

Construction Cost Handbook **INDONESIA 2019**



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- 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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Fifth Edition 2019
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The information contained herein should be regarded as indicative and for general guidance only. Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and omissions, however caused.

Unless otherwise stated, costs reflected in this handbook are current at 4th Quarter 2018.



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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.

2018

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2019

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PUBLIC HOLIDAYS IN INDONESIA

2019

INDONESIA

New Year's Day	01-Jan
Chinese New Year's (Imlek)	05-Feb
Hindu Day of Quiet (Nyepi)	07-Mar
Ascension of Prophet Muhammad	03-Apr
Election Day	17-Apr
Good Friday	19-Apr
International Labour Day	01-May
Waisak Day	19-May
Ascension Day of Jesus Christ	30-May
Pancasila Day	01-Jun
Idul Fitri	05-06 Jun
Idul Adha Day	11-Aug
National Independence Day	17-Aug
Hijriyah New Year	01-Sep
Prophet Muhammad's Birthday	09-Nov
Christmas Day	25-Dec



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

International Construction Cost

CONSTRUCTION COSTS FOR INDONESIA

BUILDING TYPE		
	Low IDR'000/m2	High IDR'000/m2
<u>DOMESTIC</u>		
Apartments, high rise, average standard	10,960	12,400
Apartments, high rise, high end	15,120	17,060
<u>OFFICE / COMMERCIAL</u>		
Medium/high rise offices, average standard	10,810	11,980
High rise offices, prestige quality	15,940	17,820

The above costs are at 4th Quarter 2018 levels. Exchange rate used US\$ = Rp 15,180

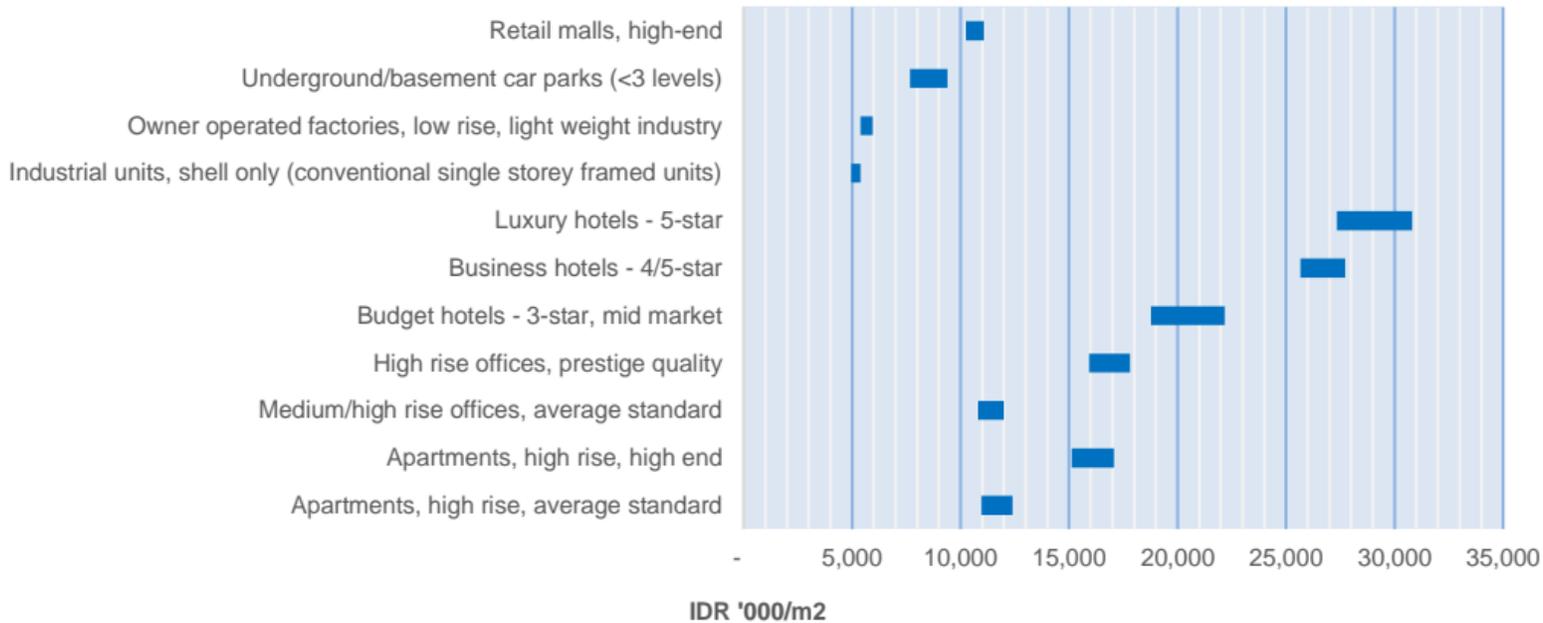
<u>HOTELS</u>		
Budget hotels - 3-star, mid market	18,780	22,180
Business hotels - 4/5-star	25,670	27,730
Luxury hotels - 5-star	27,340	30,820
<u>INDUSTRIAL</u>		
Industrial units, shell only (conventional single storey framed units)	4,970	5,400
Owner operated factories, low rise, light weight industry	5,390	5,950
<u>OTHERS</u>		
Underground/basement car parks (<3 levels)	7,670	9,400
Retail malls, high-end	10,250	11,080
Hospitals (non-public sector)	-	-

The above costs are at 4th Quarter 2018 levels. Exchange rate used US\$ = Rp 15,180

Note that foundation & sitework are excluded from the rates, as existing soil condition may differ from one area to other area.

CONSTRUCTION COSTS FOR INDONESIA

Construction Cost for Indonesia 2018





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)	915 - 1,001	878 - 1,049	889 - 1,124	294 - 343	434 - 798	107 - 246
High Rise Apartments (D1)	1,012 - 1,285	953 - 1,113	1,012 - 1,199	316 - 343	717 - 894	128 - 321
<u>OFFICE</u>						
Average Standard Office High Rise (A2)	1,028 - 1,183	830 - 1,060	209 - 294	284 - 375	444 - 1,065	209 - 294
Office Super High Rise (A1)	1,065 - 1,210	883 - 1,108	219 - 316	300 - 417	589 - 1,188	236 - 316

The above costs are at 4th Quarter 2018 levels. Exchange rate used US\$ = Rp 15,180

