOMESTIC</u>				
Apartments, high rise, average standard	2,229 - 2,740	1,325 - 1,510	375 - 520 ▶	695 - 864
Apartments, high rise, high end	3,126 - 4,770	2,060 - 3,090	780 - 945	988 - 1,188
Terraced houses, average standard	3,823 - 4,545	1,730 - 1,950	225 - 330 ▲	463 - 556
Detached houses, high end	4,645 - 6,040	2,210 - 2,945	755 - 940	803 - 972
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	2,578 - 3,325	1,730 - 1,950 ^J	615 - 710 ▼	648 - 803
High rise offices, prestige quality	3,325 - 3,636	1,950 - 2,135 ^J	880 - 1,200 ▼	880 - 1,111
Out-of-town shopping centre, average standard	2,428 - 3,636	1,950 - 2,060	560 - 690	633 - 818
Retail malls, high end	3,823 - 4,583	2,060 - 2,280	690 - 955	849 - 880
<u>HOTELS</u>				
Budget hotels - 3-star, mid market	3,387 - 3,836	2,170 - 2,390	1,020 - 1,420	1,158 - 1,281
Business hotels - 4/5-star	4,608 - 5,504	2,795 - 3,165	1,760 - 2,065	1,482 - 1,698
Luxury hotels - 5-star	5,504 - 6,513	2,795 - 3,165	1,965 - 2,290	1,729 - 2,006

INDUSTRIAL				
Industrial units, shell only (Conventional single storey framed units)	N/A	735 - 945	325 - 410	494 - 617
Owner operated factories, low rise, light weight industry	N/A	N/A	440 - 500	N/A
OTHERS				
Underground/basement car parks (<3 levels)	2,005 - 2,964	945 - 1,275	365 - 510	556 - 725
Multi storey car parks, above ground (<4 levels)	1,108 - 1,457	650 - 945 [¥]	230 - 300	185 - 296
Schools (primary and secondary)	2,217 - 2,578	N/A	255 - 295◀	N/A
Students' residences	1,768 - 2,042	1,585 - 1,730	300 - 330♦	N/A
Sports clubs, multi purpose sports/leisure centres (dry sports)	N/A	1,985 - 2,135	595 - 695	N/A
General hospitals - public sector	N/A	2,795 - 2,945	875 - 1,105	N/A
Exchange rate used : US\$1 =	MOP 8.03	S\$ 1.36	RM 4.08	BHT 32.39

The above costs are at 4th Quarter 2017 levels, inclusive of preliminaries but exclusive of contingencies.

- D Rates are exclusive of any management contract fee.
- + Rates are nett of GST.
- J Includes raised floor and ceiling to tenanted areas but excludes office carpets (normally under tenants fit-out).
- ¥ Open on all sides with parapet.
- œ Rates exclude VAT
- ▶ 6-12 units per floor, 46m² - 83m² per unit, exclude air conditioning equipment.
- ▲ Terraced houses exclude air conditioning.
- ◀ Offices are average standard and exclude tenant fitout
- ▼ Schools (primary and secondary) are standard government provisions
- ♦ Student hostels to university standard.

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	JAKARTA #	INDIA G	MANILA Q	HO CHI MINH
	IDR'000/m ²	INR/m ²	PHP/m ²	VND'000/m ²
<u>MECHANICAL SERVICES</u>				
Offices	877 - 1,231	4,585 - 6,500	3,000 - 5,200	1,885 - 2,687
Industrial *	303 - 713	2,110 - 3,750	700 - 1,500	N/A
Hotels	980 - 1,513	5,615 - 6,130	3,500 - 7,200	N/A
Shopping Centres	867 - 1,041	4,380 - 5,735	2,500 - 5,000	N/A
Apartment	877 - 1,231	2,500 - 3,100	700 - 3,600	1,423 - 1,950
<u>ELECTRICAL SERVICES</u>				
Offices	795 - 1,062	4,050 - 5,575	3,300 - 7,000	2,136 - 2,547
Industrial **	451 - 703	2,390 - 3,965	2,000 - 3,500	N/A
Hotels	800 - 1,790	4,500 - 6,135	4,700 - 10,000	N/A
Shopping Centres	692 - 872	3,870 - 5,175	3,600 - 6,000	N/A
Apartment	841 - 1,067	1,950 - 2,680	3,600 - 6,300	1,884 - 2,379
<u>HYDRAULIC SERVICES</u>				
Offices	200 - 303	710 - 1,080	900 - 2,200	306 - 572
Industrial	113 - 205	485 - 850	700 - 1,300	N/A
Hotels	800 - 2,241	3,695 - 5,565	1,950 - 4,300	N/A

Shopping Centres	190 - 292	1,050 - 1,900	700 - 1,600	N/A
Apartment	851 - 1,149	1,665 - 2,300	1,800 - 3,000	596 - 693
<u>FIRE SERVICES</u>				
Offices	272 - 400	1,130 - 1,475	800 - 1,300	664 - 1,101
Industrial	113 - 205	540 - 710	750 - 2,000	N/A
Hotels	179 - 395	1,315 - 1,680	700 - 1,200	N/A
Shopping Centres	267 - 313	1,080 - 1,250	700 - 1,300	N/A
Apartment	282 - 328	600 - 715	800 - 1,300	456 - 572
<u>LIFTS / ESCALATORS</u>				
Offices	426 - 1,139	940 - 1,195	1,600 - 3,600	635 - 1,212
Industrial	N/A	610 - 785	0 - 400	N/A
Hotels	415 - 1,056	1,365 - 1,990	1,800 - 3,400	N/A
Shopping Centres	313 - 841	1,600 - 2,050	800 - 2,300	1,293 - 1,830
Apartment	415 - 856	850 - 1,100	850 - 2,200	721 - 1,044

The above costs are at 4th Quarter 2017 levels, exclusive of contingencies.

* Generally without A/C.

** Excludes special power supply.

Q Transformer, included in electrical services.

G Rates are based on projects in Bangalore and are nett of VAT and service tax. Mumbai costs are generally 8% higher.

All rates are nett of VAT. Rates for electrical services exclude genset. Rates for hydraulic services exclude sewage treatment plant. Rates for mechanical services refer to ACMV rates only.

\$ Rates are nett of VAT.

M&E COST FOR SELECTED ASIAN CITIES

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	SHANGHAI	BEIJING	GUANGZHOU / SHENZHEN	CHONGQING / CHENGDU	HONG KONG
	RMB/m ²	RMB/m ²	RMB/m ²	RMB/m ²	HK\$/m ²
<u>MECHANICAL SERVICES</u>					
Offices	776 - 985	760 - 1,050	760 - 1,050	690 - 990	2,000 - 2,800
Industrial *	176 - 295	170 - 280	150 - 280	140 - 230	200 - 300
Hotels	990 - 1,290	950 - 1,200	1,080 - 1,350	730 - 1,180	2,200 - 2,750
Shopping Centres	1,050 - 1,103	790 - 950	700 - 960	590 - 990	2,300 - 2,850
Apartment	315 - 415	140 - 450	150 - 400	110 - 300	850 - 1,750
<u>ELECTRICAL SERVICES</u>					
Offices	605 - 664	460 - 703	530 - 780	430 - 660	1,750 - 2,500
Industrial **	311 - 440	320 - 450	310 - 450	260 - 360	650 - 900
Hotels	664 - 847	705 - 943	700 - 1,000	520 - 770	1,900 - 2,600
Shopping Centres	530 - 664	481 - 676	490 - 680	410 - 660	1,900 - 2,500
Apartment	257 - 375	253 - 398	280 - 500	230 - 340	1,100 - 1,750
<u>HYDRAULIC SERVICES</u>					
Offices	110 - 163	95 - 140	125 - 180	60 - 120	700 - 900
Industrial	89 - 131	95 - 140	86 - 120	60 - 120	500 - 700
Hotels	368 - 488	370 - 480	390 - 500	280 - 350	2,000 - 3,000

Shopping Centres	137 - 184	140 - 200	110 - 165	60 - 120	700 - 900
Apartment	168 - 226	170 - 230	145 - 280	100 - 180	1,500 - 2,400
<u>FIRE SERVICES</u>					
Offices	225 - 315	180 - 265	225 - 350	200 - 260	550 - 700
Industrial	153 - 255	150 - 225	140 - 270	130 - 230	400 - 500
Hotels	285 - 385	220 - 375	280 - 420	200 - 320	600 - 850
Shopping Centres	255 - 380	220 - 375	245 - 375	250 - 350	550 - 700
Apartment	53 - 102	70 - 135	70 - 150	60 - 110	200 - 450
<u>LIFTS / ESCALATORS</u>					
Offices	280 - 550	294 - 577	295 - 500	340 - 590	700 - 1,200
Industrial	135 - 390	145 - 400	150 - 440	150 - 350	550 - 750
Hotels	220 - 495	232 - 520	250 - 470	290 - 490	550 - 850
Shopping Centres	325 - 495	327 - 520	325 - 470	290 - 440	850 - 1,000
Apartment	165 - 325	175 - 289	125 - 300	140 - 240	450 - 850

The above costs are at 4th Quarter 2017 levels, exclusive of contingencies.

- * Generally without air conditioning.
- ** Excludes special power supply.

