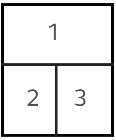
Construction Cost Handbook

PHILIPPINES 2022

Arcadis Philippines Inc.



Handbook Cover Photos:

1. **Rockwell Center Nepo, Angeles**

   Owner: Rockwell Nepo Development Corporation

   Architect: Pimentel Rodriguez Simbulan & Partners (PRSP)

2. **Project Agila**

   Owner: Confidential

   Architect: Confidential

3. **Ayala Triangle Gardens**

   Owner: Ayala Land, Inc. / Ayala Triangle Hotel Ventures, Inc.

   Architect(s): Skidmore, Owings & Merrill (Masterplan – SD); Leandro V. Locsin Partners (Architect of Record)

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

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

If advice concerning individual projects is required, we would be happy to assist.

Unless otherwise stated, costs reflected in this handbook are anticipated **Manila costs in 4th Quarter 2021**.

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ABOUT US

ARCADIS PHILIPPINES INC.

Arcadis is a global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets.

Arcadis Philippines Inc. is the country's leading provider of construction consultancy services for natural and built assets. We are a firm recognized for creating value for our clients and improving the quality of life, creating solutions based on a blend of services. We have worked on various projects nationwide, covering both the private and public sectors and our diverse set of services cater for infrastructure, residential, commercial, industrial, education, health care, recreation facilities, hospitality and interior fit outs projects. The company's experience allows it to continue leading and setting the standards for consultancy services within the Philippine Construction Market.

Key Facts

Offices in Manila and Cebu

300 consultants

Diversified Business Lines: Cost Management | Project & Programme Management | Environmental Sustainability | Water Consultancy | PPP & Infrastructure Consultancy | Construction Loan Monitoring | BIM Management | Digital Solutions

Over 1000 projects nationwide

Over 35 years of experience delivering high performance projects in the Philippines

OUR CORE VALUES

People First

We care for each other and create a safe and respectful working environment where our people can grow, perform, and succeed.

Integrity

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

Client Success

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

Collaboration

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

Sustainability

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

QUALITY POLICY STATEMENT

Our policy is to be the leading Cost Management, Environmental Sustainability, Water Consultancy, Project and Program Management firm in the Philippines providing the highest level of excellence in professionalism and integrity, working on modern, leading edge projects – integrating and coordinating each of our business lines.

Each process within the Company that determines the quality of our services shall be managed and controlled in a planned and systematic manner in accordance with our quality system documents with the highest integrity, impartiality and independency.

We see our quality system as a valuable tool and mechanism to promote, instill, further develop and bring about opportunities for improvement to our staff and our internal processes.

Essential to an effective quality system is our belief in continuous investment in professional development and structured training of our staff at all levels in core skills and knowledge.

All staff members are required to comply with this policy statement, be responsible for the quality of their work, and provide consistently high standard of service to our clients.


CONSTRUCTION COST DATA
1

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US$/m² CFA			
	MANILA	HONG KONG	SINGAPORE	KUALA LUMPUR
DOMESTIC				
Apartments, high rise, average standard	1,047 - 1,384	3,030 - 3,500	1,665 - 1,815	320 - 635#
Apartments, high rise, high end	1,427 - 2,514	3,930 - 4,570	2,555 - 3,780	725 - 1,520
Terraced houses, average standard	948 - 1,160	4,170 - 4,810	2,150 - 2,370	230 - 375^
Detached houses, high end	1,841 - 3,123	6,060 up	2,705 - 3,630	770 - 1,060
OFFICE / COMMERCIAL				
Medium/high rise offices, average standard	968 - 1,263	3,020 - 3,440	2,150 - 2,370#	605 - 815*
High rise offices, prestige quality	1,401 - 1,791	3,590 - 4,130	2,405 - 2,595#	950 - 1,380**
Out-of-town shopping centre, average standard	824 - 1,026	2,980 - 3,480	2,405 - 2,480	550 - 775
Retail malls, high end	1,124 - 1,575	3,850 - 4,580	2,555 - 2,780	705 - 1,085
HOTELS				
Budget hotels - 3-star, mid market	1,229 - 1,520	3,810 - 4,060	2,665 - 2,965	1,030 - 1,520
Business hotels - 4/5-star	1,402 - 2,325	3,940 - 4,600	3,445 - 3,850	1,350 - 2,360
Luxury hotels - 5-star	1,939 - 3,683	4,600 - 5,250	3,445 - 3,850	1,970 - 2,650

INDUSTRIAL				
Industrial units, shell only (Conventional single storey framed units)	549 - 707	N/A	1,000 - 1,185	330 - 470
Owner operated factories, low rise, light weight industry	737 - 927	2,130 - 2,900	N/A	435 - 560
OTHERS				
Underground/basement car parks (<3 levels)	612 - 819	3,260 - 3,890	1,185 - 1,595	320 - 570
Multi storey car parks, above ground (<4 levels)	490 - 746	1,950 - 2,310	850 - 1,185^	220 - 370
Schools (primary and secondary)	722 - 996	2,540 - 2,730	N/A	255 - 330+
Students' residences	763 - 982	2,900 - 3,260	2,000 - 2,110	305 - 390^^
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,216 - 1,771	3,800 - 4,330	2,445 - 2,595	610 - 785
General hospitals - public sector	1,464 - 1,712	4,830 - 5,330	3,445 - 3,630	860 - 1,255
Exchange Rate Used : US$1 =	Php50.77	HK$ 7.79	$1.35	RM4.15

The above costs are at 4th Quarter 2021 Levels, inclusive of preliminaries unless otherwise stated

Manila — Rates are exclusive of contingencies & include 12% VAT

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

Singapore — Rates are nett of GST and exclusive of contingencies
Includes raised floor and ceiling to tenanted areas but excludes office carpets (normally under tenant's fit-out)
^ Open on all sides with parapet

Kuala Lumpur — # 6 - 12 units per floor, 46m^2 - 83m^2 per unit; excluding air-conditioning, kitchen cabinets and home appliances
^Excluding air-conditioning, kitchen cabinets and home appliances
* Exclude tenant fit-out and raised floor
** Exclude tenant fit-out.
+ Schools with standard government provisions
^^ Student hostels to university standard

(Cont'd)

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US$/m² CFA				
	BANGKOK	MACAU	JAKARTA	INDIA	HO CHI MINH
DOMESTIC					
Apartments, high rise, average standard	714 - 846	2,479 - 3,032	852 - 965	635 - 715	662 - 821
Apartments, high rise, high end	952 - 1,172	3,462 - 5,290	1,173 - 1,324	955 - 1,160	842 - 965
Terraced houses, average standard	446 - 549	4,224 - 5,041	453 - 589	440 - 465	446 - 524
Detached houses, high end	774 - 935	5,152 - 6,703	1,228 - 1,372	577 - 615	509 - 621
OFFICE / COMMERCIAL					
Medium/high rise offices, average standard	790 - 937	2,853 - 3,684	841 - 932	490 - 550	774 - 895
High rise offices, prestige quality	988 - 1,267	3,684 - 4,030	1,236 - 1,383	620 - 675	892 - 1,216
Out-of-town shopping centre, average standard	674 - 873	2,687 - 4,030	724 - 801	480 - 540	N/A
Retail malls, high end	905 - 954	4,224 - 5,097	797 - 864	675 - 745	723 - 946
HOTELS					
Budget hotels - 3-star, mid market	1,234 - 1,365	3,754 - 4,252	1,462 - 1,727	895 - 990	1,436 - 1,757
Business hotels - 4/5-star	1,579 - 1,810	5,097 - 6,093	1,992 - 2,151	1,395 - 1,675	N/A
Luxury hotels - 5-star	1,842 - 2,139	6,093 - 7,202	2,113 - 2,383	1,765 - 1,955	1,813 - 2,175

INDUSTRIAL					
Industrial units, shell only (Conventional single storey framed units)	526 - 659	N/A	390 - 425	398 - 465	317 - 400
Owner operated factories, low rise, light weight industry	N/A	N/A	423 - 467	420 - 495	359 - 474
OTHERS					
Underground/basement car parks (<3 levels)	593 - 790	2,229 - 3,268	601 - 738	315 - 345	657 - 784
Multi storey car parks, above ground (<4 levels)	197 - 322	1,232 - 1,621	390 - 425	260 - 285	422 - 463
Schools (primary and secondary)	N/A	2,465 - 2,853	N/A	325 - 365	555 - 606
Students' residences	N/A	1,953 - 2,271	N/A	365 - 405	555 - 713
Sports clubs, multi purpose sports/leisure centres (dry sports)	N/A	N/A	1,224 - 1,835	660 - 700	821 - 877
General hospitals - public sector	N/A	N/A	N/A	700 - 800	N/A
Exchange Rate Used : US$1 =	BAHT 33.889	MOP 8.01	IDR 14,288	INR 74.39	VND 23,450

The above costs are 4th Quarter 2021 levels. inclusive of preliminaries unless otherwise stated.

Macau	Rates are exclusive of contingencies and any management contract fee	Ho Chi Minh	Rates are nett of VAT and contingencies
		Bangkok	Rates exclude VAT and contingencies
India	Rates are based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher. The data for India is provided by Arkind LS Private Limited, an Arcadis Alliance Partner	Jakarta	The data for Jakarta is provided by PT Lantera Sejahtera Indonesia Rates exclude VAT and contingencies

(Cont'd)

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES (Cont'd)

BUILDING TYPE	US$/m² CFA			
	SHANGHAI =	BEIJING =	SHENZEN / GUANGZHOU =	CHONGQING / CHENGDU
DOMESTIC				
Apartments, high rise, average standard	810 - 893	713 - 783	711 - 783	577 - 672
Apartments, high rise, high end	1,829 - 1,994	1,728 - 1,967	1,155 - 1,264	846 - 1,061
Terraced houses, average standard	1,119 - 1,219	1,021 - 1,106	1,066 - 1,236	763 - 897
Detached houses, high end	1,968 - 2,088	1,962 - 2,047	2,045 - 2,324	981 - 1,112
OFFICE / COMMERCIAL				
Medium/high rise offices, average standard	1,039 - 1,373	1,017 - 1,370	994 - 1,107	1,109 - 1,268
High rise offices, prestige quality	1,335 - 1,826	1,653 - 2,250	1,478 - 1,783	1,402 - 1,846
Out-of-town shopping centre, average standard	N/A	760 - 1,016	957 - 1,050	898 - 1,128
Retail malls, high end	1,411 - 1,902	1,375 - 1,893	1,416 - 1,980	1,336 - 1,825
HOTELS				
Budget hotels - 3-star, mid market	1,137 - 1,386	1,125 - 1,386	1,282 - 1,410	1,202 - 1,460
Business hotels - 4/5-star	1,832 - 2,480	1,917 - 2,531	2,072 - 2,958	2,154 - 2,647
Luxury hotels - 5-star	2,477 - 2,961	2,440 - 3,141	2,817 - 3,105	2,649 - 3,132

INDUSTRIAL				
Industrial units, shell only (Conventional single storey framed units)	320 - 392	314 - 383	371 - 442	550 - 680
Owner operated factories, low rise, light weight industry	495 - 620	607 - 696	N/A	N/A
OTHERS				
Underground/basement car parks (<3 levels)	849 - 1,184	869 - 955	657 - 1,048	514 - 710
Multi storey car parks, above ground (<4 levels)	435 - 608	523 - 528	468 - 517	409 - 500
Schools (primary and secondary)	649 - 819	605 - 781	521 - 573	543 - 597
Students' residences	475 - 648	428 - 605	329 - 363	380 - 543
Sports clubs, multi purpose sports/leisure centres (dry sports)	1,095 - 1,345	1,036 - 1,045	908 - 998	856 - 938
General hospitals - public sector	1,673 - 2,157	1,362 - 1,706	1,375 - 1,719	1,368 - 1,692
Exchange Rate Used : US$1 =	RMB 6.40	RMB 6.40	RMB 6.40	RMB 6.40

The above costs are 4th Quarter 2021 levels. inclusive of preliminaries unless otherwise stated.

Beijing, Shanghai, Guangzhou/Shenzhen, Chongqing/Chengdu

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

M & E COSTS FOR SELECTED ASIAN CITIES

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	MANILA= (PHP/m²)	HONG KONG (HK$/m²)	SINGAPORE* (S$/m²)	KUALA LUMPUR (RM/m²)
MECHANICAL SERVICES				
Offices	4,000 - 8,030	2,000 - 2,600	194 - 300	360 - 530
Industrial *	800 - 1,600	300 - 450	38 - 137	100 - 200
Hotels	3,500 - 12,350	2,200 - 2,600	251 - 324	345 - 640
Shopping Centres	2,890 - 7,070	2,100 - 2,600	170 - 284	340 - 510
Apartment	1,390 - 4,940	800 - 2,000up	105 - 198	135 - 220
ELECTRICAL SERVICES				
Offices	3,500 - 8,140	2,000 - 2,400	180 - 329	330 - 495
Industrial **	2,000 - 3,500	750 - 900	63 - 157	170 - 205
Hotels	4,900 - 10,200	2,000 - 2,600	322 - 427	340 - 580
Shopping Centres	3,060 - 6,600	1,700 - 2,500	185 - 354	335 - 490
Apartment	3,600 - 6,300	1,000 - 2,200up	127 - 274	125 - 225
HYDRAULIC SERVICES				
Offices	1,260 - 2,260	700 - 850	30 - 64	50 - 75
Industrial	820 - 1,440	500 - 650	21 - 42	50 - 60
Hotels	2,310 - 7,010	1,800 - 2,700	141 - 198	200 - 290

Shopping Centres	1,250 - 1,650	700 - 900	53 - 93	40 - 45
Apartment	2,310 - 4,210	1,350 - 2,000	91 - 166	60 - 105
FIRE SERVICES				
Offices	1,180 - 2,070	600 - 750	36 - 80	70 - 90
Industrial	1,080 - 3,000	450 - 600	26 - 58	60 - 75
Hotels	1,320 - 2,630	600 - 850	32 - 63	70 - 105
Shopping Centres	1,310 - 2,080	600 - 750	42 - 63	65 - 85
Apartment	1,140 - 1,620	100 - 600	27 - 60	25 - 35
LIFTS / ESCALATORS				
Offices	1,800 - 4,930	700 - 1,100	74 - 188	150 - 375
Industrial	0 - 730	550 - 750	47 - 121	60 - 185
Hotels	1,800 - 3,500	550 - 850	57 - 95	120 - 310
Shopping Centres	1,600 -3,010	850 - 1,000	65 - 104	110 - 125
Apartment	850 - 3,440	450 - 850	47 - 130	75 - 115

Costs are at 4th Quarter 2021 levels, exclusive of contingencies unless otherwise stated.