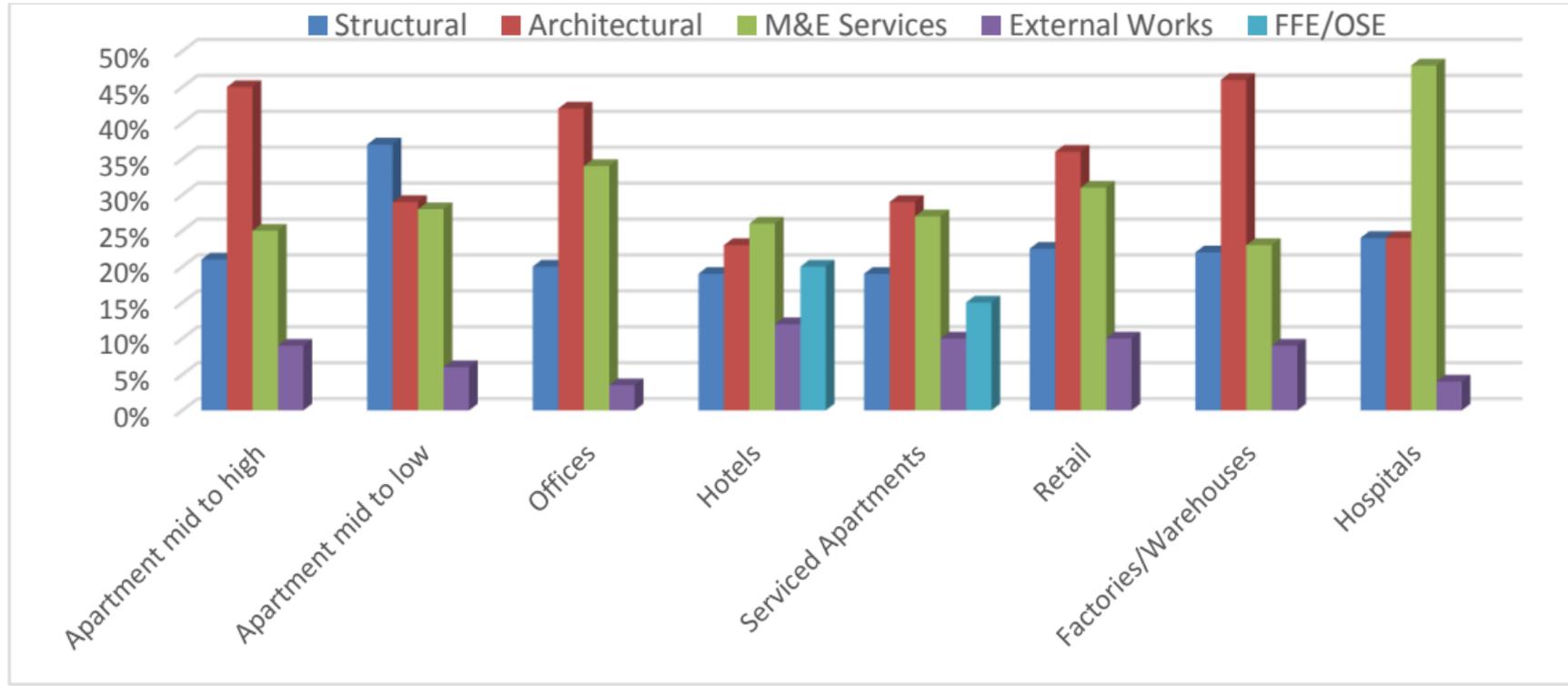
<u>HOTELS</u>						
Resort Hotels (C1)	1,054 - 1,579	1,054 - 1,868	1,756 - 2,339	187 - 268	455 - 701	246 - 562
3-Star Hotels (C3)	1,022 - 1,210	835 - 937	835 - 1,054	284 - 332	434 - 707	225 - 257
5-Star Hotels (C2)	1,060 - 1,376	856 - 1,178	1,001 - 1,178	332 - 412	707 - 1,103	278 - 530
<u>INDUSTRIAL</u>						
Factories (E2)	466 - 744	589 - 733	139 - 214	150 - 214	N/A	59 - 86
Warehouses (E3)	316 - 471	471 - 616	118 - 177	118 - 187	N/A	59 - 86
<u>OTHERS</u>						
Shopping Centres (B1)	905 - 1,087	723 - 910	198 - 305	278 - 326	326 - 878	91 - 118
Hospitals (G1) (non-public sector)	755 - 1,285	482 - 963	535 - 1,070	193 - 236	321 - 963	107 - 278
Basement Car Parks (L3)	482 - 589	573 - 696	96 - 187	128 - 284	198 - 326	128 - 268

The above costs are at 4th Quarter 2018 levels. Exchange rate used US\$ = Rp 15,180

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

<u>INDUSTRIAL</u>				
Industrial units, shell only (conventional single storey framed units)	327 - 356	340 - 398	485 - 538	310 - 390
Owner operated factories, low rise, light weight industry	355 - 392	361 - 424	685 - 789	350 - 460
<u>OTHERS</u>				
Underground/basement car parks (<3 levels)	505 - 619	288 - 309	494 - 610	640 - 765
Multi storey car parks, above ground (<4 levels)	327 - 356	230 - 252	475 - 661	410 - 450
Schools (primary and secondary)	N/A	285 - 324	701 - 952	540 - 590
Students' residences	N/A	309 - 340	742 - 937	540 - 695
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,095 - 1,640	602 - 628	1,186 - 1,699	800 - 855
General hospitals - public sector	N/A	660 - 723	1,287 - 1,523	N/A
Exchange rate used : US\$1 =	IDR 15,180	INR 71.90	PHP 52.88	VND 22,600

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

- | | | | |
|---|---|----|--|
| O | Rates include 12% VAT. | \$ | Rates are nett of 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 and contingencies. |

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

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

The above costs are at 4th Quarter 2018 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	2,279 - 2,788	1,305 - 1,485	345 - 580▶	703 - 871
Apartments, high rise, high end	3,183 - 4,864	2,030 - 3,045	710 - 1,120	978 - 1,207
Terraced houses, average standard	3,884 - 4,635	1,705 - 1,920	220 - 345▲	458 - 565
Detached houses, high end	4,737 - 6,163	2,175 - 2,900	740 - 980	794 - 962
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	2,623 - 3,387	1,705 - 1,920 ^J	575 - 745▼	642 - 794
High rise offices, prestige quality	3,387 - 3,705	1,920 - 2,100 ^J	865 - 1255▼	871 - 1,176
Out-of-town shopping centre, average standard	2,470 - 3,705	1,920 - 2,030	550 - 715	626 - 810
Retail malls, high end	3,884 - 4,686	2,030 - 2,245	680 - 1,000	840 - 886
<u>HOTELS</u>				
Budget hotels - 3-star, mid market	3,451 - 3,909	2,140 - 2,355	1,020 - 1,395	1,146 - 1,268
Business hotels - 4/5-star	4,686 - 5,602	2,755 - 3,115	1,720 - 2,175	1,466 - 1,680
Luxury hotels - 5-star	5,602 - 6,621	2,755 - 3,115	1,940 - 2,435	1,711 - 1,986

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

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

- ◊ Rates are exclusive of any management contract fee.
- + Rates are 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.