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	MACAU	SINGAPORE ⁺	KUALA LUMPUR	BANGKOK ^{co}
	MOP/m ²	S\$/m ²	RM/m ²	BHT/m ²
<u>MECHANICAL SERVICES</u>				
Offices	N/A	153 - 249	355 - 515	4,200 - 4,700
Industrial *	N/A	34 - 117	85 - 190	1,550 - 1,600
Hotels	2,600 - 3,000	129 - 278	300 - 580	4,600 - 5,100
Shopping Centres	2,200 - 2,800	147 - 246	315 - 505	4,200 - 4,700
Apartment	900 - 1,100	90 - 170	195 - 285	4,200 - 4,500
<u>ELECTRICAL SERVICES</u>				
Offices	N/A	158 - 258	310 - 510	3,400 - 3,800
Industrial **	N/A	55 - 136	145 - 190	1,950 - 2,200
Hotels	2,600 - 3,100	181 - 356	285 - 595	3,800 - 4,500
Shopping Centres	2,600 - 2,800	160 - 304	310 - 495	2,800 - 3,200
Apartment	1,000 - 1,300	97 - 228	105 - 220	2,800 - 3,350
<u>HYDRAULIC SERVICES</u>				
Offices	N/A	26 - 55	30 - 60	780 - 900
Industrial	N/A	18 - 36	40 - 50	750 - 790
Hotels	1,800 - 2,200	91 - 172	180 - 250	1,400 - 1,650

Shopping Centres	600 - 800	46 - 80	30 - 35	790 - 950
Apartment	1,500 - 2,000	72 - 141	20 - 50	1,200 - 1,400
<u>FIRE SERVICES</u>				
Offices	N/A	33 - 56	60 - 80	780 - 850
Industrial	N/A	23 - 51	45 - 65	730 - 750
Hotels	900 - 1,100	28 - 57	65 - 95	780 - 890
Shopping Centres	600 - 800	37 - 56	65 - 85	780 - 820
Apartment	250 - 300	25 - 50	20 - 30	720 - 850
<u>LIFTS / ESCALATORS</u>				
Offices	N/A	63 - 162	95 - 395	1,100 - 1,350
Industrial	N/A	41 - 104	55 - 190	N/A
Hotels	600 - 800	49 - 108	85 - 365	1,100 - 1,400
Shopping Centres	450 - 700	56 - 90	85 - 110	250 - 450
Apartment	450 - 600	41 - 113	65 - 105	500 - 580

The above costs are at 4th Quarter 2017 levels, exclusive of contingencies.

- * Generally without air conditioning. ∞ Based upon nett enclosed area and nett of VAT.
- ** Excludes special power supply.
- + Rates are nett of GST and excluding BAS



MAJOR RATES FOR SELECTED ASIAN CITIES

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	JAKARTA #	INDIA G	MANILA	HO CHI MINH #
		IDR '000	INR	PHP	VND '000
1. Excavating basement :: 2.00m deep	m ³	45	190	270	92.4
2. Excavating for footings :: 1.50m deep	m ³	90	215	300	92.4
3. Remove excavated materials off site	m ³	40	N/A	160	84.7
4. Hardcore bed blinded with fine materials	m ³	400	4,400	890	280.9
5. Mass concrete grade 15	m ³	1,000	5,950	2,940	1,696.4
6. Reinforced concrete grade 30	m ³	1,100	7,450	3,780	1,955.8
7. Mild steel rod reinforcement	kg	10	67	43	18.5
8. High tensile rod reinforcement	kg	10	69	44	18.0
9. Sawn formwork to soffits of suspended slabs	m ²	215	675	1,000	201.8
10. Sawn formwork to columns and walls	m ²	200	725	950	220.0
11. 112.5mm thick brick walls	m ²	200	1,100	N/A	312.78
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	250	1,700	1,100	401.11 - 597.6

13. Aluminium casement windows; single glazed	m ²	1,650	6,000	10,500 ^Q	6,315.0
14. Structural steelwork - beams, stanchions and the like	kg	23	120	125	52.65
15. Steelwork - angles; channels; flats and the like	kg	23	120	125	52.65
16. 25mm cement and sand (1:3) paving	m ²	90	475	400	94.0
17. 20mm cement and sand (1:4) plaster to walls	m ²	105	390	360	144.0
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	160	1,700	1,600	674.18
19. 12mm fibrous plasterboard ceiling lining	m ²	180 ^æ	1,350	1,090	205.92
20. Two coats of emulsion paint to plastered surfaces	m ²	25	240	390	88.9
Average expected preliminaries	%	8 – 10	8 - 12	12 - 18	8 - 12

The above costs are at 4th Quarter 2017 level and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

Q Rate for aluminium with anodized finish; 6mm thick glass.

G All rates above are supply and fix, based on projects in Bangalore and are nett of VAT and service tax. Mumbai costs are generally 8% higher.

Rates are nett of VAT.

æ Rate for 9mm gypsum board.

\$ Rates include labour costs and are nett of VAT.

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	SHANGHAI	BEIJING	GUANGZHOU/ SHENZHEN	CHONGQING / CHENGDU	HONG KONG
		RMB	RMB	RMB	RMB	HK\$
1. Excavating basement :: 2.00m deep	m ³	30	26	32	22	220
2. Excavating for footings :: 1.50m deep	m ³	30	31	26	26	200
3. Remove excavated materials off site	m ³	130	37	80-100	67	300 ^{&}
4. Hardcore bed blinded with fine materials	m ³	180	170	190	160	950
5. Mass concrete grade 15	m ³	450	410	470	320	1,100
6. Reinforced concrete grade 30	m ³	485	480	500	360	1,300
7. Mild steel rod reinforcement	kg	5.2	4.9	5.5	5.2	9.7
8. High tensile rod reinforcement	kg	5.2	4.9	5.5	5.2	9.7
9. Sawn formwork to soffits of suspended slabs	m ²	85	85	85	60	410
10. Sawn formwork to columns and walls	m ²	85	73	85	60	410
11. 112.5mm thick brick walls	m ²	85 [@]	72	75	70	400
12. 'Kliplock Colorbond' 0.64mm profiled steel sheeting	m ²	N/A	N/A	N/A	N/A	870

13 Aluminium casement windows; single glazed	m ²	700	815 *	650	650 *	3,200
14. Structural steelwork - beams, stanchions and the like	kg	9.5	9.35	11	11.1	36
15 Steelwork - angles; channels; flats and the like	kg	8.5	8.5	9	11.1	38
16. 25mm cement and sand (1:3) paving	m ²	30	27	32	25	150
17. 20mm cement and sand (1:4) plaster to walls	m ²	30	28	30	35	155
18 Ceramic tiles bedded to floor screed (measured separately)	m ²	155	140	155	130	400
19 12mm fibrous plasterboard ceiling lining	m ²	150	162	190	150	600
20. Two coats of emulsion paint to plastered surfaces	m ²	40	32	35	35	75
Average expected preliminaries	%	5 - 10	7 - 10	5 - 10	5 - 10	10 - 15

The above costs are at 4th Quarter 2017 levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

- @ Rates for 120mm thick concrete block walls.
- * Rates for double glazed windows.
- & Rates including dumping charges

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	MACAU	SINGAPORE ⁺	KUALA LUMPUR	BRUNEI	BANGKOK ^{CO}
		MOP	S\$	RM	B\$	BHT
1. Excavating basement :: 2.00m deep	m3	130	20	15 - 22	3.4	120 - 140
2. Excavating for footings :: 1.50m deep	m3	150	20	15 - 25	2.9	140 - 180
3. Remove excavated materials off site	m3	100	15 - 20	20 - 30	2.9	110 - 150
4. Hardcore bed blinded with fine materials	m3	1,200	50	70 - 95	43	650 - 750
5. Mass concrete grade 15	m3	1,350	175 - 185 ⁺⁺	240 - 315	115	2,300 - 2,500
6. Reinforced concrete grade 30	m3	1,250	115 - 120	260 - 320	130	2,500 - 2,700
7. Mild steel rod reinforcement	kg	7.1	1.2 - 1.3	3.2 - 3.7	1.2	24 - 25
8. High tensile rod reinforcement	kg	7.1	1.2 - 1.3	3.2 - 3.7	1.2	23 - 24
9. Sawn formwork to soffits of suspended slabs	m2	250	40	38 - 45	15	400 - 450
10. Sawn formwork to columns and walls	m2	250	40	38 - 45	15	400 - 450
11. 112.5mm thick brick walls	m2	450	35 - 40	45 - 50	16	650 - 750
12 'Kliplock Colorbond' 0.64mm profiled steel sheeting	m2	N/A	43	55 - 65	58	1,200

13. Aluminium casement windows; single glazed	m ²	4,000	290	380 - 600	160 - 210	7,000
14. Structural steelwork - beams, stanchions and the like	kg	35	4.0 - 4.5	7.5 - 9.0	3	50 - 60
15. Steelwork - angles; channels; flats and the like	kg	40	4.0 - 4.5	7.5 - 9.0	3	50 - 60
16. 25mm cement and sand (1:3) paving	m ²	120	21	17 - 23	8	200 - 240
17. 20mm cement and sand (1:4) plaster to walls	m ²	150	22	18 - 23	8	220 - 260
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	450	74	50 - 70	33	1,200
19. 12mm fibrous plasterboard ceiling lining	m ²	650	30	35 - 45	28	750 - 850
20. Two coats of emulsion paint to plastered surfaces	m ²	200	3.5 - 4.0	3.3 - 4.5	5	110 - 140
Average expected preliminaries	%	10	12 - 15	6 - 15	5 - 8	12 - 18

The above costs are at 4th Quarter 2017 levels and are based on lump sum fixed price contract rates exclusive of preliminaries and contingencies.