Note:

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

Manila: Transformer, included in Electrical Services
Singapore: Rates are nett of GST, including BAS and cost impact arising from COVID-19 pandemic
Hong Kong: -nil-

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

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

BUILDING TYPE	BANGKOK##	MACAU	JAKARTA=	INDIA	HO CHI MINH
	(BAHT/m²)	MOP/m²	(IDR'000/m)2	INR/m²	VND('000)/m²
MECHANICAL SERVICES					
Offices	4,400 - 4,800	N/A	1,022 - 1,177	5,366 - 7,485	2,390,000 - 3,400,000
Industrial *	1,550 - 1,600	N/A	463 - 740	2,520 - 4,778	N/A
Hotels	4,600 - 5,200	2,590 - 2,990	1,054 - 1,369	6,216 - 7,490	N/A
Shopping Centres	4,600 - 4,800	2,350 - 2,940	900 - 1,081	5,476 - 7,629	2,690,000 - 3,580,000
Apartment	4,300 - 4,500	900 - 1,200	1,006 - 1,278	2,825 - 4,029	1,790,000 - 2,460,000
ELECTRICAL SERVICES					
Offices	3,400 - 3,800	N/A	826 - 1,054	4,851 - 7,415	2,470,000 - 2,960,000
Industrial **	1,950 - 2,200	N/A	585 - 729	2,856 - 5,270	N/A
Hotels	3,800 - 4,500	2,590 - 3,090	851 - 1,172	5,381 - 8,159	N/A
Shopping Centres	2,800 - 3,200	2,590 - 2,940	719 - 905	4,625 - 6,880	2,240,000 - 2,800,000
Apartment	2,800 - 3,400	1,000 - 1,290	948 - 1,107	2,447 - 3,563	2,170,000 - 2,740,000
HYDRAULIC SERVICES					
Offices	780 - 950	N/A	208 - 293	840 - 1,439	380,000 - 710,000
Industrial	750 - 790	N/A	138 - 213	578 - 1,124	N/A
Hotels	1,400 - 1,750	1,790 - 2,190	995 - 1,172	4,421 - 7,394	N/A

Shopping Centres	790 - 950	600 - 790	197 - 304	1,260 - 2,531	310,000 - 560,000
Apartment	1,200 - 1,450	1,490 - 1,990	1,006 - 1,192	1,995 - 3,066	740,000 - 860,000
FIRE SERVICES					
Offices	780 - 850	N/A	283 - 373	1,355 - 1,963	735,000 - 1,210,000
Industrial	730 - 750	N/A	149 - 213	620 - 947	N/A
Hotels	780 - 890	910 - 1,120	330 - 410	1,575 - 2,236	N/A
Shopping Centres	780 - 850	610 - 810	277 - 324	1,297 - 1,664	670,000 - 820,000
Apartment	750 - 890	250 - 300	314 - 341	725 - 958	580,000 - 720,000
LIFTS / ESCALATORS					
Offices	1,100 - 1,400	N/A	441 - 1,059	1,071 - 1,433.8	730,000 - 1,400,000
Industrial	N/A	N/A	N/A	714 - 941.6	N/A
Hotels	1,100 - 1,400	610 - 810	703 - 1,097	1,607 - 2,381	N/A
Shopping Centres	300 - 500	460 - 710	324 - 873	1,880 - 2,450	1,500,000 - 2,100,000
Apartment	600 - 800	460 - 610	714 - 889	966 - 1,284	820,000 - 1,200,000

Costs are at 4th Quarter 2021 levels, exclusive of contingencies unless otherwise stated.

Note:

Macau: -nil-

India: Rates are based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.
The data for India is provided by Arkind LS Private Limited, an Arcadis Alliance Partner

Bangkok: Based upon nett enclosed area and nett of VAT

Jakarta: The data for Jakarta is provided by PT Lantera Sejahtera Indonesia

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	SHANG HAI (RMB/m²)	BEIJING (RMB/m²)	SHENZEN / GUANGZHOU (RMB/m²)	CHONGQING / CHENGDU (RMB/m²)
MECHANICAL SERVICES				
Offices	838 - 1,055	783 - 1,212	783 - 1,162	778 - 1,050
Industrial *	185 - 310	172 - 283	157 - 288	155 - 252
Hotels	1,060 - 1,370	960 - 1,236	1,070 - 1,364	991 - 1,355
Shopping Centres	820 - 985	814 - 980	722 - 920	930 - 1,060
Apartment	336 - 440	144 - 464	154 - 414	161 - 317
ELECTRICAL SERVICES				
Offices	658 - 735	494 - 893	545 - 803	518 - 734
Industrial **	330 - 462	342 - 483	323 - 464	287 - 388
Hotels	717 - 906	755 - 1,011	722 - 960	643 - 900
Shopping Centres	572 - 710	515 - 725	505 - 697	572 - 729
Apartment	277 - 403	271 - 426	288 - 505	246 - 363
HYDRAULIC SERVICES				
Offices	117 - 172	98 - 144	104 - 186	95 - 132
Industrial	94 - 136	98 - 144	90 - 125	100 - 137
Hotels	397 - 540	381 - 495	394 - 505	387 - 514

Shopping Centres	148 - 197	144 - 206	115 - 170	110 - 161
Apartment	180 - 242	175 - 236	152 - 283	108 - 189
FIRE SERVICES				
Offices	245 - 341	186 - 273	232 - 354	261 - 314
Industrial	170 - 280	155 - 232	144 - 275	147 - 253
Hotels	312 - 416	226 - 387	288 - 429	293 - 394
Shopping Centres	278 - 411	226 - 387	250 - 387	284 - 405
Apartment	60 - 110	72 - 139	79 - 204	66 - 121
LIFTS / ESCALATORS				
Offices	294 - 578	297 - 583	295 - 517	313 - 576
Industrial	142 - 410	146 - 404	150 - 440	157 - 364
Hotels	230 - 520	234 - 525	250 - 480	261 - 449
Shopping Centres	342 - 520	330 - 525	325 - 470	317 - 474
Apartment	173 - 306	177 - 292	130 - 450	146 - 253

Costs are at 4th Quarter 2021 levels, exclusive of contingencies unless otherwise stated.

Note:

* Generally without A/C.

** Excludes special power supply.

Shanghai:	-nil-
Beijing:	-nil-
Guangzhou/ShenzHen:	-nil-
Chongqing/Chengdu:	-nil-

CONSTRUCTION COSTS FOR PHILIPPINES

CONSTRUCTION COSTS FOR PHILIPPINES

BUILDING TYPE	PESO/m²		
	BUILDINGS	M&E TOTAL SERVICES	TOTAL
DOMESTIC			
Apartments, high rise, average standard	43,863 - 56,112	9,290 - 14,170	53,153 - 70,282
Apartments, high rise, high end	59,696 - 107,133	12,750 - 20,510	72,446 - 127,643
Terraced houses, average standard	45,201 - 53,865	2,930 - 5,050	48,131 - 58,915
Detached houses, high end	84,348 - 142,074	9,140 - 16,500	93,488 - 158,574
OFFICE / COMMERCIAL			
Medium/high rise offices, average standard	37,390 - 47,435	11,740 - 16,700	49,130 - 64,135
High rise offices, prestige quality	56,000 - 65,523	15,150 - 25,430	71,150 - 90,953
Out-of-town shopping centre, average standard	31,710 - 36,905	10,110 - 15,200	41,820 - 52,105
Retail malls, high end	45,846 - 61,091	11,220 - 18,860	57,066 - 79,951
HOTELS			
Budget hotels - 3-star, mid market	48,547 - 58,612	13,830 - 18,540	62,377 - 77,152

Business hotels - 4/5-star	55,225 - 92,220	15,960 - 25,820	71,185 - 118,040
Luxury hotels - 5-star	78,554 - 151,300	19,880 - 35,690	98,434 - 186,990
INDUSTRIAL			
Industrial units, shell only (conventional single story framed units	23,187 - 27,967	4,700 - 7,940	27,887 - 35,907
Owner operated factories, low rise, light weight industry	32,741 - 36,797	4,700 - 10,270	37,441 - 47,067
OTHERS			
Underground/basement car parks (<3 levels)	26,028 - 31,322	5,060 - 10,250	31,088 - 41,572
Multi storey car parks, above ground(<4 levels)	20,035 - 27,752	4,860 - 10,130	24,895 - 37,882
Schools (primary and secondary)	27,678 - 31,734	8,960 - 18,850	36,638 - 50,584
Students' residences	30,099 - 34,336	8,650 - 15,500	38,749 - 49,836
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	53,783 - 77,095	7,960 - 12,800	61,743 - 89,895
General hospitals - public sector	57,820 - 61,964	16,520 - 24,930	74,340 - 86,894

Costs are at 4th Quarter 2021 levels.

M&E COSTS FOR PHILIPPINES

M&E COSTS FOR PHILIPPINES

BUILDING TYPE	PESO/m²					
	TOTAL SERVICES	ELECTRICAL SERVICES	MECHANICAL SERVICES	FIRE SERVICES	LIFTS / ESCALATOR	PLUMBING SERVICES
DOMESTIC						
Apartments, high rise, average standard	9,290 - 14,170	3,600 - 4,300	1,390 - 2,840	1,140 - 1,550	850 - 2,300	2,310 - 3,180
Apartments, high rise, high end	12,750 - 20,510	3,900 - 6,300	2,840 - 4,940	1,140 - 1,620	2,200 - 3,440	2,670 - 4,210
Terraced houses, average standard	2,930 - 5,050	1,400 - 1,800	680 - 1,500	-	-	850 - 1,750
Detached houses, high end	9,140 - 16,500	3,000 - 5,800	3,100 - 4,650	-	-	3,040 - 6,050
OFFICE / COMMERCIAL						
Medium/high rise offices, average standard	11,740 - 16,700	3,500 - 4,700	4,000 - 5,680	1,180 - 1,620	1,800 - 3,000	1,260 - 1,700
High rise offices, prestige quality	15,150 - 25,430	4,800 - 8,140	4,620 - 8,030	1,290 - 2,070	2,900 - 4,930	1,540 - 2,260
Out-of-town shopping centre, average standard	10,110 - 15,200	3,060 - 5,100	2,890 - 5,100	1,310 - 1,710	1,600 - 1,800	1,250 - 1,490
Retail malls, high end	11,220 - 18,860	3,600 - 6,000	3,310 - 6,840	1,560 - 2,080	1,450 - 2,300	1,300 - 1,640
HOTELS						
Budget hotels - 3-star, mid market	13,830 - 18,540	4,900 - 5,800	3,500 - 5,000	1,320 - 1,440	1,800 - 2,600	2,310 - 3,700

Business hotels - 4/5-star	15,960 - 25,820	5,200 - 9,800	5,100 - 6,800	1,440 - 1,800	1,800 - 2,900	2,420 - 4,520
Luxury hotels - 5-star	19,880 - 35,690	5,500 - 10,200	6,800 - 12,350	1,780 - 2,630	2,200 - 3,500	3,600 - 7,010
INDUSTRIAL						
Industrial units, shell only (conventional single story framed units	4,700 - 7,940	2,000 - 3,500	800 - 1,500	1,080 - 1,200	0 - 400	820 - 1,340
Owner operated factories, low rise, light weight industry	4,700 - 10,270	2,000 - 3,500	800 - 1,600	1,080 - 3,000	0 - 730	820 - 1,440
OTHERS						
Underground/basement car parks (<3 levels)	5,060 - 10,250	2,000 - 3,500	900 - 2,250	1,080 - 1,940	260 - 570	820 - 1,990
Multi storey car parks, above ground (<4 levels)	4,860 - 10,130	1,800 - 3,300	650 - 2,210	1,220 - 2,350	-	1,190 - 2,270
Schools (primary and secondary)	8,960 - 18,850	3,300 - 4,900	1,450 - 6,580	1,080 - 1,650	1,600 - 2,330	1,530 - 3,390
Students' residences	8,650 - 15,500	3,600 - 4,300	850 - 2,440	1,020 - 1,880	1,140 - 3,130	2,040 - 3,750
Sports clubs, multi purpose sports/leisure centres (dry sports) with a/c and including FF&E	7,960 - 12,800	2,900 - 3,770	1,800 - 2,870	570 - 1,230	960 - 2,210	1,730 - 2,720
General hospitals - public sector	16,520 - 24,930	5,000 - 8,000	5,320 - 7,780	1,620 - 2,520	1,990 - 2,800	2,590 - 3,830

Costs are at 4th Quarter 2021 levels.

CONSTRUCTION COST SPECIFICATION

The costs for the respective categories given on the previous pages are averages based on fixed price competitve tenders. It must be understood that the actual cost of a building will depend upon the design, procurement methods and many other factors and may vary from the figure shown.

The costs per square meter are based on construction floor areas measured to the outside face of the external walls / external perimeter including lift shafts, stairwells, plant rooms, water tanks, and the like.

All buildings are assumed to have no basements (except otherwise stated) and are built on flat ground, with normal soil conditions, and minimal external works. The costs exclude land cost, proffesional fees, finance and legal expences.

The standards for each category of building vary from country to country and do not necessarily follow those of Manila.

All costs are in US$/m2 CFA. Fluctuation in exchange rates may lead to changes in construction costs expressed in U.S. Dollars.

FF&E refers to loose furniture, fixtures and equipment. FF&E is excluded from office, residential and retail project costs, but are included in hotels and country club project costs.

DOMESTIC

Average standard apartment buildings of 6-8 flats per floor, 50m2-150m2 per flat, façade comprising textured paint and punch window, internal finishes comprising wood finish, plaster and paint and painted rubbed concrete ceiling to residential units and local ceramic tiles to toilets.

Luxury residential façade comprised of window wall, textured paint with stone accents, finished with homogeneous tiles, wood cladding and coved timber ceiling to lobby, combination of wood planks, plaster and paint and gypsum board to residential units and homogeneous tiles to toilets.

Air conditioning, gensets, automatic sprinkler system, complete plumbing and disposal system, complete fire alarm and detection system, FTTH (Fiber To The Home system) are allowed for luxury apartments and prestige houses.

Services to standard apartment also include for paging system and Davit type gondola. Services to luxury residential also include CCTV cameras on lobby, track mounted type gondola and helipad provision.

OFFICE/COMMERCIAL

Based on building 30-40 storeys high with floor plate minimum 1,000 m^2 per level. Average standard offices and shopping centres have bare finish and exclude A/C ducting and light fittings to tenants areas. Prestige offices have curtain wall elevations, stone finished lobbies.

INDUSTRIAL

Owner operated factories exclude manufacturing equipment, air-conditioning and special services provisions.

HOTELS

F.F. & E. includes interior decoration and loose furniture, etc. but excludes hotel operator’s items (e.g. cutlery, crockery, linen etc.). Includes 1 level of basement.

OTHERS

Carparks to be multi-storey, above ground. Schools with standard government provisions. Student hostels to university standard. Hospitals include fit-out to nursing rooms, hospital facilities; services i.e., oxygen piping, A/C, genset, ultrapure water system, fire suppression system and special type plumbing fixtures; fit-out to doctor's offices is excluded.