ARCADIS

Design & Consultancy
for natural and
built assets

M&E COST FOR SELECTED ASIAN CITIES

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	1,028 - 1,183	4,800 - 6,805	4,000 - 5,930	2,036 - 2,902
Industrial *	466 - 744	2,210 - 3,925	800 - 1,500	N/A
Hotels	1,022 - 1,210	5,880 - 6,420	3,500 - 9,670	N/A
Shopping Centres	905 - 1,087	4,585 - 6,005	2,890 - 6,840	N/A
Apartment	915 - 1,001	2,620 - 3,245	1,360 - 4,430	1,573 - 2,106
<u>ELECTRICAL SERVICES</u>				
Offices	830 - 1,060	4,250 - 5,840	3,700 - 7,000	2,275 - 2,723
Industrial **	589 - 833	2,500 - 4,150	2,000 - 3,500	N/A
Hotels	835 - 937	4,710 - 6,425	4,700 - 1,2000	N/A
Shopping Centres	723 - 910	4,050 - 5,420	3,600 - 6,000	N/A
Apartment	878 - 1,049	2,040 - 2,805	3,600 - 6,800	2,006 - 2,534
<u>HYDRAULIC SERVICES</u>				
Offices	209 - 294	740 - 1,130	1,230 - 2,200	332 - 621
Industrial	139 - 214	510 - 890	800 - 1,300	N/A
Hotels	835 - 1,054	3,868 - 5,825	2,250 - 6,820	N/A

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

The above costs are at 4th Quarter 2018 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.



ARCADIS

Design & Consultancy
for natural and
built assets

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	790 - 1,005	775 - 1,071	775 - 1,070	730 - 990	1,900 - 2,700
Industrial *	176 - 295	170 - 280	155 - 285	140 - 230	160 - 260
Hotels	1,010 - 1,316	950 - 1,224	1,080 - 1,350	930 - 1,280	2,100 - 2,650
Shopping Centres	1,070 - 1,125	806 - 970	715 - 910	890 - 1,010	2,200 - 2,750
Apartment	320 - 423	143 - 459	152 - 410	150 - 300	850 - 2,000up
<u>ELECTRICAL SERVICES</u>					
Offices	620 - 700	470 - 717	540 - 795	450 - 660	1,750 - 2,450
Industrial **	311 - 440	326 - 459	320 - 459	260 - 360	620 - 860
Hotels	677 - 864	719 - 962	715 - 1,020	580 - 830	1,900 - 2,600
Shopping Centres	540 - 677	490 - 690	500 - 690	510 - 660	1,800 - 2,450
Apartment	262 - 383	258 - 406	285 - 500	230 - 340	1,100 - 2,100up
<u>HYDRAULIC SERVICES</u>					
Offices	112 - 166	97 - 143	128 - 184	85 - 120	700 - 900
Industrial	89 - 131	97 - 143	89 - 124	85 - 120	500 - 700
Hotels	375 - 498	377 - 490	390 - 500	330 - 450	2,000 - 3,000

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

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

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



ARCADIS

Design & Consultancy
for natural and
built assets

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

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

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

- * Generally without 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	40	199	270	92.4
2. Excavating for footings :: 1.50m deep	m ³	75	225	500	92.4
3. Remove excavated materials off site	m ³	35	NA	350	84.7
4. Hardcore bed blinded with fine materials	m ³	650	4,620	1,800	280.9
5. Mass concrete grade 15	m ³	950	6,248	3,400	1,696.4
6. Reinforced concrete grade 30	m ³	1,135	7,822	4,800	1,865.65
7. Mild steel rod reinforcement	kg	12.5	70	54	19.764
8. High tensile rod reinforcement	kg	12.5	72	55	19.908
9. Sawn formwork to soffits of suspended slabs	m ²	200	708	1,000	215
10. Sawn formwork to columns and walls	m ²	195	761	950	245
11. 112.5mm thick brick walls	m ²	250	1,155	N/A	312.78
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	300	1,785	1,400	401.11 - 597.60

13. Aluminium casement windows; single glazed	m ²	1,650	6,300	11,500 ^Q	6,315
14. Structural steelwork - beams, stanchions and the like	kg	27	126	160	52.65
15. Steelwork - angles; channels; flats and the like	kg	27	126	160	52.65
16. 25mm cement and sand (1:3) paving	m ²	90	498	650	94
17. 20mm cement and sand (1:4) plaster to walls	m ²	100	409	700	144
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	200	1,785	1,800	674.18
19. 12mm fibrous plasterboard ceiling lining	m ²	215 ^æ	1,417	1,400	234
20. Two coats of emulsion paint to plastered surfaces	m ²	30	252	500	88.9
Average expected preliminaries	%	8 – 10	9 - 13	12 - 18	8 - 12

The above costs are at 4th Quarter 2018 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.



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	30	30	30	200
2. Excavating for footings :: 1.50m deep	m ³	30	33	30	26	180
3. Remove excavated materials off site	m ³	135	60	105	95	300 ^{&}
4. Hardcore bed blinded with fine materials	m ³	190	180	190	170	950
5. Mass concrete grade 15	m ³	540	530	540	420	1,100
6. Reinforced concrete grade 30	m ³	570	550	580	550	1,200
7. Mild steel rod reinforcement	kg	5.8	5.6	6.0	5.30	9.70
8. High tensile rod reinforcement	kg	5.8	5.6	6.0	5.30	9.70
9. Sawn formwork to soffits of suspended slabs	m ²	90	90	90	65	410
10. Sawn formwork to columns and walls	m ²	90	85	85	60	410
11. 112.5mm thick brick walls	m ²	90@	80	80	80	400
12 'Kliplock Colorbond' 0.64mm profiled steel sheeting	m ²	N/A	N/A	NA	N/A	1,000

13 Aluminium casement windows; single glazed	m ²	700	815 *	700	650 *	3,800
14. Structural steelwork - beams, stanchions and the like	kg	11	11	12.5	11	36
15 Steelwork - angles; channels; flats and the like	kg	9.5	9.5	11.5	11.1	42
16. 25mm cement and sand (1:3) paving	m ²	35	32	35	25	160
17. 20mm cement and sand (1:4) plaster to walls	m ²	35	32	30	35	165
18 Ceramic tiles bedded to floor screed (measured separately)	m ²	160	145	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	90
Average expected preliminaries	%	5 - 10	7 - 10	5 - 12	6 - 12	10 - 15