+ Rates are nett of GST.

++ Rate for lean concrete blinding

∞ Rates are nett of VAT

CONSTRUCTION COST TRENDS

Construction Cost - Apartment High Rise



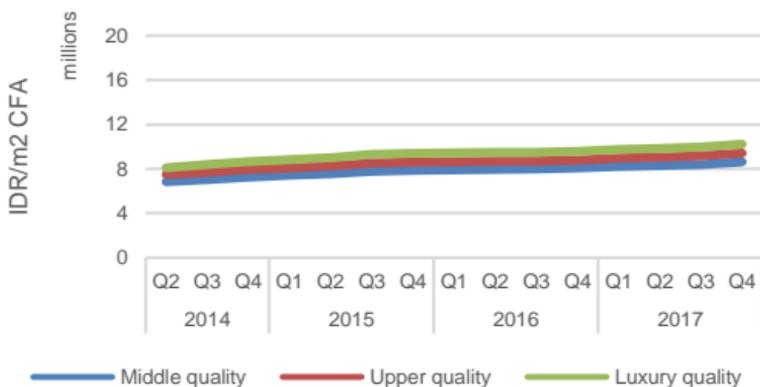
Construction Cost - Housing



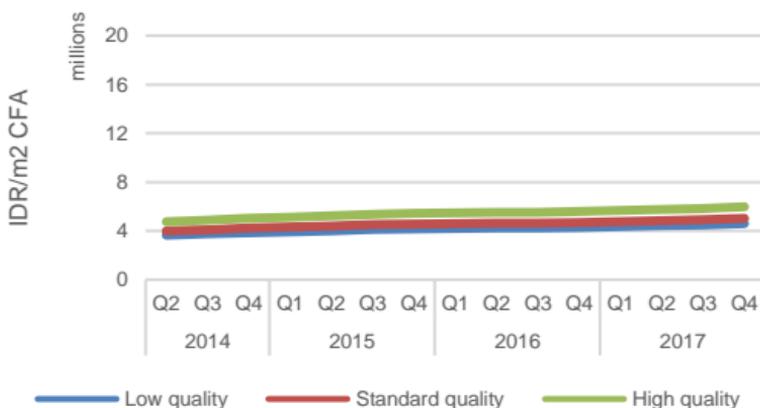
Construction Cost - High Rise Office



Construction Cost - Retail Mall



Construction Cost - Industrial



Construction Cost - Hotel



UTILITY COSTS FOR SELECTED ASIAN CITIES

CITY	EXCHANGE	ELECTRICITY	
	RATE	DOMESTIC	COMMERCIAL/ INDUSTRIAL
	US\$1=	US\$/kWh	US\$/kWh
Jakarta	IDR 13,535	0.108	0.108
Hong Kong	HK\$ 7.80	0.11	0.13
Macau	MOP 8.03	0.17	0.17
Singapore	S\$ 1.36	0.15	0.15
Kuala Lumpur	RM 4.08	0.053 - 0.140	0.093 - 0.108
Bangkok	BAHT 32.39	0.072 - 0.136	0.097 - 0.099
Manila	PESO 50.50	0.21 - 0.22	0.15
Shanghai	RMB 6.60	0.093 (peak) / 0.047 (normal)	0.160 (peak) / 0.079 (normal)
Beijing	RMB 6.60	0.07-0.119	0.23 (peak) 0.133 (normal)
Guangzhou	RMB 6.60	0.10	0.14
Chongqing	RMB 6.60	0.08	0.13
Bangalore	INR 65	0.050 - 0.114	0.130 - 0.132
New Delhi	INR 65	0.063 - 0.132	0.141 - 0.164
Ho Chi Minh	VND 22,700	0.11	0.09 - 0.14 / 0.06 - 0.11

WATER		FUEL		
DOMESTIC	COMMERCIAL/ INDUSTRIAL	DIESEL	LEADED	UNLEADED
US\$/m ³	US\$/m ³	US\$/litre	US\$/litre	US\$/litre
0.077 - 0.549	0.503 - 1.080	0.538	N/A	0.608
0.83	0.59	1.57	N/A	1.99
0.56 - 0.91	0.75	1.54	N/A	1.28
1.76 / 2.01	1.76 / 2.01	1.10	N/A	1.75
0.252 - 0.490	0.507 - 0.559	0.539	N/A	0.551
0.262 - 0.446	0.293 - 0.488	0.814	N/A	0.859
0.48 - 0.80	1.12	0.60	N/A	0.90
0.53-0.88	0.72	0.93	N/A	1.053
0.758 - 1.364	1.364-1.439	0.92	N/A	1.04
0.44	0.74	0.94	N/A	1.06
0.53	0.69	0.86	N/A	0.98
0.400 - 0.692	1.358	0.908	N/A	1.077
0.288 - 1.037	1.318 – 5.886	0.896	N/A	1.074
0.27 - 0.57	0.79 / 0.48	0.64++	N/A	0.80 - 0.83

ELECTRICITY TARIFFS FOR INDONESIA

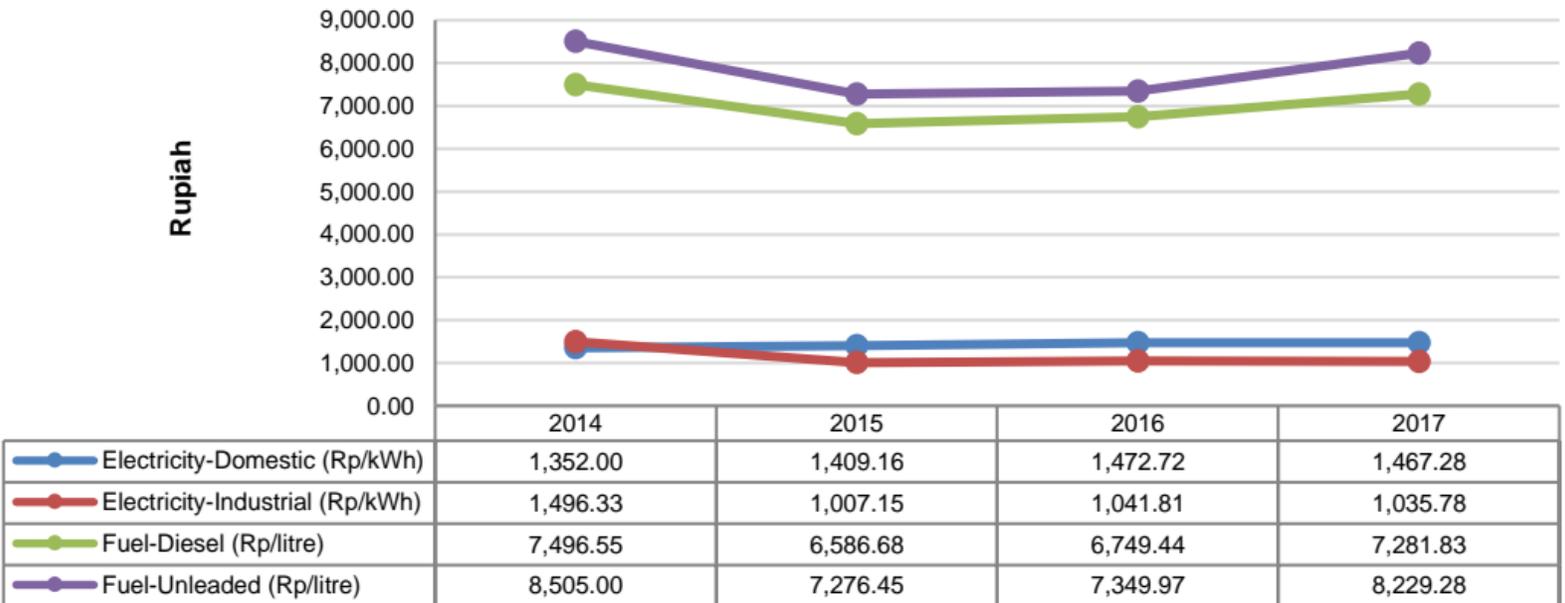
CUSTOMER CLASS	POWER LIMIT	USAGE FEES (Rp/kWh) AND COSTS (Rp/kVArh)		PRE PAID (Rp /kWh)
Residential 1a	1300 VA	1,467.28		1,467.28
Residential 1b	2200 VA	1,467.28		1,467.28
Residential 2	3,500 VA (up to 5,500 VA)	1,467.28		1,467.28
Residential 3	6,600 VA and above	1,467.28		1,467.28
Business 1	6,600 (up to 200 kVA)	1,467.28		1,467.28
Business 2	Over 200 kVA	Peak hrs = K x	1,035.78	-
		Off peak =	1,035.78	
		kVArh =	1,114.74	
Industrial 1	Over 200 kVA	Peak hrs = K x	1,035.78	-
		Off peak =	1,035.78	
		kVArh	1,114.74	

ELECTRICITY TARIFFS FOR INDONESIA

CUSTOMER CLASS	POWER LIMIT	USAGE FEES (Rp / kWh) AND COSTS (Rp / kVArh)		PRE PAID (Rp / kWh)
		Peak hrs and Off peak = kVArh =		
Industrial 2	Above 30,000 KVA	Peak hrs and Off peak = kVArh =	996.74 996.74	-
Government and public street lighting 1	6,600 VA (up to 200 kVA)		1,467.28	1,467.28
Government and public street lighting 2	Over 200 kVA	Peak hrs = K x Off peak = kVArh =	1,035.78 1,035.78 1,114.74	-
Traction			1,467.28	1,467.28
Special			1,644.52	-

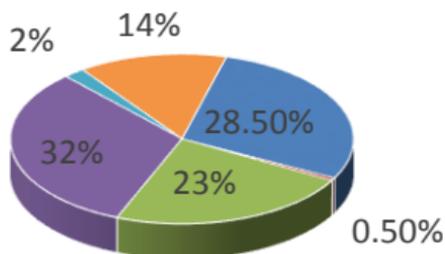
Note: Tariff of December 2017. From 1st January 2015 a floating tariff applies for households with a capacity of 1,300 VA or more.