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	MANILA (PHP)	HONG KONG (HK$)	SINGAPORE (S$)	KUALA LUMPUR (RM)
1. Excavating basement ≤ 2.00m deep	m^3	300	220	26	16 - 27
2. Excavating for footings ≤ 1.50m deep	m^3	538	200	26	16 - 27
3. Remove excavated materials off site	m^3	350	290	20 - 26	18 - 35
4. Hardcore bed blinded with fine materials	m^3	1,400 - 1,600	940	63	72 - 110
5. Mass concrete grade 15	m^3	4,500	1,150	235 - 248	230 - 300
6. Reinforced concrete grade 30	m^3	6,300	1,250	159 - 165	250 - 310
7. Mild steel rod reinforcement	kg	63 - 65	12	1.95 - 2.05	4 - 5.50
8. High tensile rod reinforcement	kg	64 - 67	12	1.95 - 2.05	4 - 5.50
9. Sawn formwork to soffits of suspended slabs	m^2	950 - 1,200	400	51	40 - 50
10. Sawn formwork to columns and walls	m^2	1,200	400	51	40 - 50
11. 112.5mm thick brick walls	m^2	N/A	400	41.50 - 47	43 - 52
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m^2	1,500	1,100	50.50	72 - 100

13. Aluminium casement windows, single glazed	m^2	12,500	4,000	340	390 - 680
14. Structural steelwork - beams, stanchions and the like	kg	180	37	6 - 6.70	7.20 - 11
15. Steelwork - angles, channels, flats and the like	kg	160	45	6 - 6.70	7.20 - 11
16. 25mm cement and sand (1:3) paving	m^2	650	155	25	18 - 27
17. 20mm cement and sand (1:4) plaster to walls	m^2	500 - 700	160	26	19 - 30
18. Ceramic tiles bedded to floor screed (measured separately)	m^2	1,800	400	85	60 - 100
19. 12mm fibrous plasterboard ceiling lining	m^2	1,400 - 1,700	570	35.50	36 - 50
20. Two coats of emulsion paint to plastered surfaces	m^2	500 - 800	120	4.10 - 4.70	3.50 - 5.50
Average expected preliminaries	%	12 - 18	10 - 15	14 - 18	6 - 15

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

Manila: Item 13 - Aluminium with anodized finish; 6mm thick
Hong Kong: Item 3 - Rate including dumping charges
Singapore: Rates are nett of GST
Item 5 - Rate for lean concrete blinding

(Cont'd)

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	BANGKOK (BAHT)	MACAU (MOP)	JAKARTA IDR '000	INDIA (INR)	HO CHI MINH (VND)
1. Excavating basement ≤ 2.00m deep	m^3	120 - 150	150	70	255	72,400
2. Excavating for footings ≤ 1.50m deep	m^3	140 - 180	180	105	235	72,400
3. Remove excavated materials off site	m^3	120 - 150	150	50	N/A	84,700
4. Hardcore bed blinded with fine materials	m^3	650 - 750	1,300	680	4,800 - 5,000	280,900
5. Mass concrete grade 15	m^3	2,300 - 2,500	1,500	1,100	6,735	1,606,400
6. Reinforced concrete grade 30	m^3	2,800 - 3,200	1,400	1,140	8,430	1,912,291
7. Mild steel rod reinforcement	kg	25 - 28	7.5	14.3	75	23,480
8. High tensile rod reinforcement	kg	25 - 28	7.5	14.5	68 - 71	23,480
9. Sawn formwork to soffits of suspended slabs	m^2	450 - 500	280	250	700 - 750	235,000
10. Sawn formwork to columns and walls	m^2	450 - 500	280	200	780 - 825	280,000
11. 112.5mm thick brick walls	m^2	650 - 850	450	250	1,240 - 1,250	312,780
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m^2	1,200	N/A	350	1,900 - 1,950	480,000 - 680,000

13. Aluminium casement windows, single glazed	m^2	7,200	4,000	1,650	6,500 - 6,790	6,630,750
14. Structural steelwork - beams, stanchions and the like	kg	55 - 70	30	33	145	53,515
15. Steelwork - angles, channels, flats and the like	kg	55 - 70	40	33	145	53,515
16. 25mm cement and sand (1:3) paving	m^2	200 - 260	120	90	500 - 550	94,000
17. 20mm cement and sand (1:4) plaster to walls	m^2	220 - 280	150	100	400 - 450	144,000
18. Ceramic tiles bedded to floor screed (measured separately)	m^2	1,200	450	200	1,800 - 1,925	674,180
19. 12mm fibrous plasterboard ceiling lining	m^2	750 - 850	650	215	1,450 - 1,550	255,700
20. Two coats of emulsion paint to plastered surfaces	m^2	140 - 180	200	35	220 - 250	96,000
Average expected preliminaries	%	12 - 18	10	8 - 10	9 - 13	8 - 12

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

Bangkok: Rates are nett of VAT

Macau: -nil-

Ho Chi Minh: Rates are nett of VAT

India: All rates above are Supply & Fix based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

The data for India is provided by Arkind LS Private Limited, an Arcadis Alliance Partner

Jakarta: The data for Jakarta is provided by PT Lantera Sejahtera Indonesia

Rates exclude VAT and contingencies

(Cont'd)

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	SHANG HAI (RMB)	BEIJING (RMB)	SHENZEN / GUANGZHOU (RMB)	CHONGQING / CHENGDU (RMB)
1. Excavating basement ≤ 2.00m deep	m^3	30	35	40	35
2. Excavating for footings ≤ 1.50m deep	m^3	30	40	40	35
3. Remove excavated materials off site	m^3	160	160	150	65
4. Hardcore bed blinded with fine materials	m^3	210	220	210	180
5. Mass concrete grade 15	m^3	800	750	740	580
6. Reinforced concrete grade 30	m^3	850	850	800	610
7. Mild steel rod reinforcement	kg	6.5	7.6	7.5	6.2
8. High tensile rod reinforcement	kg	6.5	7.6	7.5	6.2
9. Sawn formwork to soffits of suspended slabs	m^2	95	90	90	75
10. Sawn formwork to columns and walls	m^2	90	85	85	75
11. 112.5mm thick brick walls	m^2	105	80	100	80
12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m^2	N/A	N/A	NA	NA

13. Aluminium casement windows, single glazed	m^2	780	850	700	800
14. Structural steelwork - beams, stanchions and the like	kg	11	14.5	14	10
15. Steelwork - angles, channels, flats and the like	kg	9.5	13	12	9
16. 25mm cement and sand (1:3) paving	m^2	36	34	36	35
17. 20mm cement and sand (1:4) plaster to walls	m^2	36	34	36	35
18. Ceramic tiles bedded to floor screed (measured separately)	m^2	160	155	155	150
19. 12mm fibrous plasterboard ceiling lining	m^2	160	162	165	150
20. Two coats of emulsion paint to plastered surfaces	m^2	42	34	35	35
Average expected preliminaries	%	6 - 12	5 - 12	7 - 10	6 - 12

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

Shanghai: Item 11 - Rate for 120mm thick concrete block walls

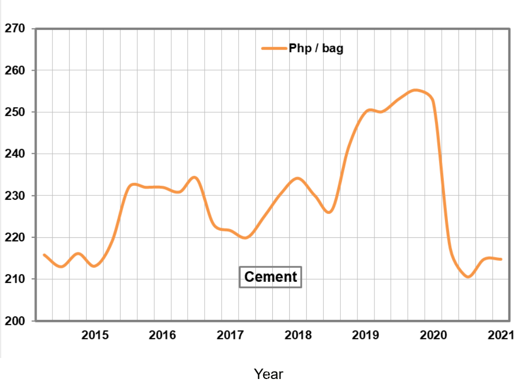
Guangzhou/Shenzhen: -nil-

Beijing, Chongqing/Chengdu: Item 13 - rate for double glazed window

RETAIL PRICES OF BASIC CONSTRUCTION

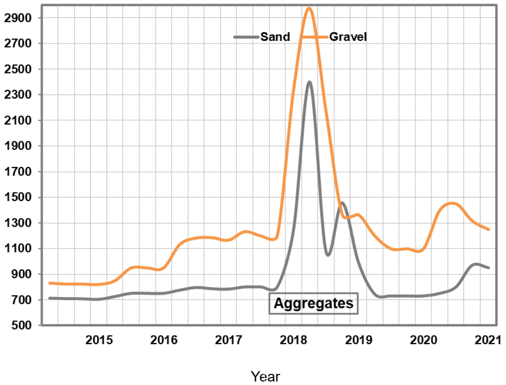
Cement

Php / bag (40kg)



Aggregates

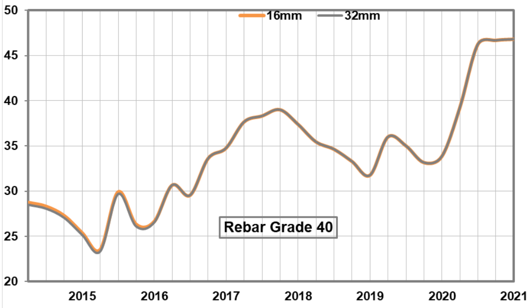
Php / m³



MATERIALS FOR PHILIPPINES

Reinforcing Bar
(Intermediate Grade - Grade 40; 275 MPa)

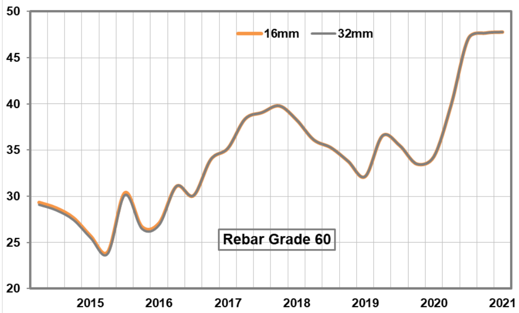
Php / kg



Year

Reinforcing Bar
(High Yield Grade - Grade 60; 400 MPa)

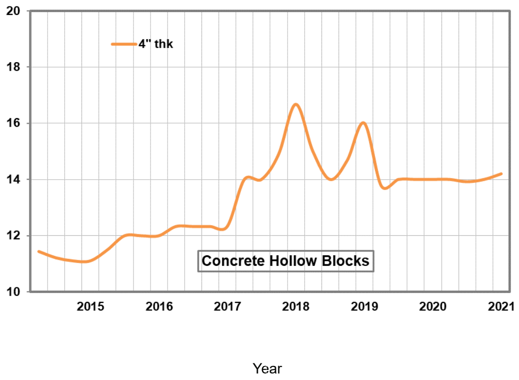
Php / kg



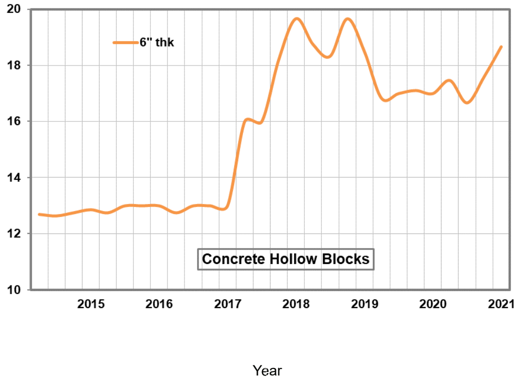
Year

RETAIL PRICES OF BASIC CONSTRUCTION

Ordinary Concrete Hollow Blocks 4" thick
Php / piece

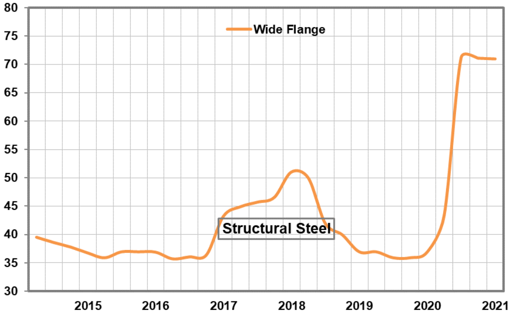


Ordinary Concrete Hollow Blocks 6" thick
Php / piece



MATERIALS FOR PHILIPPINES

Structural Steel (Wide Flange)
Php / kg



Year

UNIT COSTS FOR ANCILLARY FACILITIES FOR PHILIPPINES

DESCRIPTION	UNIT	PESO
SQUASH COURTS		
Single court with glass backwall including associated mechanical and electrical services but including any public facilities (enclosing structure not included)	per court	1,700,000
TENNIS COURTS		
Single court on grade with acrylic surfacing completed with chain link fence	per court	2,000,000
Single court on grade with artificial turf surfacing including chain link fence	per court	2,500,000
Extra for lighting	per court	500,000
SWIMMING POOLS		
Half Olympic (25m x 16m) 6-lanes outdoor swimming pool built in ground, fully tiled, complete with 5m wide deck and associated equipment	per pool	23,100,000
Half Olympic (25m x 16m) 6-lanes indoor swimming pool with suspended structure (enclosing structure not included) fully tiled and completed with 5m wide deck, including mechanical ventilation and associated equipment.	per pool	27,800,000
Extra for heating equipment	per pool	1,500,000
Extra for salt chlorine generator	per pool	500,000
Amenity pool outdoor approx. 300m^2 swimming pool with kiddie pool & jacuzzi (pooldeck & structure not included) fully tiled including associated equipment & pool lighting	per pool	11,000,000 - 16,000,000
BASKETBALL COURTS		
Exposed court, approximately 975m^2 including player benches and excluding equipment	per court	6,000,000 - 10,500,000
Covered court approximately 975m^2, including metal viewing seats, built-infurnitures, provision for T&B, etc*	per court	20,000,000 - 40,000,000

*includes provision for forward/rear fold ceiling mounted basketball goal.
2021 4Q Rates

DESCRIPTION	UNIT	PESO
PLAYGROUND EQUIPMENT		
Outdoor playground equipment comprising various activities and safety mat	per set	750,000 - 2,500,000
SAUNAS		
Sauna room for 4-6 people complete with all accessories (enclosing structure not included)	per room	500,000
STEAM BATHS		
Steam bath for 4-6 people complete with all accessories (enclosing structure not included)	per room	1,331,000
GOLF COURSES		
(Based on 'Average Cost Model' of an 18 hole golf course in Asia) excluding fairway construction and rough hydroseeding	per hole	30,000,000
Including fairway construction and rough hydroseeding	per hole	35,000,000
GOLF SIMULATOR		
Complete golf simulation system complete with projector, high impact projection screen, artificial grass putting turf, putting green cup and control computer with software overall size 4m x7m x 3m high (enclosing structure not included)	per set	3,000,000 - 4,500,000

M & E MAJOR PLANT COSTS FOR THE PHILIPPINES

DESCRIPTION	UNIT	COST (Php)
1. Water cooled chiller; conventional bearing	per TR	19,000 - 36,000
2. Water cooled chiller; magnetic bearing	per TR	37,000 - 50,000
3. Air-cooled chillers	per TR	34,500 - 46,000
4. Cooling Towers; induced draft	per GPM	2,900 - 5,150
5. Air Handling Units (AHU)	per TR	18,500 - 35,000
6. Packaged Water-Cooled Chiller units (PWCU)	per TR	23,000 - 43,700
7. Fire Pumps; electric motor driven; up to 180 psi	per GPM	1,900 - 4,900
8. Fire Pumps; electric motor driven; 180 to 295 psi	per GPM	4,400 - 9,600
9. Fire Pumps; diesel engine driven; up to 180 psi	per GPM	2,500 - 5,400
10. Fire Pumps; diesel engine driven; 180 to 295 psi	per GPM	4,600 - 10,600
11. Air to Water Heat Pumps (KW based on heating capacity)	per KW	32,200 - 43,300
12. Generator (Low Voltage-400V) Standby Rating	per KVA	8,500 - 10,500
13. Generator (Low Voltage-400V) Prime Rating	per KVA	11,000-12,800
14. Generator (Medium Voltage-4160V)	per KVA	11,000 - 12,577
15. Power transformers, with built-in primary protections; padmount	per KVA	2,500 - 5,000
16. Power transformers, with built-in primary protections; silicon oil filled	per KVA	1,300 - 4,400
17. Power transformers, with built-in primary protections; cast resin	per KVA	2,000 - 6,000
18. Hot Water Storage Tank with Heating Coil	per Gallon	3,000 - 5,700

NOTE:
1. Rates are based on direct supply of imported equipment and materials by the developer.
2. Rates include all government imposed taxes, import duties brokerage fees and allowances for local materials and installation cost.