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

- @ Rates 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	BANGKOK ^{CO}
		MOP	S\$	RM	BHT
1. Excavating basement :: 2.00m deep	m3	150	20	15 - 25	120 - 140
2. Excavating for footings :: 1.50m deep	m3	180	20	15 - 25	140 - 180
3. Remove excavated materials off site	m3	150	15 - 20	20 - 30	120 - 150
4. Hardcore bed blinded with fine materials	m3	1,200	50	72 - 95	650 - 750
5. Mass concrete grade 15	m3	1,350	175 - 185 ⁺⁺	240 - 315	2,300 - 2,500
6. Reinforced concrete grade 30	m3	1,250	115 - 120	260 - 320	2,600 - 2,800
7. Mild steel rod reinforcement	kg	9.00	1.25 - 1.35	3.4 - 3.8	26 - 29
8. High tensile rod reinforcement	kg	9.00	1.25 - 1.35	3.4 - 3.8	26 - 28
9. Sawn formwork to soffits of suspended slabs	m2	280	40	38 - 45	420 - 480
10. Sawn formwork to columns and walls	m2	280	40	38 - 45	420 - 480
11. 112.5mm thick brick walls	m2	450	35 - 40	42 - 50	650 - 750
12 'Kliplock Colorbond' 0.64mm profiled steel sheeting	m2	N/A	43	65 - 70	1,200

13. Aluminium casement windows; single glazed	m ²	4,000	290	380 - 600	7,000
14. Structural steelwork - beams, stanchions and the like	kg	35	4.0 - 4.5	7.5 - 9.5	60 - 75
15. Steelwork - angles; channels; flats and the like	kg	40	4.0 - 4.5	7.5 - 9.5	60 - 75
16. 25mm cement and sand (1:3) paving	m ²	120	21	17 - 25	200 - 240
17. 20mm cement and sand (1:4) plaster to walls	m ²	150	22	18 - 25	220 - 260
18. Ceramic tiles bedded to floor screed (measured separately)	m ²	450	74	50 - 70	1,200
19. 12mm fibrous plasterboard ceiling lining	m ²	650	30	35 - 45	750 - 850
20. Two coats of emulsion paint to plastered surfaces	m ²	200	3.5 - 4.0	3.5 - 5.0	120 - 160
Average expected preliminaries	%	10	12 - 15	6 - 15	12 - 18

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

+ Rates are nett of GST.

++ Rate for lean concrete blinding

∞ Rates are nett of VAT

1 CONSTRUCTION COST DATA

UTILITY COSTS FOR SELECTED ASIAN

CITY	EXCHANGE	ELECTRICITY	
	RATE	DOMESTIC	COMMERCIAL/ INDUSTRIAL
	US\$1=	US\$/kWh	US\$/kWh
Jakarta	IDR 15,180	0.097	0.097
Hong Kong	HK\$ 7.82	0.11	0.13
Macau	MOP 8.07	0.17	0.17
Singapore	S\$ 1.38	0.17	0.17
Kuala Lumpur	RM 4.18	0.052 - 0.137	0.091 - 0.122
Bangkok	BAHT 32.73	0.072 - 0.136	0.096 - 0.098
Manila	PESO 52.88	0.21	0.19
Shanghai	RMB 6.94	0.089 (peak) / 0.044 (normal)	0.157 (peak) / 0.075 (normal)
Beijing	RMB 6.94	0.071-0.113	0.219-0.221 (peak) 0.124-0.126 (normal)
Guangzhou	RMB 6.94	0.085-0.128	0.089-0.124
Chongqing	RMB 6.94	0.08	0.11
Bangalore	INR 71.90	0.069 - 0.100	0.087 - 0.128
New Delhi	INR 71.90	0.069 - 0.111	0.070 - 0.111
Ho Chi Minh	VND 22,800	0.11	0.1 / 0.06



WATER		FUEL		
DOMESTIC	COMMERCIAL/ INDUSTRIAL	DIESEL	LEADED	UNLEADED
US\$/m ³	US\$/m ³	US\$/litre	US\$/litre	US\$/litre
0.069 - 0.491	0.450 - 0.965	0.481	N/A	0.543
0.83	0.59	1.83	N/A	2.21
0.56 - 0.90	0.75	1.70	N/A	1.45
1.99 / 2.67	1.99	1.34	N/A	1.94
0.136 - 0.478	0.495 - 0.545	0.522	N/A	0.526
0.259 - 0.441	0.290 - 0.483	0.895	N/A	0.881
0.29 - 0.74	1.37	0.972	N/A	1.146
0.497-0.840	0.68	1.16	N/A	1.220
0.721 - 1.296	1.296-1.368	1.10	N/A	1.22
0.285-0.571	0.50	0.97	N/A	1.12
0.61	0.85	1.22	N/A	1.28
0.556 - 0.695	1.39	1.001	N/A	1.072
0.35 - 1.05	1.390-2.440	0.992	N/A	1.141
0.24	0.75 / 0.43	0.82	N/A	0.92

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	

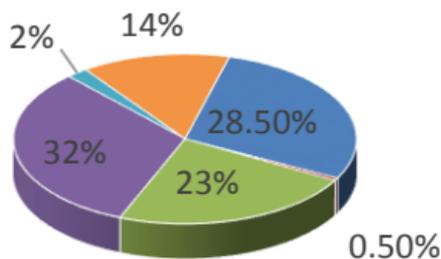
ELECTRICITY TARIFFS FOR INDONESIA

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	-

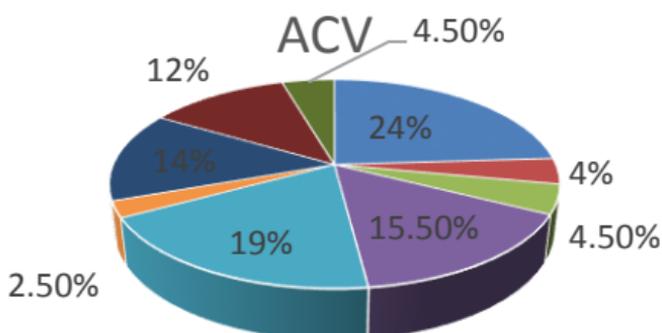
Note: Tariff of December 2018. From 1st January 2015 a floating tariff applies for households with a capacity of 1,300 VA or more.