Utility Cost

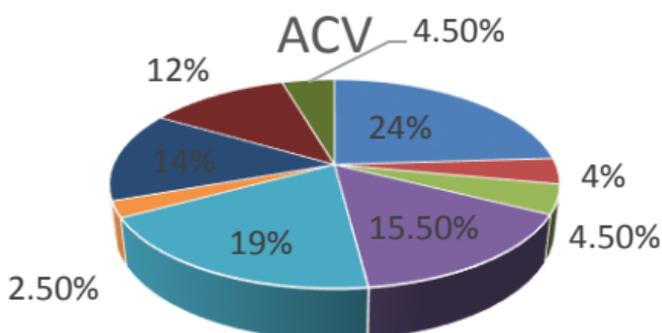


OFFICE MEP COST COMPONENTS

Plumbing and Sanitary

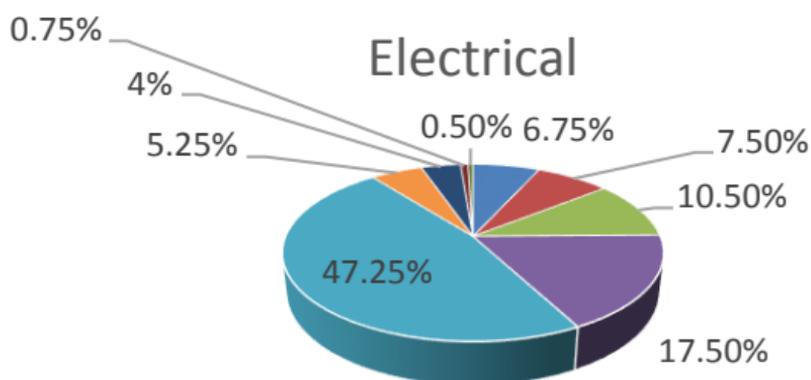


- Cold Water Pipework ■ Hot Water Pipework
- Soil Waste & Vent Piping ■ Cold Water Central Plant
- Hot water Central Plant ■ Rainwater Drainage



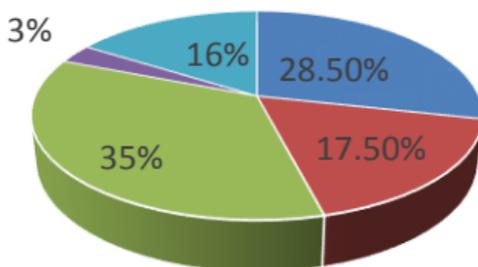
- Chillers ■ Cooling Towers
- Pumps & Tanks ■ AHU/FCU
- Pipework ■ Ventilation
- Ductwork ■ Dampers & Grilles
- Electrical Works

OFFICE MEP COST COMPONENTS

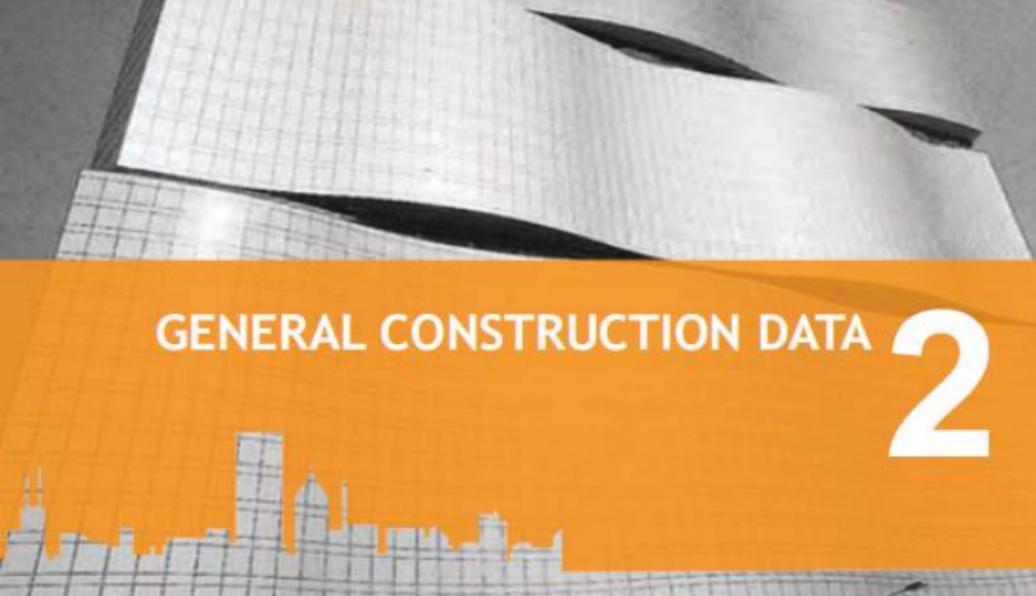


- MV Switchboards
- LV Switchboards
- Cabling & Containment
- Small Power Circuits
- Earthing
- Transformers
- LV Distribution Boards
- Lighting Circuits
- Lightning Protection

Fire Protection



- Central Plant
- Fire Extinguishers
- Fire Hydrant
- Alarm System
- Sprinkler



GENERAL CONSTRUCTION DATA

2

2018 Outlook

Construction Cost Trends in Indonesia

2018 OUTLOOK

Indonesia's economy is stronger, entering 2018, than it has been for a number of years. After growing above 5% in every quarter of 2017, the projection of growth for 2018 is 5.4%.

Foreign investment is improving, inflation is low, more people are in jobs and a landmark infrastructure programme is taking shape.

Some things to look out for:

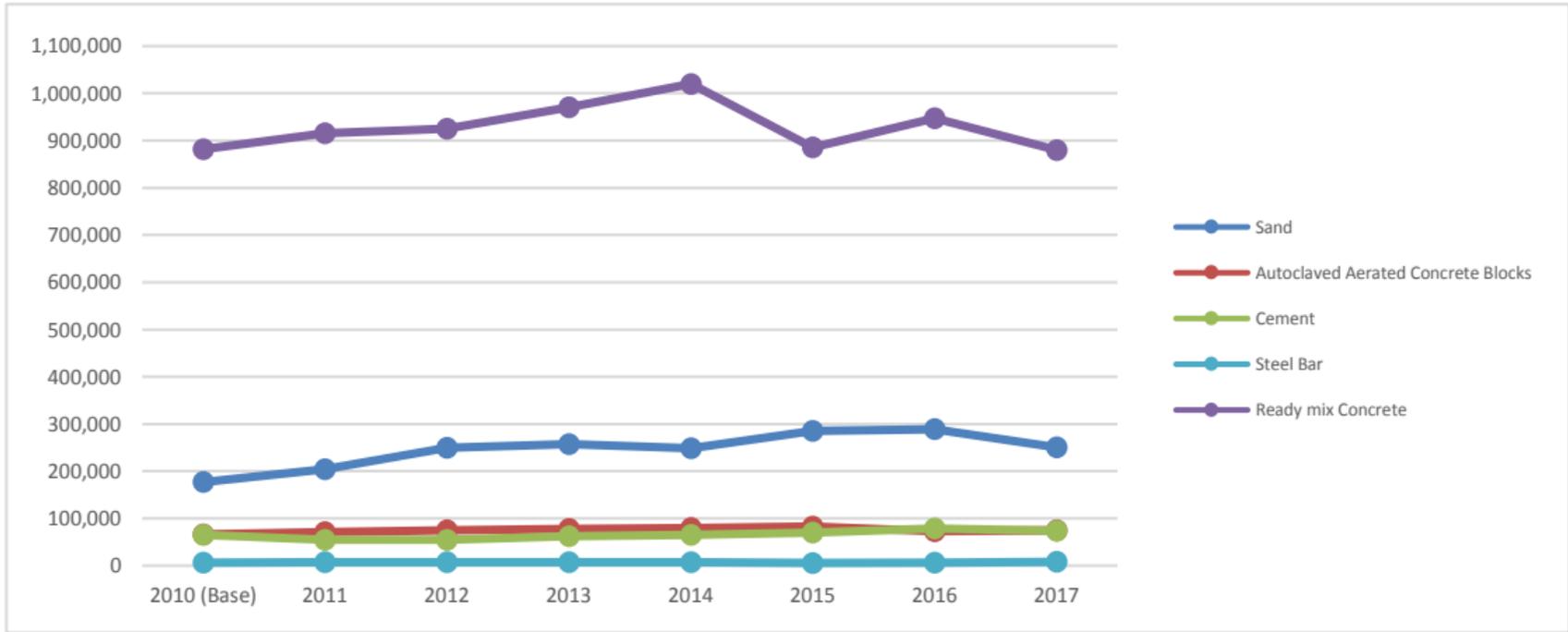
- The government is targetting a reduced budget deficit, with the help of boosted tax revenues
- The export boom which has served Indonesia well is vulnerable to any slowing of the Chinese economy
- The central bank could respond to interest rate increases from the US Federal Reserve or other central banks by raising interest rates in Indonesia
- Regional elections in mid year and presidential elections in 2019 could hold back investment in 2018.