DESCRIPTION	UNIT	COST (Php)
19. Sewage Treatment Plant, Sequencing Batch Reactor (SBR); including civil works (no piling and located within the building)	per m3/day	30,000 - 40,000
20. Kitchen Waste Water Treatment; Gas Energy Mixing (GEM); including civil works (no piling and located within the building)	per m3/day	93,000 - 111,000
21. Desalination System; Reverse Osmosis up to 200 CMD	per m3/day	68,000 - 101,000
22. Desalination System; Reverse Osmosis 200 CMD to 600 CMD	per m3/day	35,000 - 74,000
23. Elevator; 1000 kgs, 1 to 2 mps (no skip floors; less than 10 floors)	cost/stop	550,000 - 1,400,000
24. Elevator; 1350 kgs, 2.5 to 3 mps (no skip floors; 10 to 20 floors)	cost/stop	885,000 - 1,155,000
25. Elevator; 1350 kgs, 2.5 to 3 mps (no skip floors; 20 to 30 floors)	cost/stop	700,000 - 885,000
26. Elevator; 1350 kgs, 2.5 to 3 mps (no skip floors; 30 to 40 floors)	cost/stop	550,000 - 744,000
27. Elevator; 1600 kgs, 4 mps (no skip floors; 20 to 30 floors)	cost/stop	760,000 - 1,085,000
28. Elevator; 1600 kgs, 4 mps (no skip floors; 30 floors to 40 floors)	cost/stop	660,000 - 881,900
29. Elevator; 1600 kgs, 5 mps (no skip floors; 40 floors to 45 floors)	cost/stop	1,180,000 - 1,284,000

3. Rates exclude preliminaries and contingencies.
4. Rates are based on fixed price tenders received in 4th Quarter 2021.

FIT-OUT COSTS FOR PHILIPPINES

DESCRIPTION	PESO/m^2
HOTELS	
Public Areas (Front of House):	
3-star Hotel	26,000 - 33,000
4-star Hotel	40,000 - 55,000
5-star Hotel	55,000 - 98,000
Guest Rooms:	
3-star Hotel	17,000 - 26,000
4-star Hotel	51,000 - 65,000
5-star Hotel	65,000 - 98,000
Notes: 1. Includes built-in furniture floor, wall and ceiling, finishes, drapery, sanitary fittings, and special lightings. 2. Excludes partitioning, loose furniture, artworks, M&E works, building shell, operational items and equipment (e.g. cutlery, crockery, linen, television, refrigerator, etc.) opening, expenses, stage requirement, and computer systems. 3. Blended cost of hotel main lobby, lounges, banquet rooms, meeting rooms, pre function rooms, corridors, public restrooms, enclosed amenity areas, VIP Club, lift lobbies, etc. for Public Areas (Front of House)	
COMMERCIAL	
Shopping centers	27,000 - 38,000
Notes: 1. Mall / Public areas; excluding tenant area 2. See notes 1, 2, & 3 below	

NOTE:

1. Costs are at December 2021 Levels
2. Costs include wall, floor, ceiling furnishes, doors, FF&E, preliminaries. Forex US$1:50.77
3. Costs exclude operational equipment and supplies, structure, external enclosure, major M&E plant, financing and developers costs, professional and marketing fees.

DESCRIPTION	PESO/m²
OFFICES	
Standard offices*	
Shell & Core	30,400 - 52,800
Warmshell provided by Developer	27,500 - 48,300
Executive offices**	
Shell & Core	52,800 - 88,000
Warmshell provided by Developer	48,300 - 83,100
Banking lobby***	62,000 - 73,000
*Medium quality systems furniture	
**High quality furniture and finishes	
***Imported stone finishes; double volume spaces	
Notes: See notes 1, 2 & 3 below Shell & Core - includes built-in furniture, loose furniture, artworks, floor, wall and ceiling finishes, sanitary fittings, and special lightings. Warmshell - includes built-in furniture, loose furniture, artworks, floor and wall finishes, sanitary fittings, and special lightings; raised flooring and ceiling finish is provided by the developer.	
RESTAURANT	
General dining restaurant	27,000 - 45,000
Fine dining restaurant	45,000 - 112,000
Note: Includes furniture, floor, wall and ceiling finishes, minor alteration to air-conditioning and fire services installation to suit layout, exhaust for kitchen but excludes exhaust flue, operational items (e.g. cutlery, crockery, linen, utensils, etc.)	

NOTE:

1. Costs are at December 2021 Levels
2. Costs include wall, floor, ceiling furnishes, doors, FF&E, preliminaries. Forex US$1:50.77
3. Costs exclude operational equipment and supplies, structure, external enclosure, major M&E plant, financing and developers costs, professional and marketing fees.

FIT-OUT COSTS FOR PHILIPPINES

DESCRIPTION	PESO/m²
THEATRES/CINEMAS	
Theatres *	54,000 - 103,000
Cinemas **	63,000 - 90,000
* Includes stage rigging equipment, draperies, AV equipment projectors, screens, acoustics and seatings	
** Includes screens, projection equipment, seats, finishes, ticketing booth	
AUDITORIUMS	43,000 - 70,000
BUSINESS CLUBS	56,000 - 220,000
BAR / BILLIARDS *	35,000 - 44,000
* Excluding kitchen equipment	

NOTE:

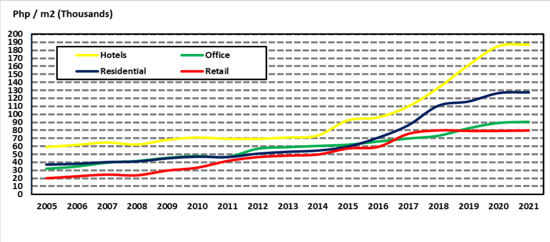
1. Costs are at December 2021 Levels
2. Costs include wall, floor, ceiling furnishes, doors, FF&E, preliminaries. Forex US$1:50.77
3. Costs exclude operational equipment and supplies, structure, external enclosure, major M&E plant, financing and developers costs, professional and marketing fees.

KITCHEN EQUIPMENT COSTS FOR PHILIPPINES

DESCRIPTION	COST (Php)
BUSINESS CLUB 500 - 900 m² floor area	22M - 50M
EXECUTIVE DINING 200 - 400 m² floor area	22M - 50M
4 STAR HOTEL 50 - 150 rooms	41M - 92M
5 STAR HOTEL 200 - 500 rooms	140M - 240M
OFFICE CANTEEN 200 - 300 m² floor area	10M - 20M

GENERAL CONSTRUCTION DATA 2

TRENDS IN CONSTRUCTION COSTS FOR PHILIPPINES



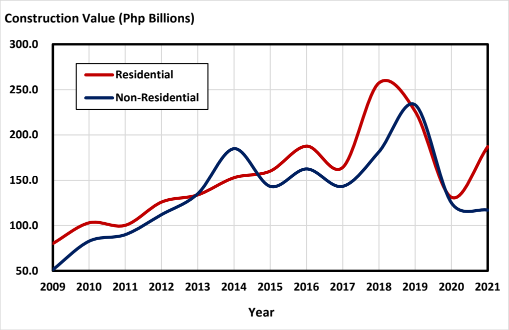
Building Construction Cost (Php/m²)

Year	Hotels	Office	Residential	Retail	US$ to Php
2005	58,941	32,225	36,907	19,831	55.09
2006	61,577	34,894	37,973	22,322	51.31
2007	64,608	39,688	40,149	24,459	46.15
2008	62,042	41,806	40,917	23,572	44.47
2009	67,908	45,732	44,779	29,535	47.64
2010	70,822	48,042	46,914	33,156	45.11
2011	69,301	46,738	46,345	41,581	43.31
2012	69,175	57,009	50,675	46,452	42.23
2013	70,885	59,000	53,058	48,389	42.45
2014	73,252	60,600	54,606	49,723	44.40
2015	92,371	62,111	59,609	57,334	45.50
2016	95,935	66,015	70,764	59,366	47.49
2017	109,628	69,809	86,291	75,808	50.40
2018	132,914	73,197	110,955	80,201	52.66
2019	161,217	82,497	116,191	79,537	51.05
2020	185,130	89,213	126,773	79,561	48.94
2021	186,990	90,503	127,643	79,951	50.77

Note: The figures used on the Construction Trends were based on high-end / prestige projects

ARCADIS

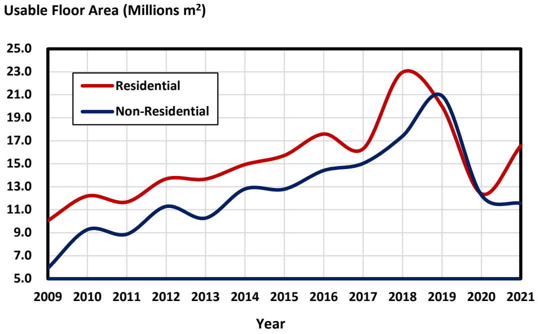
CONSTRUCTION VALUE



Year	Construction Value Php ('000)	
	Residential	Non-Residential
2009	80,108,885	51,295,024
2010	102,943,619	82,722,312
2011	100,220,969	89,952,721
2012	125,864,536	112,083,457
2013	133,783,612	135,163,094
2014	152,755,734	184,873,176
2015	160,065,906	143,221,467
2016	187,599,731	162,517,347
2017	164,153,250	143,315,470
2018	257,417,054	181,481,663
2019	225,818,368	233,185,922
2020	131,084,663	124,961,618
2021*	186,915,099	117,059,625

** Forecast Source: www.psa.gov.ph*

CONSTRUCTION ACTIVITY



Year	Usable Floor Area (m^2)	
	Residential	Non-Residential
2009	10,059,645	5,918,411
2010	12,196,450	9,273,089
2011	11,674,389	8,875,138
2012	13,687,037	11,295,492
2013	13,672,027	10,278,621
2014	14,935,518	12,811,930
2015	15,723,803	12,793,261
2016	17,592,013	14,421,105
2017	16,301,228	15,035,707
2018	22,961,367	17,409,516
2019	20,011,536	20,916,613
2020	12,401,694	12,285,488
2021	16,564,613	11,560,367

** Forecast Source: www.psa.gov.ph*

LEAD TIME OF DIFFERENT PACKAGES

Packages	Process Code* (in weeks)			
	A	B	C	D
Insitu Concrete Works	1	1	2	-
Structural Steel Frames	4	2	-	5
Cladding-Curtain Walling	10	2	-	14
Brickwork	1	1	2	-
Roof Finishes - Profiled Metal	3	1	4	4
Windows	2	1	3	6
Drylining, plaster and screeds	1	1	1	-
Demountable partitions	2	1	8	8
General joinery	4	2	3	6
Raised floors	2	1	3	3
Suspended ceilings	2	2	2	4
Decorations (wall coverings)	-	3 to 4	2 to 4	-
Stone wall and floor finishes	3	2	4	5
Passenger lifts (non-standard)	8	3	-	27
Escalators	4	2	-	18
Mechanical Pipework	4	2	1	1
Ductwork	4	2	4	3
Sprinklers	6	2	3	3
Air-conditioning plant	2	2	3	6
Variable air-volume unit	1	1	3	6
Electrical Package	6	3	-	-
Electrical - Panel Box	2	2	-	10
Switchgear	2	2	-	10
Generators (600kW)	4	2	-	13

LEAD TIME OF DIFFERENT PACKAGES

Light fittings	1	1	6	2
Security Systems	3	3	4	-
Controls	4	3	3	-
Furniture	2	2	4	8
Data and voice cabling	3	2	-	-
Stones	-	-	4 to 8	-
Countertops (Natural)	2	1	4	4
Countertops (Synthetic)	2	1	2	4
Decorative Glass	2	2	4	4
Specialty Water Feature	2 to 4	2	4	4 to 6
Specialty Light Diffuser: Stretched Fabric	2	2	2 to 3	2 to 4
Toilet Fixtures	-	-	-	6 to 8
Glass Reinforced Gypsum	3	2	6	6
Digital Elements (Screens, Software, etc)	2	2	12	8
Fire Suppression	2	1	2	2 to 4
Special Lightings	-	-	2 to 8	-

**Process Code*
Legend
A - Working Drawing
B - Approve Working Drawing
C - Procurement of Materials
D - Manufacture

The lead time provided shall serve only as guide for use in projects,this is due mainly to the variability of factors like local customs processing/clearing, material availability, among others.

Lead times do not refer to any particular building/project type and are based on average time.

For examples:
Air-conditioning plant may require between six and twelve weeks depending on the plant specified or required. Therefore, an average of nine weeks has been used in the table.

UTILITY COSTS FOR SELECTED ASIAN CITIES

COUNTRY	Exchange Rate Used	ELECTRICITY	
		Domestic	Commercial/ Industrial
	US$=	US$/kwh	US$/kwh
Manila	PHP 50.77	0.142 - 0.210	0.177
Hong Kong	HK$7.79	0.11	0.13
Kuala Lumpur	RM4.15	0.053 - 0.138	0.092 - 0.123
Singapore	S$1.35	0.18^	0.18^
Jakarta	IDR14,288	0.101*	0.101**
Bangkok	Baht : 33.889	0.069 - 0.130**	0.091 - 0.094
Shanghai	RMB 6.40	0.048 ~ 0.153	5.316 (Basic Tariff) 0.092(summer) 0.087(non-summer)
Beijing	RMB 6.40	0.068 ~ 0.110	0.190 ~ 0.192 (Peak) / 0.118~ 0.120 (normal)
Guangzhou	RMB 6.4	0.091 ~ 0.138	0.091 ~ 0.105
Chongqing	RMB 6.4	0.080 - 0.128	0.087 - 0.102
Macau	MOP8.01	0.17	0.17
Bangalore	INR 74.39	0.075 - 0.107	0.092 - 0.135
New Delhi	INR 74.39	0.021 - 0.108	0.16
Ho Chi Minh	VND 23,450	0.12	0.11 / 0.06

Cost are at 4th Quarter 2021 Levels

Basis of Charges in Manila, Philippines

Water
Domestic : 17m³ - 35m³/month
Commerial/Industrial : 13m³

Electricity
Domestic : 50kWh - 652kWh
Commercial/Industrial : 34,351kWh

Basis of Charges in Hong Kong, China

Water
Domestic
0 - 12m³ : Free of Charge
12 - 43m³ : US$0.53/m³
43 - 62m³ : US$0.83/m³
Above 62m³ : US$1.16/m³

Electricity (Based on tariff scheme of CLP Holdings Ltd.)
Domestic (bi-monthly consumption)
0-400 kWh: US$0.11/kWh 400-1,000 kWh : US$0.13/kWh
1,000-1,800 kWh : US$0.15/kWh 1,800-2,600 kWh : US$0.19/kWh
2,600-3,400 kWh : US$0.22/kWh 3,400-4,200 kWh : US$0.23/kWh
Above 4,200 kWh : US$0.23/kWh

Basis of Charges in Bangkok, Thailand
**Electricity (Domestic) = For normal tariff with consumption not exceeding 150kWh per month
*Fuel (Unleaded) = Gasohol 95

Basis of Charges in Beijing, China
Water
Domestic: 1-180m³ = US$0.694; 180-260m³ = US$0.972
261m³ above = US$1.251
Commercial/Industrial : Central Districts: US$1.319
Other Districts= US$1.251

Electricity
Domestic: (per month): 1-240 kWh = US$0.068/kWh; 241-400 kWh = US$0.075/kWh
400 kWh above= US$0.110/kWh

Commercial/Industrial: Central Districts: Peak - US$0.192; Normal - US$0.120
Other Districts: Peak = Peak - US$0.190; Normal - US$0.118

Basis of Charges in Shanghai, China
Water
Domestic: 0-220m³ = US$0.523/m³ 220-300m³ = US$0.732/m³
Above 300m³ = US$0.883/m³

Unleaded Fuel
Unleaded fuel rate is for Unleaded 95#.