OFFICE MEP COST COMPONENTS

Plumbing and Sanitary

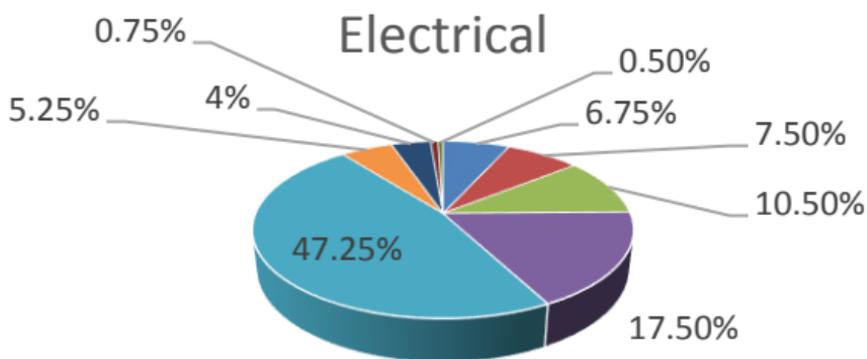


- Cold Water Pipework ■ Hot Water Pipework
- Soil Waste & Vent Piping ■ Cold Water Central Plant
- Hot water Central Plant ■ Rainwater Drainage



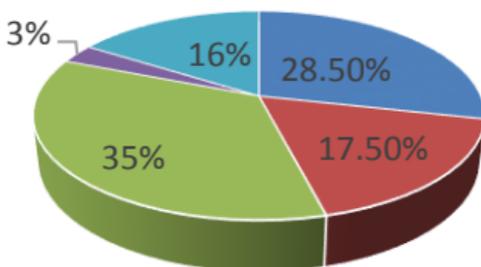
- Chillers ■ Cooling Towers
- Pumps & Tanks ■ AHU/FCU
- Pipework ■ Ventilation
- Ductwork ■ Dampers & Grilles
- Electrical Works

OFFICE MEP COST COMPONENTS



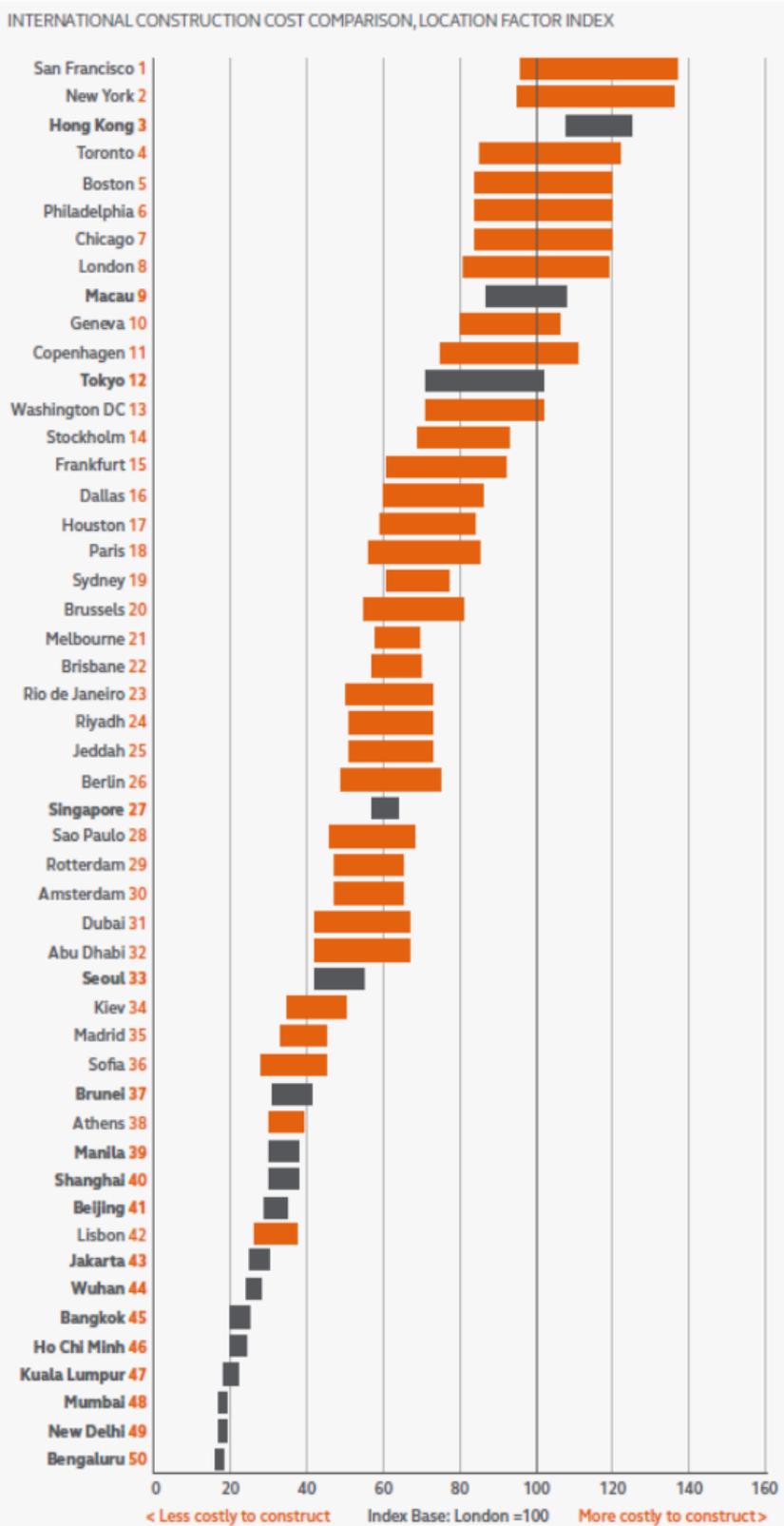
- MV Switchboards
- LV Switchboards
- Cabling & Containment
- Small Power Circuits
- Earthing
- Transformers
- LV Distribution Boards
- Lighting Circuits
- Lightning Protection