In the commercial sector, sluggishness in markets are impacting investment in new projects, particularly offices and residential, though there are signs of an increase in construction activity which could bode well for 2018.

An overall increase of 3% in the construction market is anticipated for 2018, with the larger part of this increase coming from infrastructure.

MATERIAL PRICE INDICES

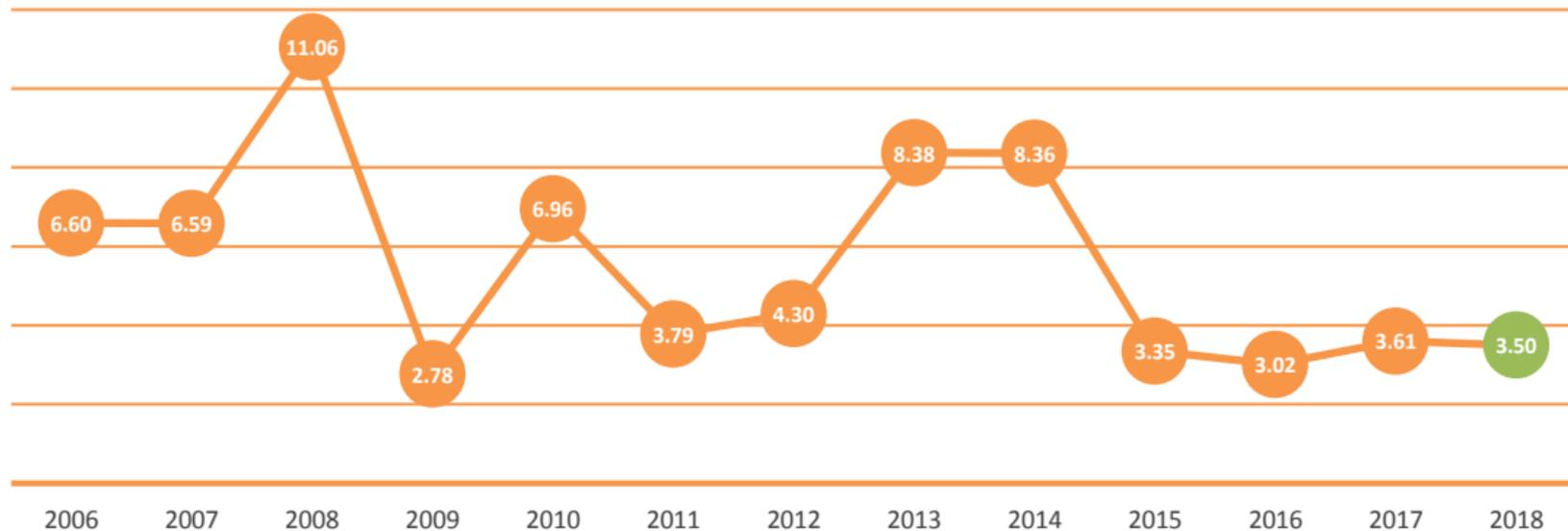
YEAR	Sand		Autoclaved Aerated Concrete Block		Cement		Ready mix Concrete		Steel Bar	
	m3	Inflation %	m2	Inflation %	Sack	Inflation %	30 mpa (m3)	Inflation %	kg	Inflation %
2010 (Base)	177,000	-	66,483	-	65,000	-	882,000	-	6,513	-
2011	204,612	115.60	71,137	107.00	55,000	84.62	915,000	103.74	7,035	108.01
2012	250,000	141.24	75,406	113.42	55,000	84.62	925,000	101.09	7,176	110.18
2013	257,500	145.48	77,669	116.83	62,375	95.96	970,000	104.86	7,320	112.39
2014	248,770	140.55	80,000	120.33	65,529	100.81	1,020,000	105.15	7,540	115.77
2015	285,700	161.41	83,000	124.84	70,000	107.69	885,000	100.34	6,000	92.12
2016	288,800	163.16	73,500	110.55	78,800	121.23	947,600	107.44	6,200	95.19
2017	251,000	141.81	75,000	112.81	74,000	113.85	880,000	99.77	8,200	125.90



CONSUMER PRICE INDICES

Months		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Inflation Rate
2017	CPI	127.94	128.24	128.22	128.33	128.83	129.72	130.00	129.91	130.08	130.09	130.35	131.28	
	Inflations	0.97	0.23	-0.02	0.09	0.39	0.69	0.22	-0.07	0.13	0.01	0.20	0.71	3.61
2016	CPI	123.62	123.51	123.75	123.19	123.48	124.29	125.15	125.13	125.41	125.59	126.18	126.71	
	Inflations	0.51	-0.09	0.19	-0.45	0.24	0.66	0.69	-0.02	0.22	0.14	0.47	0.42	3.02
2015	CPI	118.71	118.28	118.48	118.91	119.50	120.14	121.26	121.73	121.67	121.57	121.82	122.99	
	Inflations	-0.24	-0.36	0.17	0.36	0.50	0.54	0.93	0.39	-0.05	-0.08	0.21	0.96	3.35
2014	CPI	110.99	111.28	111.37	111.35	111.53	112.01	113.05	113.58	113.89	114.42	116.14	119.00	
	Inflations	1.07	0.26	0.08	-0.02	0.16	0.43	0.93	0.47	0.27	0.47	1.50	2.46	8.36
2013	CPI	136.88	137.91	138.78	138.64	138.60	140.03	144.63	146.25	145.74	145.87	146.04	146.84	
	Inflations	1.03	0.75	0.63	-0.10	-0.03	1.03	3.29	1.12	-0.35	0.09	0.12	0.55	8.38
2012	CPI	130.90	130.96	131.05	131.32	131.41	132.23	133.16	134.43	134.45	134.67	134.76	135.49	
	Inflations	0.76	0.05	0.07	0.21	0.07	0.62	0.70	0.95	0.01	0.16	0.07	0.54	4.30
2011	CPI	126.29	126.46	126.05	125.66	125.81	126.50	127.35	128.54	128.89	128.74	129.18	129.91	
	Inflations	0.89	0.13	-0.32	-0.31	0.12	0.55	0.67	0.93	0.27	-0.12	0.34	0.57	3.79
2010	CPI	118.01	118.36	118.19	118.37	118.71	119.86	121.74	122.67	123.21	123.29	124.03	125.17	
	Inflations	0.84	0.30	-0.14	0.15	0.29	0.97	1.57	0.76	0.44	0.06	0.60	0.92	6.96
2009	CPI	113.78	114.02	114.27	113.92	113.97	114.10	114.61	115.25	116.46	116.68	116.65	117.03	
	Inflations	-0.07	0.21	0.22	-0.31	0.04	0.11	0.45	0.56	1.05	0.19	-0.03	0.33	2.78

Inflation Rate



* Inflation rate for 2018 is a projection

LABOUR RATES

Labour	Unit	2014	2015	2016	2017
Non-skilled general Worker	Day	98,000	105,000	103,000	111,000
Carpenter	Day	115,500	120,000	135,000	139,000
Bricklayer	Day	115,500	120,000	125,000	148,500
Steel bar worker	Day	115,500	120,000	125,000	139,000
Plumber	Day	115,500	120,000	125,000	139,000
Heavy equipment operator	Day	150,000	170,000	158,000	175,000
Welder	Day	115,500	150,000	125,000	139,000
Electrician	Day	117,000	120,000	125,000	139,000

Data Sources: 'Journal of Building, Construction, Interior & Material Price', Market Sources

INDONESIA CONSTRUCTION COST INDICES (Indeks Kemahalan Konstruksi – IKK)

Province	City	CCI (IKK)	
		BPS*	Arcadis**
Aceh	Aceh	96.41	-
North Sumatera	Medan	101.49	123.45
West Sumatera	Padang	95.33	123.45
Riau	Pekanbaru	94.73	123.45
Jambi	Jambi	88.39	123.45
South Sumatera	Palembang	98.64	126.98
Bengkulu	Bengkulu	93.27	-
Lampung	Lampung	90.09	117.57
Bangka Belitung	Pangkal Pinang	101.71	-
Riau Islands	Batam"	122.72	146.96
DKI Jakarta	Jakarta	117.57	117.57
West Jawa	Bandung	96.78	117.57
Central Jawa	Semarang	93.05	117.57
D.I. Yogyakarta	Yogyakarta	92.52	117.57
East Jawa	Surabaya	97.50	117.57
Banten	Serang	97.88	117.57
Bali	Bali	111.64	117.57

" Batam is a Free Trade Zone, VAT 10% is not applied.

* Based on data of BPS (Badan Pusat Statistik) 2017.
BPS statistics are based on government projects.