Electricity
Domestic (Charged on yearly consumption):
0-3,120kWh = US$0.096/kWh(peak) / US$0.048/kWh(normal); 3,120-4,800kWh = US$0.106/kWh(peak) / US$0.053 kWh(normal); Above 4,800kWh = US$0.153/kWh(peak) / US$0.076/kWh(normal)

Commercial/Industrial (Charge on yearly consumption):
Electricity in dual tariff system, Rate of 10KVA

UTILITY COSTS FOR SELECTED ASIAN CITIES

COUNTRY	WATER		FUEL	
	Domestic	Commercial/ Industrial	Diesel	Unleaded
	US$/m³	US$/m³	US$/litre	US$/litre
Manila	0.474 - 0.707	2.409	1.030	1.162
Hong Kong	0.83	0.59	2.25	2.62
Kuala Lumpur	0.137 - 0.482	0.499 - 0.549	0.52	0.49
Singapore	2.03^^ 2.73^^^	2.03^^^^	1.57^^^^^	2.34^^^^^^
Jakarta	0.073 - 0.521*	0.477 - 1.025**	0.91	0.63
Bangkok	0.251 - 0.426	0.280 - 0.467	0.87	0.930*
Shanghai	0.539 - 0.911	0.78	1.12	1.25
Beijing	0.694 ~ 1.251	1.251~1.319	1.30	1.46
Guangzhou	0.309 ~ 0.619	0.79	1.13	1.18
Chongqing	0.520 - 0.877	0.68	1.13	1.25
Macau	0.56 - 0.91	0.75	1.77	1.59
Bangalore	0.590 - 0.738	1.48	1.16	1.39
New Delhi	0.07 - 0.59	0.50 - 2.36	1.17	1.40
Ho Chi Minh	0.27	0.84 / 0.52	0.88	1.14

Cost are at 4th Quarter 2021 Levels

Basis of Charges in Guangzhou, China
Unleaded Fuel
Fuel ¤ Unleaded gasoline 97#
* Unleaded 95# = US$1.283/litre; Unleaded 98# = US$1.461/litre

Basis of Charges in Chongqing, China
Unleaded Fuel
Unleaded 92# = US$1.178/litre; Unleaded 95# = US$1.245/litre

Basis of Charges in Kuala Lumpur, Malaysia
Unleaded Fuel
Unleaded fuel rate is for Unleaded = Petrol Ron 95.
Electricity: Commercial/Industrial: Low voltage

Water
Domestic: Rates for Residential with individual meter

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

Basis of Charges in Macau, China
Electricity
Electricty tariffs are a composition of demand charges, consumption charges, fuel clause adjustment and government tax.
Water
Domestic: Consumption charge = US$0.56/m³ for 28m³ or below; US$0.64/m³ for 29m³ to 60m³; US$0.75/m³ for 61m³ to 79m³; and US$0.90/m³ for 80m³ or above.
Other charges (Depending on meter size 15mm - 200mm) : Meter rental = US$0.34 - 57.64/month;
Commercial/Industrial: Charges for ordinary users (e.g Business, government buildings, schools, associations, hospitals and others) only. Special users (e.g gaming industries, hotels, saunas, golf courses, construction, public infrastructure and other temporary consumption) are excluded.

Basis of Charges in Singapore
- * All rates are nett of GST
- ^ Electricity tariff is based on low tension power supply
- ^^ Domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for ≤ 40m3
- ^^^ Domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for > 40m3
- ^^^^ Non-domestic water tariff effective from 1 July 2018. Rate includes water conservation tax, water-borne fee and sanitary appliance fee
- ^^^^^ As at 27 October 2021
- ^^^^^^ 98 Unleaded petrol as at 27 October 2021

ESTIMATING RULES OF THUMB

Densities of Common Materials

Concrete	2,400 kg/m³	Water	1,000 kg/m³
Cement	1,441 kg/m³	Softwood	700 kg/m³
Sand	1,600 kg/m³	Hardwood	1,100 kg/m³
Gravel	1,350 kg/m³	Aluminum	2,750 kg/m³
Steel	7,850 kg/m³	Soil (compact)	2,100 kg/m³

Concrete

Minimum Recommended Cement Factor Based on Concrete Strength (in bags of 40 kg cement)

Concrete		Ordinary Design Mix		Pumpcrete Design Mix
Psi	Mpa	1 ½"	Gravel Size ¾"	Gravel Size 3/4"
8,000	55	21	22	23
7,000	48	19	20	21
6,000	41	17	18	19
5,000	35	15	16	17
4,000	28	11.75	12.75	14.5
3,000	21	9	10	11.5

Reinforcement

Bar Diameter (mm)	Weight/m (kg/m)	Perimeter (mm)	Area (mm^2)
6	0.222	18.85	28.27
8	0.395	25.13	50.26
10	0.616	31.42	78.54
12	0.888	37.70	113.10
16	1.579	50.27	201.06
20	2.466	62.83	314.16
25	3.854	78.54	490.88
28	4.834	87.96	615.80
32	6.313	100.53	804.25
36	7.990	113.09	1,017.90
40	9.864	125.66	1,256.64

ESTIMATING RULES OF THUMB

Structure Design - Concrete Ratios

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

Concrete/floor area	0.4 m^3/m^2	-	0.55 m^3/m^2
Formwork/floor area	2.0 m^2/m^2	-	3.0 m^2/m^2
Reinforcement	180 kg/m^3	-	280 kg/m^3

Average External Wall/Floor Ratio

Residential Apartments	0.35 m^2/m^2
Office, Hotel	0.40 m^2/m^2
Industrial	0.40 m^2/m^2

Average Internal Wall/Floor Ratio

Residential Apartments	1.00 m^2/m^2
Office, Hotel	0.50 m^2/m^2
Industrial	1.50 m^2/m^2

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

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

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

The above ratios are indicative and for reference purpose only. They do not account for buildings with special shapes, configurations or particularly small foot prints.

Average Loads	Volume
Lorry (24 ton)	10.0 m^3
Concrete Truck (24 ton)	5.5 m^3

ARCADIS

Functional Area Distribution in 5-star Hotels

Functional Area	% of Total Hotel CFA
Front of House	15 - 25%
Guestroom Floors	45 - 60%
Back of House	25 - 30%

Dimensions of Typical Grade A Office Space

Component	Dimension
Distance from curtain wall to core wall	9 - 13%
Population	9 m^2 usable floor area/person
Average waiting intervals for lifts	30 - 40 s

Average Lighting Level

Building Type	Lux
Residential	300
Office	500
Retail	500
Hotel	300
School	300 - 500

ESTIMATING RULES OF THUMB

Average Power Density

Building Type	VA/m² CFA
Residential	80 - 100
Office	70
Retail	300 - 400
Hotel - Accommodation	30
Hotel - F&B Area	550
School	50

Average Cooling Load

Building Type	m² Cooling Area/RT
Residential	18 - 23
Office	14 - 18
Retail	12 - 14
Hotel	23
School	23

Indicative Dimensions for Sports Grounds

Building Type	Length	Width
Tennis Court	40 m	20 m
Squash Court	10 m	6.4 m
Basketball Court	34 m	20 m
Volleyball Court	36 m	20 m
Badminton Court	20 m	10 m
Ice Rink	61 m	26 m
Soccer Pitch	120 m	90 m

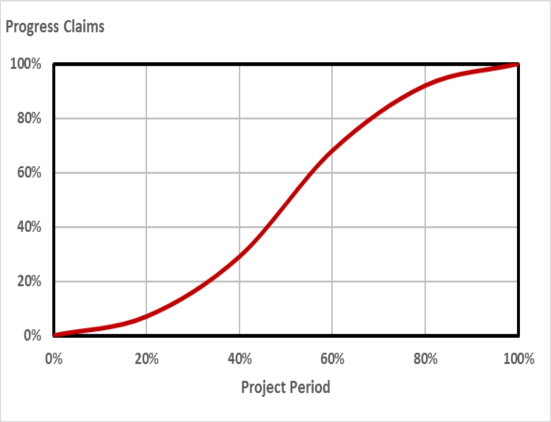
The above dimensions are for a single court with appropriate clearance. No spectator seating or support area has been allowed.

PROGRESS PAYMENTS

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

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

No account has been made for downpayments or retention.



PROGRESS PAYMENTS

Contract Period	Cumulative Progress Claims
5%	1%
10%	3%
15%	5%
20%	7%
25%	10%
30%	14%
35%	21%
40%	29%
45%	38%
50%	48%
55%	59%
60%	68%
65%	77%
70%	83%
75%	88%
80%	92%
85%	94%
90%	96%
95%	98%
100%	100%

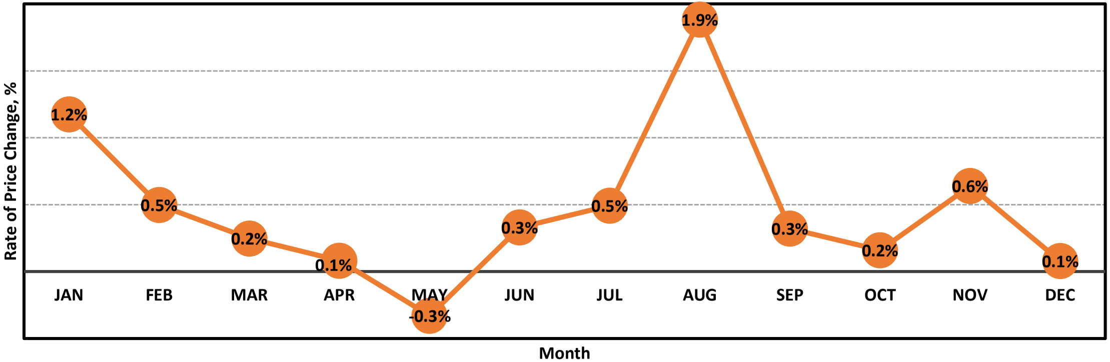
CONSTRUCTION MATERIALS WHOLESALE PRICE INDEX IN THE NATIONAL CAPITAL REGION (NCR) 2021

	2020	2021											
ALL ITEMS	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ALL ITEMS	**119.10**	**120.50**	**121.10**	**121.40**	**121.50**	**121.10**	**121.50**	**122.10**	**124.40**	**124.80**	**125.00**	**125.80**	**125.90**
A. Sand and Gravel	133.80	138.10	137.90	138.50	138.50	138.50	138.20	138.30	138.50	138.20	138.10	138.60	138.30
B. Concrete Products & Cement	122.30	122.70	122.90	123.00	123.40	123.70	123.70	123.70	123.80	124.10	124.40	126.60	126.60
C. Hardware	120.40	121.20	121.70	122.20	122.30	122.60	122.70	123.30	123.30	122.60	124.30	124.40	124.90
D. Plywood	113.30	113.60	113.70	114.60	114.60	114.70	114.80	115.30	115.70	115.80	116.00	116.50	116.80
E. Lumber	131.80	133.90	133.80	133.80	132.90	133.40	135.40	135.80	136.10	136.10	136.20	136.40	136.40
F. G.I. Sheet	111.90	112.20	112.20	112.40	112.40	112.70	112.70	114.50	124.90	127.90	124.90	124.90	124.90
G. Reinforcing & Structural Steel	115.30	118.10	119.00	119.10	119.10	116.90	117.90	119.30	123.90	124.40	124.80	125.20	125.60
H. Tile Works	133.70	135.20	136.30	136.30	136.30	136.60	136.60	137.20	137.20	137.20	135.00	132.70	132.70
I. Glass & Glass Products	112.40	112.40	128.60	128.60	128.60	128.60	128.60	128.60	128.60	128.60	128.60	128.60	128.60
J. Doors, Jambs, and Steel Casement	110.00	110.00	110.70	111.50	111.70	111.90	111.90	112.00	112.30	112.10	112.50	112.70	112.70

CONSTRUCTION MATERIALS WHOLESALE PRICE INDEX IN THE NATIONAL CAPITAL REGION (NCR) 2021

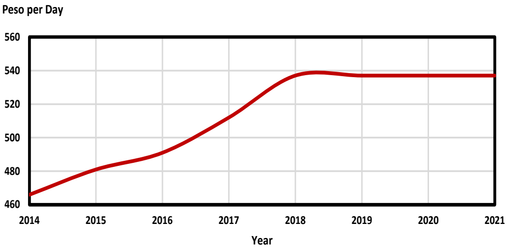
ALL ITEMS	2020	2021											
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
K. Electrical Works	125.30	125.00	124.80	126.10	127.40	129.60	130.10	131.10	132.90	132.70	134.70	135.10	135.10
L. Plumbing Fixtures & Accessories / Waterworks	125.00	123.90	123.50	122.40	122.40	123.20	123.20	123.40	123.40	123.40	125.90	126.10	127.50
M. Painting Works	105.70	106.00	105.90	106.50	106.60	107.10	107.10	107.40	107.60	107.50	109.20	109.20	109.90
N. PVC Pipes	115.80	117.00	116.20	116.20	118.50	116.60	116.60	119.50	119.50	119.80	120.80	120.80	120.80
O. Fuel and Lubricants	109.90	113.70	116.40	123.30	122.40	124.80	128.60	132.70	132.40	132.90	142.60	147.10	140.10
P. Asphalt	104.20	104.20	104.20	104.20	104.20	104.20	104.20	104.20	104.20	104.20	104.20	104.20	104.20
Q. Machinery and Equipment Rental	146.90	146.90	146.90	146.90	146.90	146.90	146.90	146.90	146.90	146.90	146.90	146.90	146.90

Construction Materials Wholesale Price Index 2021
Monthly Price Movement (2012=100)



Source: Philippine Statistics Authority

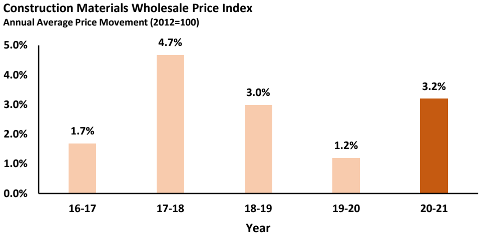
MINIMUM WAGE



Year	NCR Wage Order No.	Amount of Increase	Peso per Day
08 January 1991	W.O. No. NCR 2	12.00	118.00
16 December 1993	W.O. No. NCR 3	17.00	135.00
01 April 1994	W.O. No. NCR 3	10.00	145.00
02 February 1996	W.O. No. NCR 4	16.00	161.00
01 May 1996	W.O. No. NCR 4	4.00	165.00
06 February 1997	W.O. No. NCR 5	15.00	180.00
01 May 1997	W.O. No. NCR 5	5.00	185.00
06 February 1998	W.O. No. NCR 6	13.00	198.00
31 October 1999	W.O. No. NCR 7	25.50	223.50
01 November 2000	W.O. No. NCR 8	26.50	250.00
05 November 2001*	W.O. No. NCR 9	15.00	265.00
01 February 2002*	W.O. No. NCR 9	15.00	280.00
10 July 2004*	W.O. No. NCR 10	20.00	300.00
16 June 2005	W.O. No. NCR 11	25.00	325.00
11 July 2006	W.O. No. NCR 12	25.00	350.00
28 August 2007	W.O. No. NCR 13	12.00	362.00
14 June 2008	W.O. No. NCR 14	15.00	377.00
28 August 2008	W.O. No. NCR 14	5.00	382.00
23 June 2010	W.O. No. NCR 15	22.00	404.00
26 May 2011	W.O. No. NCR 16	22.00	426.00
03 June 2012	W.O. No. NCR 17	20.00	446.00
01 November 2012	W.O. No. NCR 17	10.00	456.00
04 October 2013	W.O. No. NCR 18	10.00	466.00
04 April 2015	W.O. No. NCR 19	15.00	481.00
02 June 2016	W.O. No. NCR 20	10.00	491.00
05 October 2017	W.O. No. NCR 21	21.00	512.00
05 November 2018	W.O. No. NCR 22	25.00	537.00