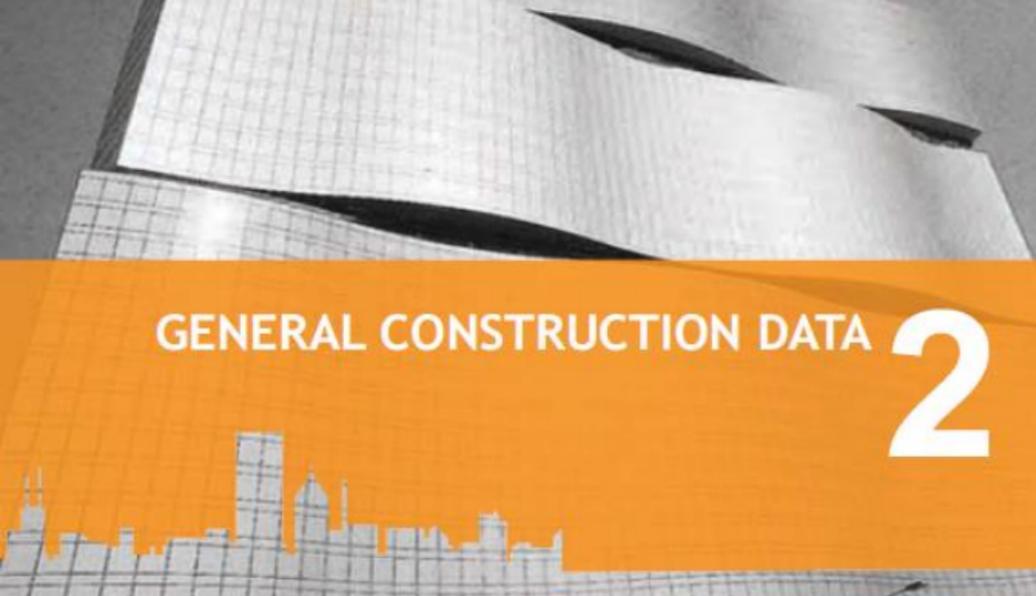
Fire Protection



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

INTERNATIONAL CONSTRUCTION COST INDEX





GENERAL CONSTRUCTION DATA

2

2019 Outlook

Construction Cost Trends in Indonesia

2019 OUTLOOK

Following a year of economic volatility over the course of 2018, Indonesia's economy is predicted to remain weak in 2019. After grown 5.2% in 2018, it is expected that Indonesia's economy will grow by 5.3% following the various economic measures that are being implemented towards the end of 2018.

This is in line with rising political tensions ahead of the general elections, and the pressure of ongoing trade war between the country's two biggest trading partners, China and the US, and also the prolonged depreciation of the Rupiah. For this reason, the Indonesia Government will continue to rely on domestic investment and household spending to drive the Country's economy in 2019.

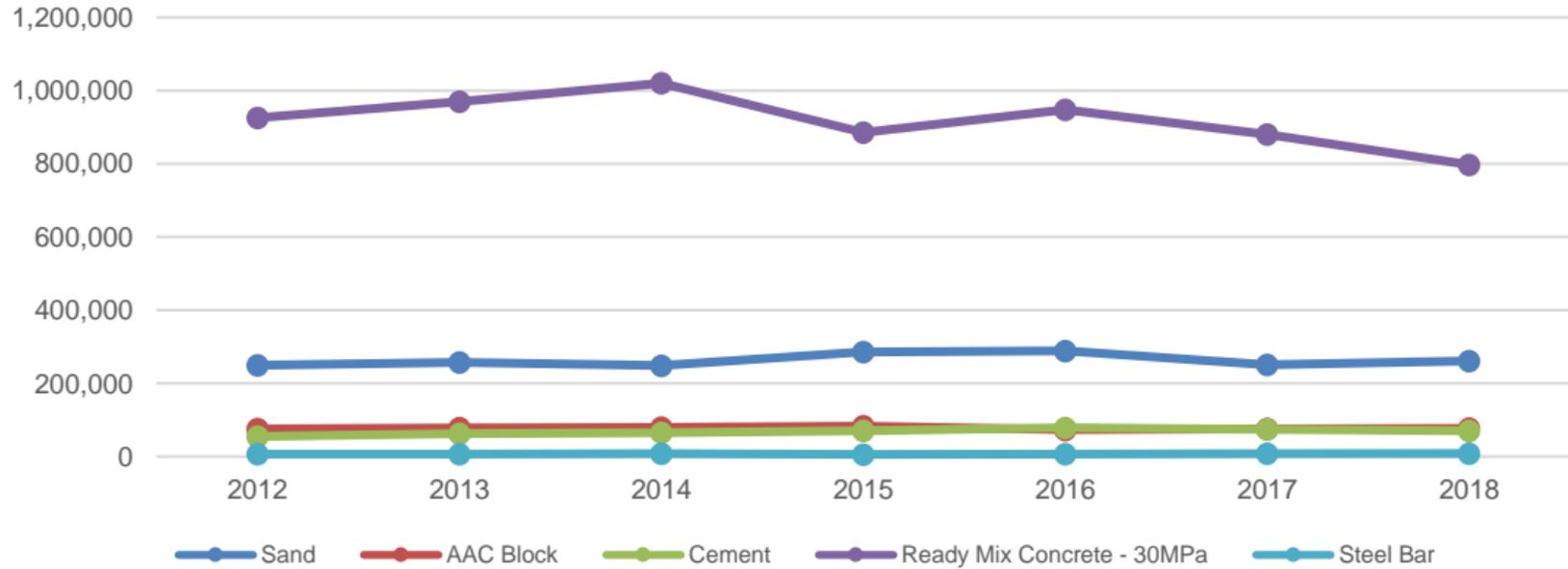
Commercial sectors will be in stagnant, except industrial construction business which shows prediction of one-digit growth in 2019 and infrastructure to support China's Belt and Road Initiative (BRI) program. Fitch Solutions Macro Research in a report on December 18 stated that almost 20 per cent of the value of Indonesia's infrastructure projects are now being planned of built, is part of BRI program.

It is expected that the forecast growth of the sector in 2019 is 4.9 per cent, up marginally "following an increase in new planned supply in the affordable homes and industrial segments" said Economic Report 2019 by the Ministry of Finance (MoF).