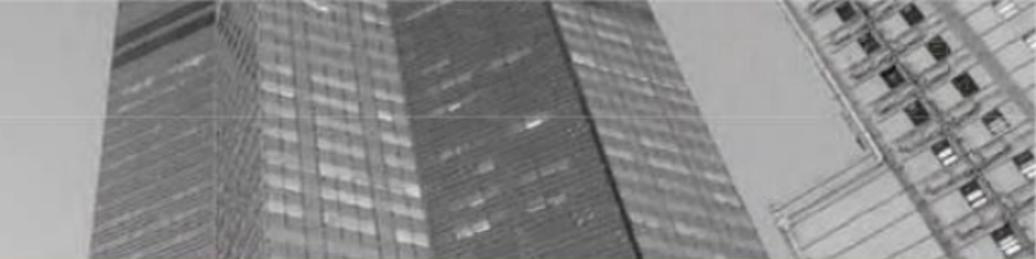
** Based on Arcadis data

INDONESIA CONSTRUCTION COST INDICES (Indeks Kemahalan Konstruksi – IKK)

Province	City	CCI (IKK)	
		BPS*	Arcadis**
West Nusa Tenggara	Mataram	91.63	135.21
East Nusa Tenggara	Kupang	95.94	-
West Kalimantan	Pontianak	109.12	-
Central Kalimantan	Palangka Raya	97.47	-
South Kalimantan	Banjarmasin	101.67	-
East Kalimantan	Balikpapan	109.21	137.56
North Kalimantan	Tanjung Selor	118.27	-
North Sulawesi	Manado	112.05	141.08
Central Sulawesi	Palu	88.13	-
South Sulawesi	Makasar	95.57	137.56
Southeast Sulawesi	Kendari	99.75	-
Gorontalo	Gorontalo	92.76	141.08
West Sulawesi	Mamuju	88.61	-
Maluku	Ambon	121.06	-
North Maluku	Sofifi	120.92	-
West Papua	Manokwari	140.04	-
Papua	Jayapura	229.82	-

* Based on data of BPS (Badan Pusat Statistik) 2017.
BPS statistics are based on government projects.

** Based on Arcadis data



CONTRACT PROCUREMENT

3

Contract Procurement

PROCUREMENT MODEL AND CONTRACT FORMS

Strategy

Procurement is the process used to obtain construction projects. On any construction project it is vitally important to select the right method of procuring the construction works as it is a key factor contributing to cost efficiency, overall client satisfaction and project success.

There are, in essence, three main procurement routes for construction:

- The traditional method whereby a developer employs the design team and a contractor takes on a purely construction role;
- Design and Build, where a contractor employs the design team which takes on responsibility for both design and construction; and
- Turnkey Contracting which get its name from the concept of the developer awarding the construction contract to a contractor and having no further input until 'turning the key' to open the project. In its purest form, the contractor takes on complete responsibility for design, construction and financing.

The traditional method is the most used in Indonesia.

Key criteria for selection of the procurement route include:

- Speed of project execution
- Cost certainty;
- Degree of client involvement;
- Apportionment of risk and responsibility.

The FIDIC Conditions of Contract

The most commonly used form of contract for construction projects in Indonesia is the FIDIC suite of construction contracts, written and published by the Federation Internationale des Ingenieurs-Conseil (International Federation of Consulting Engineers).

The suite comprises

- FIDIC 'Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer: The Construction Contract' (The Red Book) 1999
- FIDIC 'Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant and for Building and Engineering Works designed by the Contractor: The Plant and Design-Build Contract' (The Yellow Book) 1999
- FIDIC 'Conditions of Contract for EPC Turnkey Projects: The EPC/Turnkey Contract' (The Silver Book) 1999

FIDIC Red Book

This contract provides conditions of contract for construction work where the design is carried out by the Employer. This is the most common form of contract used in Indonesia outside of the government sector.

The FIDIC Red Book provides for provisional quantities premeasured on completion. This is typically altered to a fixed lump sum, the quantities provided for information only and at the risk of the contractor.

FIDIC Yellow Book

The FIDIC Yellow Book provides for construction works where the design is carried out by the Contractor. This contract is applicable to the procurement of electrical and/or mechanical plant, as well as building or engineering works. The Contractor's design will be in accordance with the Employer's brief.

FIDIC Silver Book

This contract provides conditions of contract for construction works where the design, procurement and construction is carried out by one party, the Contractor.

The Silver Book is primarily used for large civil engineering projects, such as power plants or refineries, where the design is almost wholly of an engineering nature.

FIDIC White Book

The white book is for design consultancy services.

Other in-house forms of contract

There are other contracts in use by Arcadis, usually employed for smaller projects, for specialist contracts and for supply only contracts.

The two most often used are:

- Conditions of Contract for Direct Works, and
- Conditions of Contract for Supply.

The Conditions of Contract for Direct works will be used for smaller works and for smaller packages within a larger project. These conditions are based on the FIDIC Short Form of Contract (The Green Book)

The Conditions of Contract for Supply will mostly be used for supply only packages such as sanitary appliances and accessories, hardware, loose furniture, soft furnishings and the like, but can also apply to the separate purchase of materials such as tiles, pipework, cabling and the like.

Nominated subcontractors are not typically used in Indonesia, instead specialist packages are contracted direct by the Employer. When nominated Subcontractors are a part of the project procurement, Arcadis use a form of contract based on the FIDIC form for subcontracts.

Insurances

All contracts call for certain insurances to be taken out by either the Contractor or the Employer. Insurances will be required for:

- The Works (Insurance of the Works)
- Injury to Persons and Damage to Property (Third Party Liability)
- Contractor's personnel and work people (Workman's compensation)

The first two will normally be grouped together as Contractor's All Risk Insurance, whilst the third will normally be covered through the government's Workers Social Security Agency programme. (BPJS Ketenagakerjaan)

Source: Arcadis Indonesia Practice Manual, Revision 0, March 2013.



OTHER INFORMATION

4

Exchange Rates

Prime Rates

Currency Fluctuations

Conversion Factors

IDD Codes and Time Difference

Relevant Websites

Current Construction Regulations

4 OTHER INFORMATION

EXCHANGE RATES

Approximate rates prevailing on 1 December 2017.

COUNTRY	CURRENCY	IDR per unit	US\$1
Australia	Dollar	10,316.78	1.31
Brunei	Dollar	10,060.74	1.34
Canada	Dollar	10,649.12	1.27
China	Renminbi	2,045.13	6.62
EU (Euro Zone)	Euro	16,117.31	0.84
Hong Kong	Dollar	1,731.74	7.81
India	Rupee	209.67	64.53
Indonesia	Rupiah	1.00	13,529.24
Japan	Yen	120.99	111.82
Macau	Pataca	1,681.30	8.05
Malaysia	Ringgit	3,033.59	4.09
New Zealand	Dollar	9,325.04	1.45

Source : www.xe.com



COUNTRY	CURRENCY	IDR per unit	US\$1
Philippines	Peso	269.00	50.29
Qatar	Rial	3,715.27	3.64
Saudi Arabia	Riyal	3,607.11	3.75
Singapore	Dollar	10,060.74	1.34
South Korea	Won	12.49	1,083.42
Switzerland	Franc	13,868.14	0.98
Taiwan	NT Dollar	450.36	30.04
Thailand	Baht	414.92	32.61
United Arab Emirates	Dirham	3,683.50	3.67
United Kingdom	Pound	18,278.73	0.74
United States of America	Dollar	13,529.24	1.00
Vietnam	Dong	0.60	22,705.64

Source : www.xe.com

4 OTHER INFORMATION

PRIME RATES AND BASE LENDING RATES AS AT 4th QUARTER 2017.

COUNTRY	RATE (%)
Australia**	8.65
Brunei	5.50
China***	4.35
Egypt****	19.7
Hong Kong	5.00
India	9.45
Indonesia*	5.00
Japan#	1.00
Macau	5.25
Malaysia +***	4.61
New Zealand	9.31
Philippines	3.50
Singapore	5.28
South Africa	10.25
South Korea++	3.55
Thailand+*	7.00
United Kingdom	1.50
United States of America	4.40
Vietnam+**	6.25

* In Indonesia, this rate is published by Bank Indonesia with the title "BI Rate".