* ECOLA (Emergency Cost of Living Allowance)
Source: National Wages and Productivity Commission, Department of Labor and Employment

ANNUAL AVERAGE OF CONSTRUCTION MATERIALS WHOLESALE PRICE INDEX (CMWPI) IN NCR



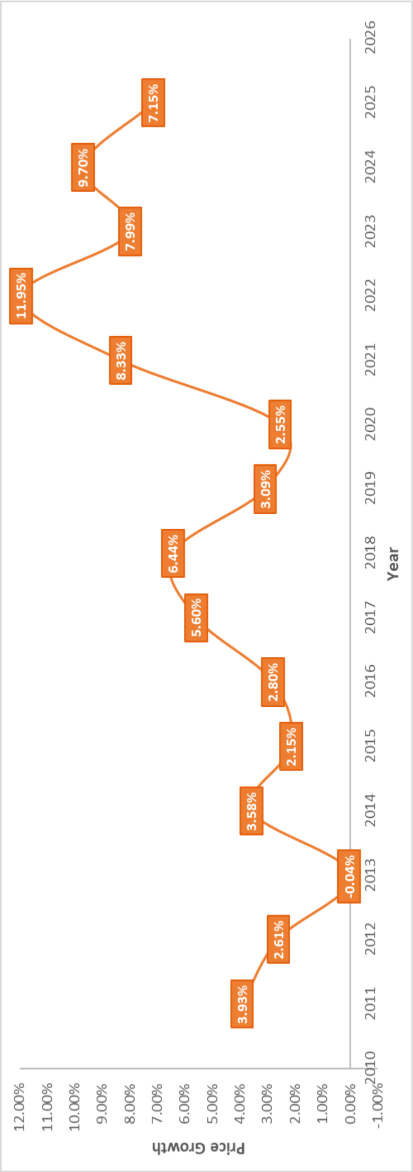
COMMODITY GROUP	2018 Ave.	2019 Ave.	2020 Ave.	2021 Ave.
ALL ITEMS	114.3	117.7	119.1	122.9
A. Sand and Gravel	120.7	131.5	133.8	138.3
B. Concrete Products & Cement	115.5	120.6	122.3	124.1
C. Hardware	113.9	115.8	120.4	123.0
D. Plywood	111.7	113.8	113.3	115.2
E. Lumber	120.6	127.0	131.8	135.0
F. G.I. Sheet	107.0	109.8	111.9	118.1
G. Reinforcing & Structural Steel	115.6	116.0	115.3	121.1
H. Tile Works	112.9	115.6	133.7	135.8
I. Glass & Glass Products	104.9	104.9	112.4	127.3
J. Doors, Jambs, and Steel Casement	109.7	109.9	110.0	111.8
K. Electrical Works	117.0	123.3	125.3	130.4
L. Plumbing Fixtures & Accessories / Waterworks	119.4	124.6	125.0	124.0
M. Painting Works	104.7	104.9	105.7	107.5
N. PVC Pipes	107.1	109.5	115.8	118.5
O. Fuel and Lubricants	117.7	120.3	109.9	129.8
P. Asphalt	104.2	104.2	104.2	104.2
Q. Machinery and Equipment Rental	146.9	146.9	146.9	146.9

TENDER PRICE INDEX

Year	Tender Price Index
2010	100.00
2011	103.93
2012	106.64
2013	106.60
2014	110.42
2015	112.79
2016	115.95
2017	122.44
2018	130.32
2019	134.35
2020	137.77
2021	149.25
2022	167.08
2023	180.43
2024	197.93
2025	212.09

Notes:

- This tender price index data does not consider the construction fluctuations ie. prices of plant and equipment, materials, and labor, from the tender date up to the mid-point of the construction period. It is estimated that construction fluctuations would approximately be at 3% - 5% per annum
- The computation is based on a priced bill of quantities which composed of Civil, Structural, Architectural and MEPF services
- The projection for year 2022 to year 2025 is based on geopolitical landscapes, prices of commodities globally, fuel and oil prices as of March 2022.


Price Growth
12.00%
11.00%
10.00%
9.00%
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
-1.00%
Year
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
3.93%
2.61%
-0.04%
3.58%
2.15%
2.80%
5.60%
6.44%
3.09%
2.55%
8.33%
11.95%
7.99%
9.70%
7.15%

LEED CERTIFICATION COST PREMIUM

What is LEED?

LEED stands for Leadership in Energy and Environmental Design. It is a green building certification system sponsored by the United States Green Building Council.

Why LEED?

LEED certified buildings have lower energy and water consumption that reduces the cost of operations. Better indoor air quality, lighting, thermal comfort, quality views and acoustic performance, also the reduction of carbon dioxide emissions and solid waste creates a healthier environment that helps improve both physical and mental health that leads to increase in productivity of the tenant or employees.

Additional Benefits of LEED

- Increased Building Valuation
- Reduces liability
- Promote better employee relationships
- Reduce energy and water usage
- Promote better indoor air quality
- Reduce maintenance and operation costs
- Triggers innovation and processes to optimize building performance
- Reduce construction waste during the process
- Promote and attracts companies with sustainable goals
- Reduce 'sick building' syndrome in the employees
- Increase employee performance
- Promote the usage of recycled material.

Rating Systems

- Building Design and Construction: works for all project types from hospitals to manufacturing plants, showrooms and office buildings. LEED BD+C has options to fit every project. Use a specialty option for unique needs or use New Construction and Major Renovations for everything else.

- Interior Design and Construction: (LEED ID+C) enables project teams, who may not have control over whole building operations, the opportunity to develop indoor spaces that are better for the planet and for people.

- Operations and Maintenance: offers existing buildings an opportunity to pay close attention to building operations, by supporting whole buildings and interior spaces that have been fully operational and occupied for at least one year. The project may be undergoing improvement work or little to no construction.

- Homes: LEED certified green homes use less energy and fewer resources and are healthier for you and your family.

- Neighborhood Design: For new land development projects or redevelopment projects containing residential uses, nonresidential uses, or a mix. Projects can be at any stage of the development process, from conceptual planning to construction.

LEED CERTIFICATION COST PREMIUM

Levels of Certification

- Certified (40 - 49 points)
- Silver (50-59 points)
- Gold (60-79 points)
- Platinum (80+ points)

Cost Premium on Office, Commercial and Residential

Office and Commercial: Shell and Core

3%

4%

5%

7%

High Rise Residential: New Construction

3%

4%

7%

9%

Note:

LEED premium cost on office and commercial applies to average standard level, residential applies to high end level. Innovation and Regional Priority credits were not considered on the computation.

CONSTRUCTION PERMITS

REQUIREMENTS BEFORE CONSTRUCTION	PURPOSE	LOCATIONS REQUIRED TO SECURE	WHERE TO SECURE	REQUIREMENTS	TIMELINE
1. Zoning Certificate	To ensure compatibility or conformity of the project with the existing Land Use Plan of the city or municipality	All Areas	LGU - Office of the Municipal / City Planning and Development	Request Letter, Barangay Clearance, Proof of Land Ownership, Site Development Plan	1 month
2. Barangay Clearance	Prerequisite for applying permits to cover the business or activity conducted by a particular firm or entity which is located in that barangay	All Areas	LGU - Barangay Hall or Municipal Office	Request Letter, Signed and Sealed Achitectural Plans	1 month
3. Civil Aviation Authority of the Philippines (CAAP) Permit	To check or limit the height of the structure located on the flight path of the airport.	Areas within the flight path of the airport. Coordinate with CAAP Central Office or email to osd@caap.gov.ph	Civil Aviation Authority of the Philippines	Duly signed application form, signed and sealed elevation plans, locational plan with vicinity map, certification of Geodetic Engineer. Geodetic Coordinates (WGS 84 Datum), Copy of Reference Elevation from NAMRIA, Copy of Horizontal Control Reference using WGS 84	2 months

4. Environmental Compliance Certificate	To ensure that the proposed project will not cause a significant impact on the environment	All Areas	Department of Environment and Natural Resources (DENR) in coordination with other government agencies that is directly responsible to the type of the proposed project	Environmental Examination (IEE) Environmental Impact Assessment (EIA)	5 months for IEE 9 months for EIA
5. Locational Clearance	To ensure compliance with the local zoning ordinance	All Areas	LGU - Office of the Municipal / City Planning and Development	Duly accomplished and notarized application form, signed and sealed achitectural plans, lot plan and vicinity plan, Professional consultant details and supporting credentials (PRC ID and PTR), CTC of TCT, Consent from immediate neighbours, Barangay Clearance, MOA / SPA / Affidavit / Authorization, Certification from PHIVOCS, Height Clearance form CAAP, Photo of establishment, Tax Declaration, Latest Tax Receipt, ECC from DENR	2 months

CONSTRUCTION PERMITS

REQUIREMENTS BEFORE CONSTRUCTION	PURPOSE	LOCATIONS REQUIRED TO SECURE	WHERE TO SECURE	REQUIREMENTS	TIMELINE
6. Laguna Lake Development Authority (LLDA) Clearance	To ensure that the proposed project will not cause sgnificant impact on the Laguna Lake	Rizal, Laguna, Selected City or Municipalities in Metro Manila, Cavite and Batangas	Laguna Lake Development Authority	Duly accomplished and notarized application form, ECC or Certificate of Non Coverage, SEC approved Articles of Incorporation including GIS or Articles of Cooperative duly approved by CDA or valid Certificate of Business Registration from DTI, IEE, EIA	1 month
7. Fire Safety Evaluation Clearance	To ensure that the codes, standards and minimum requirement for buildings is complied	All Areas	Bureau of Fire Protection	Duly accomplished and notarized application application form, Endorsement Letter from Office of Building Official or Building Permit Certification, Signed and Sealed Plans (CSA, MEPF, Electronics), Professional consultant details and supporting credentials (PRC ID and PTR), Cost estimate of the building including labor cost signed and sealed by the designer or contractor duly notarized, Fire Safety Clearance for welding, cutting and other hot work operations if required	3 months

8. Building Permit (Building, Mechanical, Electrical, Electronics, Sanitary / Plumbing)	To ensure that the codes, standards and minimum requirement for buildings is complied	All Areas	LGU - Office of the Building Official	Duly accomplished and notarized application form (Signed and Sealed by Consultants, Proponent and Lot Owner) Signed and Sealed CSA, MEPF and Electronics Plans and Technical Specifications, Professional consultant details and supporting credentials (PRC ID and PTR), Proof of Land Ownership	3 months
9. Fencing Permit and Excavation, Ground Preparation Permit	To ensure that the codes, standards and minimum requirement for buildings is complied	All Areas	LGU - Office of the Building Official	Duly accomplished and notarized application form (Signed and Sealed by Consultants, Proponent and Lot Owner), Signed and sealed plans and specifications of fence or excavation	3 months

Note on Timeline:

- The Zoning Certificate, Barangay Clearance, CAAP Permit, ECC, Locational Clearance, LLDA Clearance and Fire Safety Evaluation Clearance are to be secured consecutively as a requirement of the Building Permit. For large scale construction the approximate timeline in securing the permits is 13 months to 18 months, for small scale constructions it is no longer than 12 months

CONSTRUCTION PERMITS

Abbreviations

- LGU - Local Government Unit
- NAMRIA - National Mapping and Resource Information Authority
- WGS - World Geodetic System
- PRC - Professional Regulations Commission
- PTR - Professional Tax Receipts
- CTC - Certified True Copy
- TCT - Transfer of Certificate of Title
- MOA - Memorandum of Agreement
- SPA - Special Power of Attorney
- SEC - Securities and Exchange Commission
- GIS - General Information Sheet
- CDA - Cooperative Development Authority
- DTI - Department of Trade and Industry
- CSA - Civil, Structural and Architectural
- MEPF - Mechanical, Plumbing and Sanitary, Fire Protection

Proof of Land Ownership:

- Certified True Copy of Land Title
- Certificate of Transfer
- SEC Amendment
- Lease Contract

References:

- Local Government Units
- Civil Aviation Authority of the Philippines
- Department of Environment and Natural Resources
- Laguna Lake Development Authority
- Bureau of Fire Protection

CONSTRUCTION MARKET UPDATE

3 CONSTRUCTION MARKET UPDATE

IN GENERAL

The Philippines' full-year Gross Domestic Product (GDP) reverted from a contraction of 9.6% in 2020 to a growth of 5.6% in 2021, slightly breaching the government's revised growth target which was set at a range of between 5%-5.5%. Whilst the accelerated growth was also attributable to the low base of comparison in 2020, it was reinforced by the resumption of business operations of various industries as the government pursues 'granular lockdown' and 'COVID-19 Alert Level System', boosting the level of employment and investor confidence. The major economic indicators exhibited soundness in 2021 as shown by the recovery of household spending which grew by 4.2% from a contraction of 7.9% a year ago, the gross capital formation which grew by 19.0% from a slump of 34.4%, and exports which grew by 8.1% from a decline of 50.7%. For 2022, the government sets the recovery pace between 7%-9% as it undermines the impact of the new COVID-19 variant on business activities.

The local commercial office property market is expected to moderately recover in the near-term, as the economy gradually re-opens and more business activities are allowed to operate. The trend of blended workforce arrangement – part of the workforce to continue working-from-home (WFH) and part of the workforce who are set to return to office – will remain relevant. Remote work is set to become an option, especially for functions that can be relegated as back-office support and do not require face-to-face interaction with work colleagues and clients. Average vacancy rates are expected to further swell through 2022 due to new completions and slightly delayed return-to-office arrangements due to the spread of the COVID-19 Omicron variant in early 2022.

As mobility restrictions are slowly lifted, the demand for the residential condominium sub-sector in Metro Manila is seen to gradually recover. The positive outlook on the flow of remittances from overseas Filipinos is expected to pump prime the demand for residential developments, particularly the condominium developments in Metro Manila. The demand for less dense developments located in nearby areas outside Metro Manila is expected to be further strengthened.

E-commerce continues to thrive as the pandemic qualms suppress consumer spending appetite and limits retail footfall. The return to pre-pandemic vibrancy remains bleak in the short to medium term as sustaining the positive momentum in the retail sub-sector remains heavily linked to the further reopening of the economy, fast-tracking the rate of vaccinations, and improvements in macro indicators, such as inflation and employment levels. Strategic policies such as the Republic Act (RA) No. 11595 will be a strong catalyst for attracting investments in sub-retail sector in the long-term. Meanwhile, the online economy is to be further fueled by accelerated digital transformation and a growing middle-class population.

The industrial and logistics segment continues to show resiliency buoyed by the surging e-commerce and it is to be further boosted by the recovery of the manufacturing sector and international trade that will generate additional demand for standard factory buildings (SFBs). The country's shortage in cold storage logistics and other modern storage facilities will continue to attract investors in these areas.

With muted tourism activities, a number of hotel players found sustenance by repurposing their operations into isolation and quarantine facilities catering mainly the returning overseas Filipino (OF) workers and serving customers who want to get away from the prolonged work-from-home situation. The hotel and accommodation industry are expected to see better demand from local tourists as the domestic travel restriction were relaxed to provide stimulation to the travel and tourism industry after a long period of standstill. Nonetheless, fast-tracking the achievement of the herd immunity target and the adoption of innovative technologies that will create compelling customer experiences will push the hotel industry sector forward and remain key to achieving a sustainable recovery.