MATERIAL PRICE INDICES

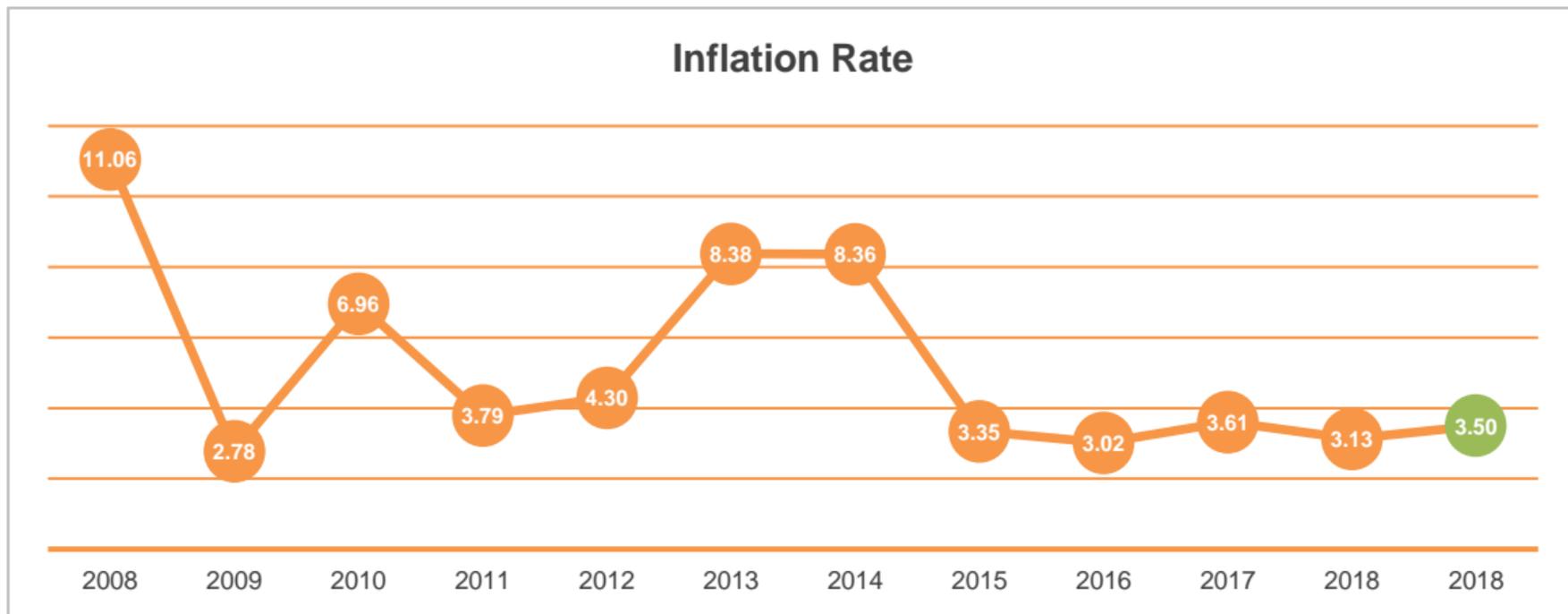
YEAR	Sand		Autoclaved Aerated Concrete Block		Cement		Ready mix Concrete		Steel Bar	
	m3	Inflation %	m2	Inflation %	Sack	Inflation %	30 mpa (m3)	Inflation %	kg	Inflation %
2010 (Base)	177,000	-	66,483	-	65,000	-	882,000	-	6,513	-
2012	250,000	141.24	75,406	113.42	55,000	84.62	925,000	101.09	7,176	110.18
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
2018	261,000	147.46	76,500	115.07	70,000	107.69	797,500	90.42	8,500	130.51

Material Price Indices



CONSUMER PRICE INDICES

Months		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Inflation Rate
2018	CPI	132.10	132.32	132.58	132.71	132.99	133.77	134.14	134.07	133.83	134.2	134.56	135.39	
	Inflations	0.62	0.17	0.20	0.10	0.21	0.59	0.28	-0.05	-0.18	0.28	0.27	0.62	3.13
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



* Inflation rate for 2019 is a projection

LABOUR RATES

Labour	Unit	2015	2016	2017	2018
Non-skilled general Worker	Day	105,000	103,000	111,000	135,500
Carpenter	Day	120,000	135,000	139,000	155,800
Bricklayer	Day	120,000	125,000	148,500	155,800
Steel bar worker	Day	120,000	125,000	139,000	170,500
Plumber	Day	120,000	125,000	139,000	135,400
Heavy equipment operator	Day	170,000	158,000	175,000	183,200
Welder	Day	150,000	125,000	139,000	157,200
Electrician	Day	120,000	125,000	139,000	135,500

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	100.39	-
North Sumatera	Medan	101.47	123.45
West Sumatera	Padang	99.10	123.45
Riau	Pekanbaru	96.86	123.45
Jambi	Jambi	92.53	123.45
South Sumatera	Palembang	97.64	126.98
Bengkulu	Bengkulu	96.76	-
Lampung	Lampung	89.31	117.57
Bangka Belitung	Pangkal Pinang	99.29	-
Riau Islands	Batam"	127.70	146.96
DKI Jakarta	Jakarta	109.14	117.57
West Jawa	Bandung	103.63	117.57
Central Jawa	Semarang	98.64	117.57
D.I. Yogyakarta	Yogyakarta	104.88	117.57
East Jawa	Surabaya	103.86	117.57
Banten	Serang	100.22	117.57
Bali	Bali	122.95	117.57

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

* Based on data of BPS (Badan Pusat Statistik) 2018.
BPS statistics are based on government projects.

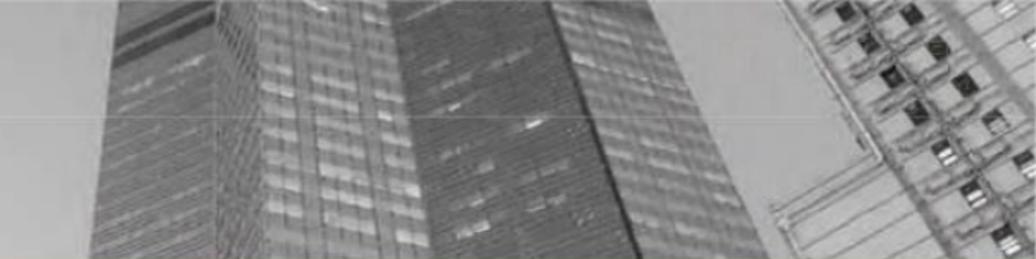
** Based on Arcadis data

INDONESIA CONSTRUCTION COST INDICES (Indeks Kemahalan Konstruksi – IKK)

Province	City	CCI (IKK)	
		BPS*	Arcadis**
West Nusa Tenggara	Mataram	100.76	135.21
East Nusa Tenggara	Kupang	99.79	-
West Kalimantan	Pontianak	113.95	-
Central Kalimantan	Palangka Raya	102.31	-
South Kalimantan	Banjarmasin	105.09	-
East Kalimantan	Balikpapan	114.13	137.56
North Kalimantan	Tanjung Selor	113.25	-
North Sulawesi	Manado	110.83	141.08
Central Sulawesi	Palu	97.04	-
South Sulawesi	Makasar	101.69	137.56
Southeast Sulawesi	Kendari	101.96	-
Gorontalo	Gorontalo	96.46	141.08
West Sulawesi	Mamuju	91.33	-
Maluku	Ambon	126.39	-
North Maluku	Sofifi	116.55	-
West Papua	Manokwari	134.02	-
Papua	Jayapura	227.90	-

* Based on data of BPS (Badan Pusat Statistik) 2018.
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 2018.