** O/N Cash Rate

*** 3 year Benchmark Lending Rate

**** Overnight Lending Rate

Long term Prime Rate

++ Call Rate of the Bank of Korea (implementation date is 22 Nov 2012)

+* Minimum Loan Rate % per annum (average based on local bank)

+** Minimum and in VND per year

+*** Indicative effective lending rate

CURRENCY FLUCTUATIONS

US\$ TO INDONESIAN RUPIAH





CONVERSION FACTORS

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

4 OTHER INFORMATION

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

REBAR WEIGHTS

Imperial Bar Size	Metric	Weight (lb/ft)	Weight (kg/m)
3	10	0.376	0.561
4	13	0.668	0.996
5	16	1.043	1.556
6	19	1.502	2.21
7	22	2.044	3.049
8	25	2.67	3.982
9	29	3.4	5.071
10	32	4.303	6.418
11	36	5.313	7.924
12	40	6.424	9.619
14	43	7.65	11.41
18	57	13.6	20.284

FLOW RATE CONVERSIONS

Unit	To	Multiply By
l/s	Cu ft/min	2.1189
	Cu ft/sec	0.0353
l/m	Cu ft/sec	0.0005886
Cu ft/sec	l/m	2.2222
	l/s	28.317
	Million gallons/day	0.64632
	Gallons (US)/min	448.83
Cu ft/min	Cu cm/sec	471.95
	Cu ft/hr	60
	Gallon (US)/min	7.48052
	Gallon (US)/sec	0.1247
Cu ft/hr	Cu cm/sec	7.8658
	Cu ft/min	0.0167
	Gallons (US)/hr	7.4805
	l/hr	28.317
Cu ft	Cu cm	28316.8
	Cu inches	1728.0
	Cu m	0.02832
	Cu yards	0.03704
	Gallon (US) dry	6.42851
	Gallon (US) liq	7.48052

ENERGY CONVERSIONS

Unit	To	Multiply By
Btu	Cal, g	251.996
	Joules	1054.35
	Kg Calories	0.2520
	Kw-hours	0.000292875
	Watt seconds	1054.35
	Hr/TR	8.33333×10^{-5}
Watt/m ²	Joules/hr m ²	3600
	Joules/sec m ²	1.0
	Kw/m ²	0.001
Joules	Btu	0.000949
	Cal, g	0.239045
	Kw-hours	2.778×10^{-7}
	Watt seconds	1
Horsepower	Btu/hr	2547.16
	Cal, g/sec	178.298
	Cal, kg/hr	641.87
	Joules/sec	746
	Kilowatts	0.746
Kw-hours	Btu	3410.1
	Cal,g	860000
	Joules	3.6×10^{-6}
	Kg-cal	859845
	TR	0.284345136
Ton Refrigeran	Btu/hr	12000
	Kw-hours	3.5168525
	Joules/hour	12660670.23
	Horsepower	4.781

DENSITY OF COMMON CONSTRUCTION MATERIALS

Material	Imperial	Metric
Aluminium	171 lb/ft ³	2739 kg/m ³
Cast iron	450 lb/ft ³	7208 kg/m ³
Portland cement	94 lb/ft ³	1506 kg/m ³
Concrete	148 lb/ft ³	2370 kg/m ³
Concrete gravel	150 lb/ft ³	2400 kg/m ³
Crushed stone	100 lb/ft ³	1600 kg/m ³
Earth dry excavated	90 lb/ft ³	1440 kg/m ³
Earth packed	95 lb/ft ³	1520 kg/m ³
Glass, window	161 lb/ft ³	2580 kg/m ³
½ inch Gypsum	2.08 lb/ft ²	10.2 kg/m ²
Limestone	171 lb/ft ³	2739 kg/m ³
Marble	160 lb/ft ³	2560 kg/m ³
Sand, dry	110 lb/ft ³	1600 kg/m ³
Water	62.4 lb/ft ³	1000 kg/m ³
8" Concrete block	55 lb/ft ³	881 kg/m ³
¼" Plywood	0.710 lb/ft ²	3.47 kg/m ²
½" Plywood	1.42 lb/ft ²	6.93 kg/m ²
¾" Plywood	2.13 lb/ft ²	10.4 kg/m ²
Steel	490 lb/ft ³	7850 kg/m ³
Stainless steel	466 lb/ft ³	7480 kg/m ³
Tin	454 lb/ft ³	7280 kg/m ³
Iron	490 lb/ft ³	7850 kg/m ³
Lead	707 lb/ft ³	11340 kg/m ³

IDD CODES & TIME DIFFERENCE

LOCATION	IDD COUNTRY CODE	TIME DIFFERENCE (Hours)*
Australia:		
Melbourne	61	+4
Perth	61	+1
Sydney	61	+4
Bahrain	3	-4
Brunei:	673	+1
China:		
Beijing	86	+1
France	33	-6
Germany	49	-6
Hong Kong	852	+1
India	91	-1.30
Indonesia		
Jakarta	62	0
Bali	62	+1
Jayapura	62	+2
Italy	39	-6
Japan	81	+2
Korea (South)	82	+2
Macau	853	+1
Malaysia	60	+1
Myanmar	95	-0.30
Philippines	63	+1
Qatar	974	-4
Singapore	65	+1
Spain	34	-6
Taiwan	886	+1
Thailand	66	0
UAE	971	-3
United Kingdom	44	-7
United States	1	-12
Vietnam	84	0

RELEVANT WEBSITES

Indonesian Government

Ministry of Defence www.kemhan.go.id
Ministry of Education www.kemdikbud.go.id
Ministry of Finance www.kemenkeu.go.id
Ministry of Foreign Affairs www.kemlu.go.id
Ministry of Trade www.kemendag.go.id
Ministry of Justice www.kemenkumham.go.id
Ministry of Manpower www.naker.go.id
Ministry of Environment & Forestry www.menlh.go.id
Ministry of Transport www.dephub.go.id
Ministry of Home Affairs www.kemendagri.go.id
Ministry of Health www.depkes.go.id
Ministry of Public Work and Public Housing www.pu.go.id
Ministry of Energy and Mining www.esdm.go.id
Ministry of Industry www.kemenperin.go.id
Ministry of National Development Planning www.bappenas.go.id
Ministry of Land and Spatial Planning www.bpn.go.id
Indonesia Government Website www.indonesia.go.id
Indonesia Investment Co-ordinating Board www.bkpm.go.id
Statistics Indonesia www.bps.go.id
Competition Watchdog Commission www.kppu.go.id
National Standardisation Agency www.bsn.go.id

Construction Related Associations

Association of Indonesian Architects www.iai.or.id
Indonesia Green Building Council www.gbcindonesia.org
Indonesia Institute of Engineers www.pii.or.id
Indonesia Contractors Association www.aki.or.id
Indonesia Contractors Association www.aki.or.id
Indonesia Construction Expert Association www.haki.or.id
Indonesia Quantity Surveyor Association www.iqsi.org
National Construction Services Development Board www.lpjk.org
Construction Development Information System www.iasakonstruksi.net

Others

Arcadis www.arcadis.com

CURRENT CONSTRUCTION REGULATIONS

Construction Services Development Board

Following the 2017 Construction Services Act, all construction companies are required to register with the Construction Services Development Board (LPJK).

The work of the Construction Services Development Board also includes:

- Research and Development
- Education and Training
- Registration of workforces
- Arbitration and mediation

Contractors

Contractors require a Construction Service Business Licence (Surat Izin Usaha Jasa Konstruksi) (SIUJK).

This requires the contractor to select classification and sub-classification from the following categories:

- Architecture
- Civils Works
- Mechanical
- Planology

Additional Conditions for Registration:

- 1) ISO 9001:2015 and Quality Management Manual. Issued in Indonesia
- 2) Employment of at least 2 experts with qualification in the selected categories.
- 3) Membership of the Construction Association Registry (KTA)
- 4) Legal Entity certificate (SBU)

Green Building

The Green Building Council Indonesia was established in 2009. They are involved with the certification of green buildings and promotional educational activities.

The GBCI developed the Greenship Rating Tool which ranks buildings in six categories:

- 1) Land Use
- 2) Energy Efficiency
- 3) Water Conservation
- 4) Source Materials
- 5) Air Quality
- 6) Environmental Management

The Greenship rating is voluntary and currently take up is low.

Source: Green Building Council

The Governor Regulation of Jakarta 2012 states that new buildings of a certain size and existing buildings must meet the green building requirements:

- 1) Apartment buildings, office buildings, trade buildings and buildings which have more than one function within one building with the entire building floor size of more than 50,000m².
- 2) Business functions, hotel, social and cultural functions and health care buildings with the entire building floor size of more than 20,000m².
- 3) Social and cultural functions, educational service buildings with the entire building floor size of more than 10,000m².

The requirements for new buildings are:

- a) Energy efficiency
- b) Water efficiency
- c) Indoor air quality
- d) Land and waste management
- e) Implementation of construction activities

The requirements for existing buildings are:

- a) Conservation and energy efficiency
- b) Conservation and water efficiency
- c) Indoor air quality and thermal comfort
- d) Operational management and maintenance

Health and Safety

The Indonesian Manpower Act of 2003, requires all companies with over 100 employees to enforce health and safety standards.

Article 86 of the act states that:

- 1) Every worker/labourer has the right to receive:
 - a) Occupational safety and health protection
 - b) Protection against immorality and indecency
 - c) Treatment that shows respect to human dignity and religious values
- 2) In order to protect the safety of workers / labourers and to realise optimal productivity, an occupational health and safety scheme shall be administered.
- 3) The protection as referred to under subsection (1) and subsection (2) shall be given in accordance with valid statutory legislation.

Article 87 states:

- 1) Every enterprise is under an obligation to apply an occupational safety and health management system that shall be integrated into the enterprise's management system.
- 2) Rulings concerning the application of the occupational safety and health management system as referred to under subsection (1) shall be determined and specified with a Government Regulation.

Environmental

Following the Government Regulation PP No. 27-2012 Article 2, any business and/or activity required to have an *Amdal* or *UKL-UPL* shall have an Environmental Permit.

The processes for obtaining an Environmental Permit are:

- Preparation of *Amdal* and *UKL-UPL*
- Assessment of *Amdal* and *UKL-UPL*
- Application and publishing of Environmental Permit

Any business and/or activity having an important impact on the environment shall have an *Amdal* (Article 3).