Commercial Sector

The consolidated office stock for Prime and Grade ‘A’ developments in Metro Manila reached approximately 8.9 million sq.m. by end-2021. Taguig City (with major business districts such as Bonifacio Global City, McKinley Hill, McKinley West, and ARCA South) corners approximately 30% of the total Prime and Grade ‘A’ stock. Makati City (consisting of the Makati CBD and its fringe areas) account for approximately 19%, while Pasig City and Quezon City captured 16% and 14% of the total Prime and Grade ‘A’ stock, respectively. The consolidated office stock in Metro Manila grew by 638,000 sq.m. in 2021 – falling short by 27% of the scheduled completions for the year and lower by 29% from the average new completions over the last three (3) years prior to the pandemic.

As more business activities were allowed to operate in Q4 2021, over-all net absorption for the entire 2021 improved substantially when compared with the net absorption figure estimated in 2020. While the flight of some few Philippine offshore gaming operations (POGO) firms and related service providers persisted until mid-2021, the revival of suspended demand from IT-BPM companies contributed to the improvement in net absorption for the remainder of the year.

The average net rents in Prime and Grade 'A' developments in Metro Manila declined by 3.1% year-on-year (YoY). The downward adjustments were due to the softening of asking rents of developments located outside of these main CBDs, while average rents in the main CBDs, particularly Makati CBD and Bonifacio Global City (BGC) were relatively unchanged.

Cushman & Wakefield Research forecasts the average net rents of Prime and Grade 'A' developments in Metro Manila through 2022 to recover within the current range of PHP1,000 to PHP1,100 per sq.m. per month. The average net rents for developments within the main CBDs are likely to remain unchanged, while average net rents for developments located outside the main CBDs will likely recover as expansion plans of IT-BPM companies continue to be revived, two years since the start of the pandemic.

Overall vacancy rates also increased by to 14.4% by end-2021. Despite recovery in demand coming from IT-BPM firms, the re-opening of previously committed spaces in recently completed buildings and the completion of new supply within 2022, will still likely push vacancy rates upwards.

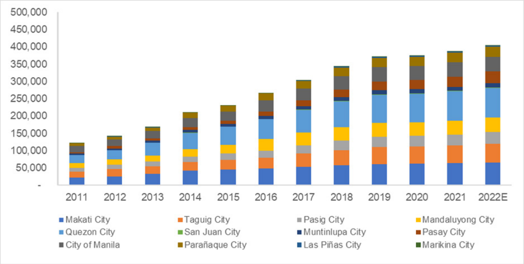
Residential Condominium Sector

By end-2021, the total supply of completed residential condominium units in Metro Manila reached approximately 388,000 units. Due to the restrictions in movements that affected the schedule of constructions and pushed back the completion dates of developments, the total number of completed residential condominium units in 2021 was down by 47% from the average number of completed developments in the last five (5) years.

There were significant interests in adding new horizontal development projects in the portfolio of the major residential developers in 2021. As some workers start to move back to the office, the demand for residential condominium developments in the traditional business districts is expected to be revitalized. Low-density developments and designs that address pandemic-related concerns - such as additional enhancements to improve health, sanitation, and circulation - will become the preference for condominium buying in the near- to medium-term. Despite this growing trend, the demand for horizontal developments located in adjacent urban areas will also intensity as a result of blended work set-up and increasing preference towards less dense living environment/set-up.

Average monthly rents of both mid-end and luxury residential condominium developments in Metro Manila have marginally recovered in 2021 and will continue to grow in 2022. The estimated range of rental rates within Metro Manila is within PHP400 to PHP1,100 per sq.m. per month. Rental rates in Makati CBD and BGC are estimated to be in the higher end of the range between PHP750 to PHP1,400 per sq.m. per month.

Figure 1. Total Number of Residential Condominium Units in Metro Manila (2011-2022E)

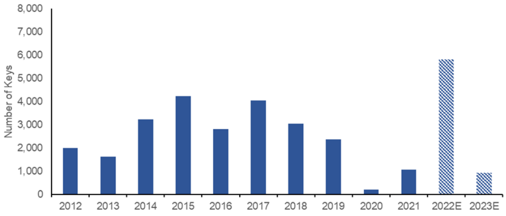


Source: Cushman & Wakefield Research

Hotels and Serviced Apartments Sector

Following the resumption of construction activities throughout 2021, new completions in Metro Manila were recorded at 1,065 keys with the addition of three hotel and serviced apartment properties, namely, the Kingsford Hotel Manila in Parañaque City, Hotel Okura Manila in Pasay City, and Somerset Central Salcedo in Makati City. Whilst four folds higher than the recorded completions in 2020, it only comprises roughly 25% of the total estimated completions for 2021. The total stock of hotel and serviced apartments stood at around 42,900 keys in 2021 and it is estimated to reach around 49,600 in 2023. The existing stock is concentrated in Makati City (22%), Pasay City (19%), City of Manila (17%), and Quezon City (12%) while upcoming new supply up to 2023 will be coming from Parañaque City (20%), Taguig (19%), Pasay City (17%), and Quezon City (17%). Among the most anticipated openings in 2022 include the Pullman Manila at Primex Tower and Somerset Valero in Makati City, Lanson Place Hotel and Serviced Suites Mall of Asia in Pasay City, and Citadines Greenhills Manila in San Juan City, among others.

Figure 2. Number of New Hotels and Serviced Residences in Metro Manila (2012-2023E)



Source: Cushman & Wakefield Research

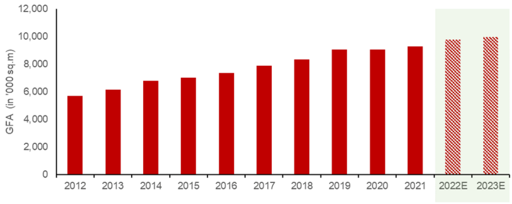
Inbound tourism expenditure, which measures the tourism expenditure of non-resident visitors, contracted by 77.9% in 2020 to PHP 132.59 billion, a reversal from a growth of 34.7% in 2019. Similarly, domestic tourism expenditure which measures the tourism expenditure of resident visitors fell by 82.3% in 2020, to PHP 556.89 billion. In 2021, the country has been slowly kickstarting domestic travel and tourism activities that resulted in better industry performance as compared during the height pandemic last year. Nonetheless, foreign visitor arrivals remain muted with arrivals in 1H 2021 recorded at only 58,177 persons, a 96% YoY decline from 1.40 million persons during the same period last year. Notably, foreign visitor arrivals saw an 82% annual decline in 2020 as the country started shutting its borders to international tourists at the end of first quarter of that year.

Retail Sector

The uncertain business environment and the ongoing COVID-19 restrictions continue to stifle new retail developments with new completions at only 237,000 sq.m of retail space Gross Floor Area (GFA) in 2021, delivered at the final quarter of the year. Whilst there were no new project launches in Metro Manila in the past two years, the completion of previously stalled developments is estimated to deliver around 460,000 sq.m of retail space GFA in 2022 which will bring the cumulative retail space inventory to 9.8 million sq.m in 2022 and it may reach the 10 million sq.m mark in 2023. The expected completions up to 2023 are in Quezon City (46%), Taguig City (39%), and Makati City (15%).

New retail space demand from local micro-, small-, and medium-sized enterprises (MSMEs) and international retailers were stalled by the ongoing pandemic woes that destabilize global economies and weigh on consumer consumption demand. Whilst the main drivers of retail soundness performed better in 2021 – with the 11-month cumulative level of overseas Filipino (OF) remittances posted a growth of 5.3%, a reversal from a decline of 0.9% during the same period in 2020, and household spending bounced back by a growth of 4.2% from a contraction of 7.9% a year ago – sustaining the recovery momentum rests upon the effective management of the local COVID-19 situation that will allow the country to pivot away from the vicious cycle of returning to strict lockdown measures.

Figure 4. Mid and High-end Shopping Mall Stock in Metro Manila (2012-2023E)



Source: Cushman & Wakefield Research

Industrial Sector

The total supply of industrial estates in Mega Manila stood at 5,574 hectares as of 2021 with the addition of the first phase of Filinvest Innovation Park at New Clark City in Tarlac which delivered around 64 hectares of a fresh supply of industrial land. The confirmed industrial estate pipeline in Mega Manila up to 2023 will further add around 260 hectares of industrial estate which will be coming from the regions of Central Luzon and CALABA.

The burgeoning Philippine online economy that triggers increased requirements for warehouses, cold storage facilities, and logistics distribution centers has also attracted various investors in that area that increases the supply of facilities in provinces with proximity to the capital region, particularly in CALABA and Clark areas. The latest e-Conomy SEA 2021 report by Google, Temasek and Bain & Company reported that the country's internet economy almost doubled to USD 17 billion in 2021, from USD 9 billion in 2020. E-commerce also grew by 132% to USD 12 billion from USD 5 billion in 2020. Moreover, in the Cold Chain Industry Roadmap crafted by the Board of Investments (BOI), the country's cold chain market is targeted to grow up to 15% yearly or an annual addition of 50,000 pallets until 2025. Whilst the growth of e-commerce sustains the demand for logistics and warehousing amidst the stable flow of new supply of industrial properties, the unstable demand from manufacturing and exports industries due to supply chain disruption are blocking sharp increases in rental rates and capital values in the near-term.

COMPANY PROFILE

Cushman & Wakefield (C&W) (NYSE: CWK) is a leading global real estate services firm that delivers exceptional value by putting ideas into action for real estate occupiers and owners. Cushman & Wakefield is among the largest real estate services firms with approximately 53,000 employees in 400 offices and 60 countries. In 2019, the firm had revenue of $8.8 billion across core services of property, facilities and project management, leasing, capital markets, valuation and other services.

C&W in the Philippines headquartered in Bonifacio Global City in Taguig City was established in 2012 as a fully owned entity after operating for 12 years through a local partner/ affiliate. To learn more, visit www.cushmanwakefield.com or follow @Cushwake on Twitter.

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FINANCIAL 4

PHILIPPINES KEY DATA

POPULATION	
Population (2020)	110.0 M
Population (2021)	111.0 M
Urban Population*	48.00%
Population under 15	29.5%
Population over 65	5.7%
Ave. Annual Growth Rate (2015-2020)	1.6%
GEOGRAPHY	
Land Area	300,000 km^2
Agricultural Area (2016)	41.5%
Capital City	Manila
(population Metropolitan Manila - Census 2015)	12.88M
(population Manila - Census 2015)	1.78M
ECONOMY 2021	
Monetary Unit	Peso
Average Headline Inflation Rate (2012=100)	
Full Year 2021	3.60%
Gross Domestic Product (GDP)	
Full Year 2021	Php19,387,210 (in mil)
GDP per Capita (Full Year 2021)	Php 174,586
CONSTRUCTION 2021	
Gross Value of Contruction Output (Full Year 2021)	Php 2,659,142 (in mil)
Net Value of Construction Output (Full Year 2021)	Php 1,339,506
Net Value of Construction Output as a proportion of the GDP (Full Year 2021)	6.9%

** Population on Philippine Cities only*
** Projection*

Source: National Accounts of the Philippines
Philippine Statistical Yearbook
Philippine Statistics Authority
World Bank

ECONOMIC HIGHLIGHTS
4TH QUARTER 2021

GDP Posted a Growth of 7.7 Percent in the Fourth Quarter of 2021, Resulting in a 5.6 Percent Full-year Growth in 2021

The Philippine Gross Domestic Product (GDP) posted a growth of 7.7 percent in the fourth quarter of 2021, resulting in 5.6 percent full-year growth in 2021.

The main contributors to the fourth quarter 2021 growth were: Manufacturing, 7.2 percent; Wholesale and retail trade; repair of motor vehicles and motorcycles, 7.4 percent; and Construction, 18.5 percent. The same industries also contributed the most to the annual growth: Manufacturing, 8.6 percent; Wholesale and retail trade; repair of motor vehicles and motorcycles, 4.3 percent; and Construction, 9.8 percent.

Among the major economic sectors, Agriculture, forestry, and fishing, Industry and Services all posted positive growths in the fourth quarter with 1.4 percent, 9.5 percent, and 7.9 percent, respectively. On an annual basis, Industry and Services registered positive growths of 8.2 percent and 5.3 percent, respectively. Meanwhile, Agriculture, forestry, and fishing posted a contraction of -0.3 percent.

On the demand side, Household Final Consumption Expenditure (HFCE) grew by 7.5 percent in the fourth quarter of 2021. The following items also recorded growths: Government Final Consumption Expenditure (GFCE), 7.4 percent; Gross Capital Formation (GCF), 12.6 percent; Exports, 8.3 percent; and Imports, 13.7 percent. On an annual basis, HFCE grew by 4.2 percent, GFCE, 7.0 percent; GCF, 19.0 percent; Exports, 7.8 percent; and Imports, 12.9 percent.

Net Primary Income (NPI) from the Rest of the World grew by 15.0 percent bringing the Gross National Income (GNI) to grow by 8.0 percent in the fourth quarter of 2021. On an annual basis, NPI declined by -50.2 percent while GNI grew by 1.6 percent.

Source: National Accounts of the Philippines
Philipiine Statistics Authority (www.psa.gov.ph)

FINANCIAL DEFINITIONS

Discount Rate

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

Internal Rate Of Return (IRR)

The IRR may be defined as the interest rate that equates the percent value of expected future cash flows
to the cost of the investment. The IRR can be compared to the Discount Rate.

Net Present Value (NPV)

The NPV is the present value of all future cash flows, discounted back to today's values at the Discount
Rate. The NPV indicates in today's dollars the profit or loss a developer makes above or below his required
profit (based on nominated Discount Rate).