COUNTRY	CURRENCY	IDR per unit	US\$1
Australia	Dollar	10,455.67	1.37
Brunei	Dollar	10,422.32	1.37
Canada	Dollar	10,767.17	1.33
China	Renminbi	2,057.57	6.95
EU (Euro Zone)	Euro	16,193.81	0.88
Hong Kong	Dollar	1,828.69	7.82
India	Rupee	205.27	69.71
Indonesia	Rupiah	1.00	14,309.22
Japan	Yen	126.00	113.56
Macau	Pataca	1,775.43	8.06
Malaysia	Ringgit	3,419.58	4.18
New Zealand	Dollar	9,843.42	1.45

Source : www.xe.com



COUNTRY	CURRENCY	IDR per unit	US\$1
Philippines	Peso	273.15	52.39
Qatar	Rial	3,931.10	3.64
Saudi Arabia	Riyal	3,815.79	3.75
Singapore	Dollar	10,422.32	1.37
South Korea	Won	12.78	1,119.83
Switzerland	Franc	14,339.45	1.00
Taiwan	NT Dollar	463.56	30.87
Thailand	Baht	433.94	32.97
United Arab Emirates	Dirham	3,896.32	3.67
United Kingdom	Pound	18,245.21	0.78
United States of America	Dollar	14,309.22	1.00
Vietnam	Dong	0.613	23,317.63

Source : www.xe.com

4 OTHER INFORMATION

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

COUNTRY	RATE (%)
China*	4.75
Hong Kong	5.13
India	9.45
Indonesia**	6.75
Macau	5.38
Malaysia***	4.60
Philippines	4.35
Singapore	5.33
Thailand^	7.00
United Kingdom	0.75
United States of America	5.25
Vietnam^^	9.00

* 5 years Benchmark Lending Rate

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

*** Indicative effective lending rate

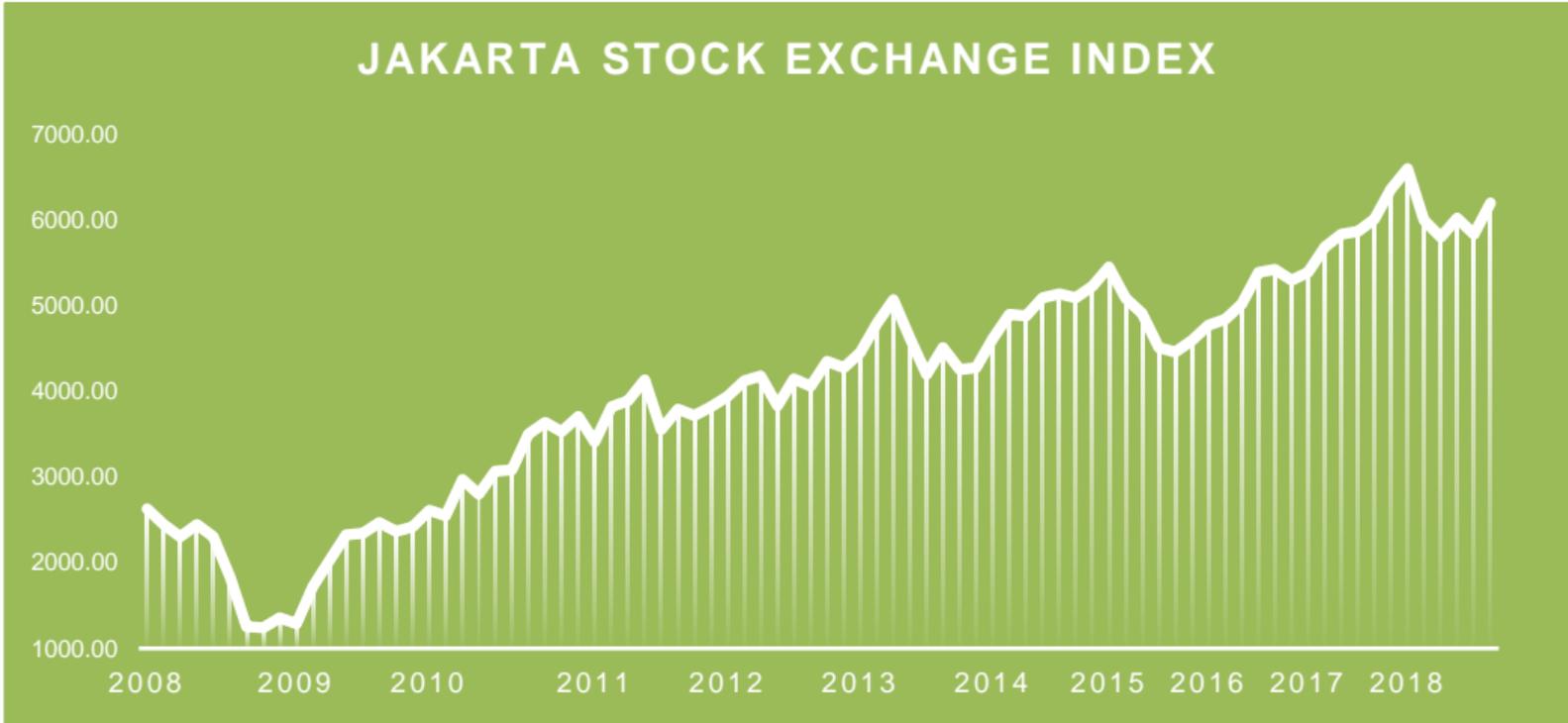
^ Minimum Loan Rate % per annum (average based on local bank)

^^ Minimum and in VND per year

CURRENCY FLUCTUATIONS

US\$ TO INDONESIAN RUPIAH





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

4 OTHER INFORMATION

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



(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

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
Indonesian 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.lpjik.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)

Building Codes

The current Indonesian building codes were developed by the National Standardisation Agency which was established in 1997.

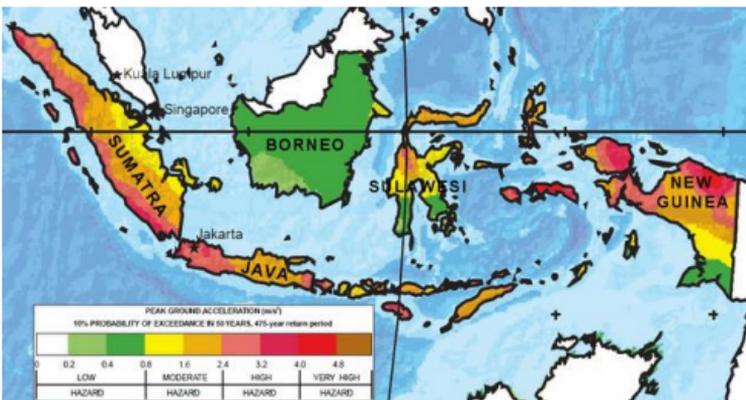
Law No.28, 2002 regarding building states that:

'Buildings should be managed based on their utilization, safety, balance and harmonious principles within their environment.' (*Article 2*)

All buildings over 1500m² have to be approved by City Planning and the TPAK (City Architectural Advisory Team)

They are a team of experts in the field of technical architecture and urban planning.

Seismic



www.aboutgeology.com

Indonesia is classed as one of the most active seismic zones in the world. Article 18 of Law No. 28, 2002 states the requirement for a stable and strong building structure to support loads arising from 'natural behaviours'. The current building code is based on the American Society of Civil Engineers code 'ASCE7-10', issued in Indonesia as code 'SNI-1726,201x.'

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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