Amdal: Environmental Impact Analysis

UKL-UPL: Environmental Management Effort –
Environmental Monitoring Effort

Although the requirement for an *Amdal* has been in place for many years, only in the last two years has its importance been emphasized more, making it a non-negotiable pre-condition to obtaining the IMB.

Employment of Foreign Workers

Foreign managerial and expert personnel in positions that cannot yet be filled by Indonesian nationals are allowed. Approval of company quota and individual work permits is given by the Ministry of Labour.

The duration of the foreign expatriate's term to work in Indonesia is subject to Government regulation, currently 12 months subject to extension year by year.

Employers are obliged to pay an annual fee of US\$ 1,200 for every foreign worker they employ. The obligation to pay this fee does not apply to government agencies, international agencies, social and religious undertakings and certain positions in educational institutions.

Foreigners working full time in Indonesia must obtain a Limited Stay Permit Card (KITAS).

Insurance for employee (BPJS)

It is required by the law for any company registered in Indonesia to provide employment insurance which placed under Worker Social Security Agency Programme (BPJS Ketenagakerjaan).

1. Work Related Accident benefit

This program provides protection against the risks of accidents that occur in the employment relationship, including accidents occurring on the way from home to work or vice versa and illness caused by the work environment.

Contribution (for participant of wage earner) paid by employer depends on the level of working environment risk, whose amount is evaluated once in no longer than two (years).

2. Provident fund benefit

Provident Fund Benefit in the form of cash which amount represents the value of accumulated contributions plus investment results, which are paid in a lump sum if participants reach age of 56 years, die or permanent total disability.

Contribution of provident fund benefit is calculated at 5.7% of wage comprising of 2% contribution from the employee and 3.7% contribution from the employers will be paid by monthly.

3. Pension benefit

Pension benefit is a social security which is intended to maintain the degree of a decent life for participants and / or their heirs by providing income after participants entering retirement, suffering total permanent disability, or death.

Contribution of pension benefit program is calculated at 3% of wage, comprising of 2% contribution from employer and 1% contribution from the participating worker. The maximum wage used in the calculation is Rp 7,335,300 in 2016.

4. Medical benefit

Medical benefit is provided by the Health Social Security Agency Programme (BPJS Kesehatan). The benefit cover medical treatment, medicine and hospitality.

Contribution of medical benefit program is calculated at 4% of wage, comprising of 3% contribution from employer and 1% contribution from the participating worker. The maximum wage used in the calculation is Rp 8,000,000 in 2016.

General Taxes

- Current VAT rate 10%
- Corporate income tax 25%
- Withholding tax for payments to residents - 15% for interest, royalties and dividends, 2% for services, 10% for land and building rental
- Withholding tax for payments to non-residents - 20%

Non-residents are classed as those without a permanent establishment in Indonesia.

Withholding tax requires that the payer is responsible for collection of the tax and provides a tax certificate (faktur pajak) in its place.

Article 22 – Applies to items such as the importation of goods, purchase of fuel, cement or steel.

Article 4.2 - Refers to Final Income Tax where it is required to withhold final tax from payments to resident taxpayers;

Description		Tax Rate	
		Classified company	Non-classified company
Construction works	Small - medium	2%	4%
	Large	3%	
Supply of materials for construction works (supply only)		0%	
Supply and installation of materials for construction works		4%	6%
Design and construction consultancy services		4%	6%
Rental of land or buildings		10%	
Proceeds from transfers of land and building rights		5%	

Article 23 is applied at a rate of 2% on the fees for:

- Rentals of assets other than land and buildings
- Technical services
- Management services
- Consulting services
- Appraisal services
- Actuary services
- Accounting and bookkeeping services
- Design services
- Drilling services for oil and gas mining

A branch of a foreign company is taxed at the corporate rate plus a 20% branch profits tax is applied on net profits after income tax.

Relevant Legislation

Use of Indonesian language in contracts

Government Regulation No.29 of 2000 and No.24 of 2009, stipulates that all contracts must be in Bahasa Indonesia and subject to the applicable law in Indonesia.

Use of Indonesian Rupiah in payments

Law 7 of 2011, The Currency Law states that the Indonesian Rupiah must be used for payment and settlement of all commercial transactions and monetary obligations effected in Indonesia. Exceptions are provided for:

- Certain transactions in relation to the state budget
- Grants received from or made overseas
- International commercial transactions
- Bank deposits denominated in foreign currencies and
- International financing transactions.



ARCADIS

5

Arcadis Values

Arcadis General Business Principles

Cost Management

Project and Programme Management

Design and Engineering

Environmental Services

Water Solutions

Health and Safety

Arcadis Offices

Arcadis Asia Leadership Team

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

Client Success

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

Integrity

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

Sustainability

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

Collaboration

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

ARCADIS GENERAL BUSINESS PRINCIPLES

At Arcadis we define our mission as to create exceptional and sustainable outcomes for our clients in natural and built assets.

In pursuing this mission as a global company, we are committed to four core values in everything we do:

Integrity, Client Focus, Collaboration and Sustainability.

Integrity means that we perform business in an honest and responsible way, working to the highest professional standards. Integrity is not one action or belief -- it is a culmination of the ethical standards we follow and how we will create and maintain a relationship with one another. It is a fulfilment of our high standards of responsibility to the client, shareholders, business partners and employees, the public, and to governments and the laws and culture of the countries in which we operate.

The purpose of Arcadis General Business Principles (AGBP) is to further develop and implement our commitment to Integrity.

The AGBP set guidance for our business decisions and actions throughout the world at all management levels and apply equally to company actions and to individual behaviour of all our employees in conducting Arcadis' business.

COST MANAGEMENT

- Preliminary cost advice and planning
- Analysis of cost/design options
- Advice on procurement and contractual arrangements
- Cash flow projections
- Contractor pre-qualification
- Preparation of tender documents
- Formal contract documents
- Progress payments
- Assessing the cost of proposed variations
- Preparation of regular financial reports
- Settlement of final cost with contractors, specialist contractors and suppliers
- Advice on contractors' claims
- Value engineering
- Reinstatement assessments for fire insurance
- Asset registers and depreciation calculations
- Project monitoring and verification of bank loans
- Due diligence studies
- Expert witness
- Life cycle costing

PROJECT AND PROGRAMME MANAGEMENT

- Due diligence
- Scheduling
- Design management
- Tender management
- Construction management
- Post completion and close out
- Handover
- Migration
- Occupation

DESIGN AND ENGINEERING

- Highway design and maintenance
- Infrastructure-rail and railways systems, airports, ports and maritime assets
- Bridges and civil structures
- Caverns and tunnels
- Geotechnics
- Building structures
- Building facades
- Mechanical and electrical design
- Urban traffic and transport planning
- Sustainability design

ENVIRONMENTAL SERVICES

- Strategic environmental consulting
- Site evaluation and restoration
- Environmental planning
- Environmental construction services

WATER SERVICES

- Water supply and treatment
- Conveyance of water
- Water management
- Water for industry
- Floor control and prevention

HEALTH AND SAFETY

ARCADIS HEALTH AND SAFETY VISION

Based on ARCADIS core values, we strive to achieve zero incidents in everything we do ensuring the health, safety and well-being of our employees and stakeholders. Based on ARCADIS' best in class Health & Safety (H&S) culture and performance, we integrate health and safety standards and best practices into our solutions to manage risk and bring the best outcomes for our employees and clients.

ARCADIS GLOBAL HEALTH AND SAFETY POLICY

At ARCADIS, H&S is also a requirement for operational excellence. As an organization and as individuals, determined to achieve a zero-incident culture, ARCADIS and its staff:

- Keep H&S first in all we do all of the time
- Proactively recognize hazards, assess risks, and control those risks in everything we do, every day (our TRACK philosophy)
- Act only when we understand the hazards and controls and exercise our authority to stop work
- Demonstrate visible H&S leadership and know that active H&S stewardship is an expectation of employment
- Hold our leaders and staff accountable for H&S
- Comply with applicable legal and other H&S requirements wherever we work
- Actively care for staff and stakeholders by intervening when we observe at-risk behavior and unsafe conditions and address them promptly
- Recognize staff for proactive H&S behavior
- Ensure that staff is competent to do their work safely
- Rigorously qualify, select, and evaluate our subcontractors for H&S performance
- Encourage our stakeholders to align with our H&S culture and collaborate with them to achieve zero incidents
- Communicate lessons learned and best practices

FUNDAMENTAL HEALTH AND SAFETY PRINCIPLES

1. Demonstrate H&S Stewardship daily
2. Use TRACK
3. Exercise Stop Work Authority
4. Practice If not me, then who
5. Undertake Health and Safety planning
6. Report injuries and incidents immediately

T.R.A.C.K

TRACK to 0 is a challenging objective and can only be achieved if all ARCADIS staff understand, believe in, demonstrate, and communicate these commitments and engage in the continual improvement of our H&S system and performance each and every day.



Think about the task

Think through the work and how it relates to the site, project, jobs and tasks and plan the work.



Recognise the hazard

Recognize the hazards of each phase of the work.



Assess the risk

Assess the risks using the various risk assessment tools for each hazard.



Control the hazard

Identify the most appropriate control mechanisms to adequately mitigate the risks identified following the hierarchy of controls.



Keep H&S first in all things

Make sure the controls are in place before any activities are initiated and implement Stop Work as necessary.



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