72 Rule

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

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

FINANCIAL FORMULAE

Future value of $1	$FV = PV (1+i)^{n}$
Future value of $1 per period	FV = PMT [((1+i)n-1), i]
Singking Fund (the amount required to be put away periodically to realize some future sum)	PMT = FV [i, ((1+i)n-1)]
Present value of $1.	PV = FV[1, (1+i)n]
Present value of $1 per period.	$PV = PMT [((1+i)^{n}-1), (i(1+i)^{n})]$
Annuity with a PV of $1 (mortgage bond formula)	$PMT = PV [i(1+i)^{n}, ((1+i)^{n}-1)]$

PV = present value
FV = future value
PMT = payment amount
n = period (e.g. 10 years with monthly payments, n = 10 x 12 = 120)
i = interest rate per period (e.g. 12% p.a. compounded monthly; i = 12 % ÷ 12 months = 1% per period)

MORTGAGE REPAYMENT TABLE

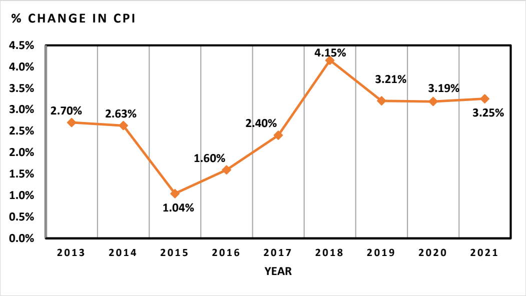
Based on:
- 1,000 units of currency
- Interest compounded monthly
- Equal monthly repayments

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

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

Repayments = 1,000,000 / 1,000 x $13.22
= $13,220 per month

CONSUMER PRICE INDEX



Year	Index	% Change
2013	102.7	2.70%
2014	105.4	2.63%
2015	106.5	1.04%
2016	108.2	1.60%
2017	110.8	2.40%
2018	115.4	4.15%
2019	119.1	3.21%
2020	122.9	3.19%
2021	126.9	3.25%

Note: Base Date 2012 = 100
Source: Philippine Statistics Authority

EXCHANGE RATES CURRENCY

Approximate Rates prevailing as at 29 December 2021

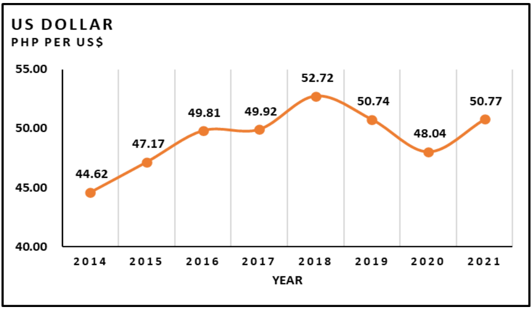
COUNTRY	CURRENCY	Foreign Currency in PHP	PHP in Foreign Currency	US$ in Foreign Currency
Australia*	dollar	35.89	0.03	1.40
Bahrain*	dinar	133.63	0.01	0.38
Brunei*	dollar	36.80	0.03	1.37
Canada*	dollar	39.44	0.03	1.28
China*	yuan	7.92	0.13	6.36
Denmark+	kroner	7.68	0.13	6.56
European Currency Unit*	euro	57.13	0.02	0.88
Hong Kong*	dollar	6.46	0.15	7.80
India+	rupee	0.67	1.49	75.09
Indonesia*	rupiah	0.004	285.71	14,395.43
Japan*	yen	0.45	2.25	113.15
Malaysia+	ringgit	12.00	0.08	4.20
New Zealand+	dollar	34.37	0.03	1.47
Norway	kroner	5.58	0.18	9.03

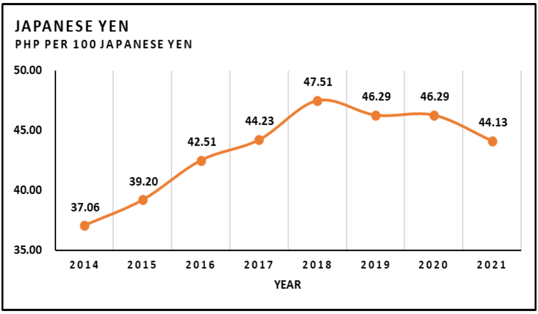
Notes:
* Convertible currencies with BSP
+ Non convertible currencies with BSP

COUNTRY	CURRENCY	Foreign Currency in PHP	PHP in Foreign Currency	US$ in Foreign Currency
Pakistan+	rupee	0.29	3.49	175.74
Saudi Arabia*	rial	13.43	0.07	3.75
Singapore*	dollar	36.94	0.03	1.36
South Africa+	rand	3.17	0.32	15.87
South Korea*	won	0.04	23.47	1,182.72
Sweden+	kroner	5.59	0.18	9.02
Switzerland*	franc	54.85	0.02	0.92
Taiwan+	NT dollar	1.82	0.55	27.63
Thailand*	baht	1.50	0.67	33.65
United Arab Emirates (UAE)*	dirham	13.72	0.07	3.67
United Kingdom*	pound	67.02	0.01	0.75
United States of America*	dollar	50.38	0.02	1.00

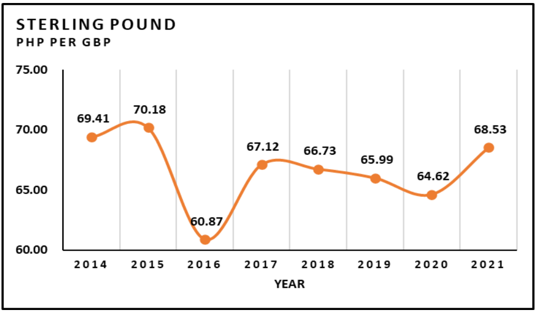
Source: BSP Reference Rate
XE Currency Converter

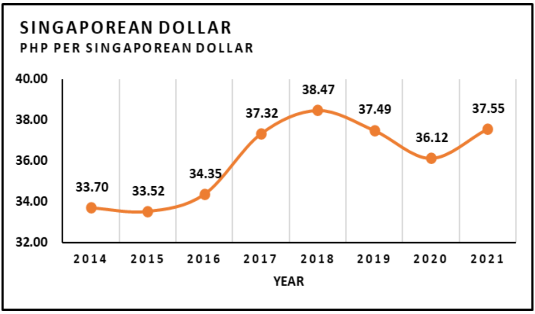
CURRENCY CHARTS





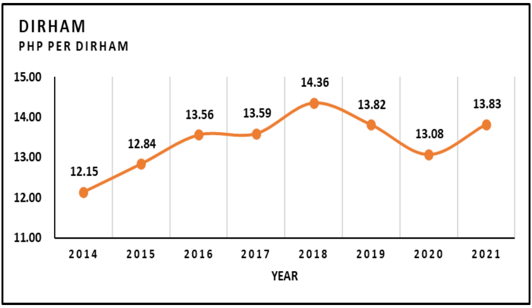
Note: Yearly Average Rate

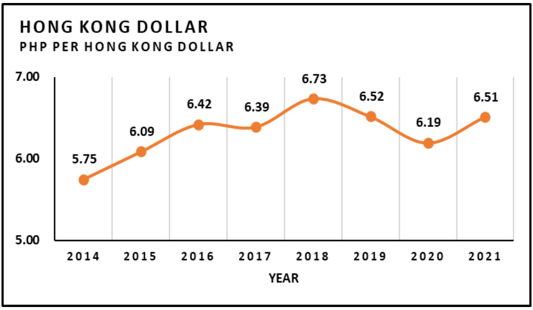

STERLING POUND
PHP PER GBP
75.00
70.00
65.00
60.00
69.41
70.18
60.87
67.12
66.73
65.99
64.62
68.53
2014
2015
2016
2017
2018
2019
2020
2021
YEAR


SINGAPOREAN DOLLAR
PHP PER SINGAPOREAN DOLLAR
40.00
38.00
36.00
34.00
32.00
33.70
33.52
34.35
37.32
38.47
37.49
36.12
37.55
2014
2015
2016
2017
2018
2019
2020
2021
YEAR

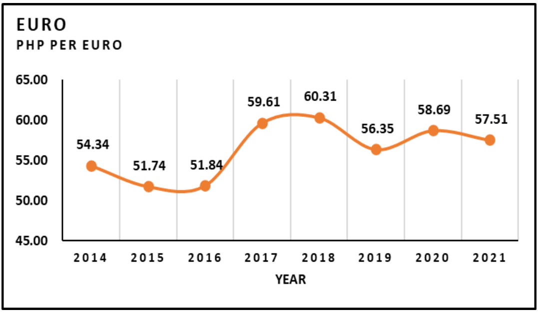
(Cont'd)

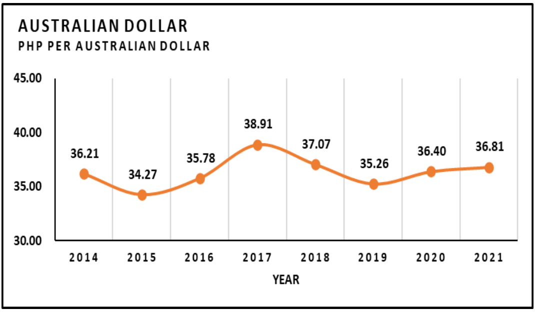
CURRENCY CHARTS





Note: Yearly Average Rate


EURO
PHP PER EURO
65.00
60.00
55.00
50.00
45.00
54.34
51.74
51.84
59.61
60.31
56.35
58.69
57.51
2014
2015
2016
2017
2018
2019
2020
2021
YEAR


AUSTRALIAN DOLLAR
PHP PER AUSTRALIAN DOLLAR
45.00
40.00
35.00
30.00
36.21
34.27
35.78
38.91
37.07
35.26
36.40
36.81
2014
2015
2016
2017
2018
2019
2020
2021
YEAR

(Cont'd)

PRIME RATES

Approximate rates prevailing in 4th Quarter 2021

COUNTRY	RATE (%)
China**	4.75
Hong Kong	5.00
India	8.80
Macau	5.25
Malaysia^^^	5.49
Philippines	6.03
Singapore	5.25
Thailand#	6.15
United Kingdom	0.10
United States of America	3.25
Vietnam##	6.00
Jakarta$$	4.25

China* = 5-year Benchmark Lending Rate

India$ = The data is provided by Arkind LS Private Limited, an Arcadis Alliance Partner

Malaysia^ = Base Lending Rate (average based on 16 financial institutions)

Thailand # = Minimum Loan Rate % per annum (average based on local bank)

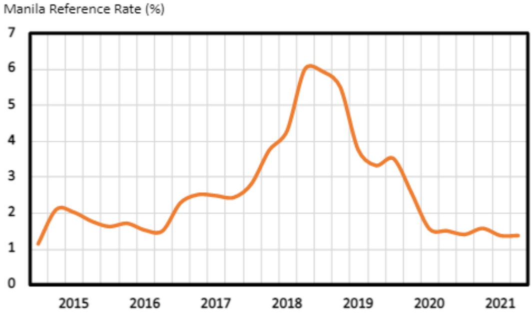
United Kingdom** = Bank Rate (Bank of England base rate)

Vietnam## = Min and in VND per year

Jakarta$$ = The data for Jakarta is provided by PT Lantera Sejahtera Indonesia

MANILA REFERENCE RATE

Approximate rates prevailing in 4th Quarter 2021



PHILIPPINE CENTRAL BANK MANILA REFERENCE RATE

DATE	(%)
Mar 2015	1.13
Jun 2015	2.08
Sep 2015	2.01
Dec 2015	1.76
Mar 2016	1.61
Jun 2016	1.70
Sep 2016	1.51
Dec 2016	1.49
Mar 2017	2.27
Jun 2017	2.50
Sep 2017	2.47
Dec 2017	2.42
Mar 2018	2.80
Jun 2018	3.74
Sep 2018	4.27
Dec 2018	5.99
Mar 2019	5.93
Jun 2019	5.49
Sep 2019	3.75
Dec 2019	3.31
Mar 2020	3.50
Jun 2020	2.55
Sep 2020	1.55
Dec 2020	1.49
Mar 2021	1.39
Jun 2021	1.56
Sep 2021	1.36
Dec 2021	1.36

Note: Based on all maturities.

OTHER INFORMATION 5

PHILIPPINE MAP

PUBLIC HOLIDAYS

	2022
PHILIPPINES	
A. Regular Holidays	
New Year's Day	01 Jan
Araw ng Kagitingan	09 Apr
Maundy Thursday	14 Apr
Good Friday	15 Apr
Labor Day	01 May
End of Eid-ul-Fitre (Feast of Ramadan)	02 / 03 May
Independence Day	12 Jun
Eid-ul-Adha	09 / 10 Jul
National Heroes Day	26 Aug
Bonifacio Day	30 Nov
Christmas Day	25 Dec
Rizal Day	30 Dec
B. Special Non-Working Holidays	
Chinese New Year	01 Feb
EDSA People Power Revolution (Additional)	25 Feb
Black Saturday (Additional)	16 Apr
Ninoy Aquino Day	21 Aug
All Saint's Day	01 Nov
Feast of the Imacculate Conception of Mary	08 Dec

Note:

Under Proclamation No. 1107, All Soul's Day (Nov. 2), Christmas Eve (Dec. 24) and last day of the year (Dec. 31) have been declared as 'Special Working Days'. This was signed by President Duterte on Feb. 26, 2021.

PUBLIC HOLIDAYS

	2022
CHINA	
New Year's Day	01 Jan
	02 Jan
	03 Jan
Chinese New Year's Eve	31 Jan
Chinese New Year$	01 Feb
	06 Feb
Ching Ming Festival	03 Apr
	04 Apr
	05 Apr
Labour Day*	30 Apr
	04 May
Tuen Ng / Dragon Boat Festival	03 Jun
	04 Jun
	05 Jun
Mid-Autumn Festival	10 Sep
	11 Sep
	12 Sep
National Day#	01 Oct
	07 Oct

$ 01-06 February 2022 are holidays
** 30 Apr-04 May 2022 are holidays*
 # 01-07 October 2022 are holidays

	2022
HONG KONG	
New Year's Day	01 Jan
Lunar New Year (Day 1)	01 Feb
Lunar New Year (Day 2)	02 Feb
Lunar New Year (Day 3)	03 Feb
Ching Ming Festival	05 Apr
Good Friday	15 Apr
The day following Good Friday	16 Apr
Easter Monday	18 Apr
The day of following Labour Day	02 May*
The day following Birthday of the Buddha	09 May*
Tuen Ng / Dragon Boat Festival	03 Jun
HKSAR Establishment Day	01 Jul
The 2nd day following Chinese Mid-Autumn Festival	12 Sep*
National Day	01 Oct
Chung Yeung Festival	04 Oct
The 1st weekday after Christmas Day	26 Dec
The 2nd weekday after Christmas Day	27 Dec*

**As the festivals in 2022 falls on Sunday, the day following it is designated as a general holiday in substitution*

(Cont'd)

4 OTHER INFORMATION

PUBLIC HOLIDAYS

	2022
MACAU	
New Year's Day	01 Jan
Lunar New Year's Eve (Afternoon)	31 Jan*
Lunar New Year's Day	01 Feb
The 2nd day of Lunar New Year	02 Feb
The 3rd day of Lunar New Year	03 Feb
Cheng Ming Festival	05 Apr
Good Friday	15 Apr
The day before Easter	03 Apr
Ching Ming Festival	04 Apr
The day before Easter	16 Apr
The rest day for Easter	18 Apr@
Labour Day	01 May
The rest day for Labour Day	02 May@
Birthday of the Buddha	08 May
The rest day of Birthday of the Buddha	09 May
Tuen Ng / Dragon Boat Festival	03 Jun
The day following Chinese Mid-Autumn Festival	12 Sep@
National Day	01 Oct
The rest day for National Day	03 Oct
Chung Yeung Festival	04 Oct
The rest day for the day following National Day	05 Oct@
All Soul's Day	02 Nov
Feast of Immaculate Conception	08 Dec
Macao S.A.R. Establishment Day	20 Dec
Winter Solstice	22 Dec
Christmas Eve	24 Dec
Christmas Day	25 Dec
The rest day of Christmas Day	26 Dec@
	27 Dec@

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

@As the festivals in 2022 falls on Saturday / Sunday, the day following it is designated as a general holiday in substitution

	2022
INDIA	
New Year's Day	01 Jan
Chandrama Ugadi	02 Apr
May day	01 May
Ramzan	03 May
Ganesh Chaturthi	31 Aug
Gandhi Jayanti	02 Oct
Vijay Dashmi	05 Oct
Diwali	24 Oct
Christmas Day	25 Dec

The data is provided by Arkind LS Private Limited, an Arcadis Alliance Partner

(Cont'd)

PUBLIC HOLIDAYS

	2022
INDONESIA	
New Year's Day	01 Jan
Chinese New Year's (Imlek)	01 Feb
Ascension of Prophet Muhammad	28 Feb
Hindu Day of Quiet (Nyepi)	03 Mar
Good Friday	15 Apr
International Labour Day	01 May
Idul Fitri	02 May
	03 May
Waisak Day	16 May
Ascension Day of Jesus Christ	26 May
Pancasila Day	01 Jun
Idul Adha Day	09 Jul
Hijriyah New Year	30 Jul
National Independence Day	17 Aug
Prophet Muhammad's Birthday	08 Oct
Christmas Day	25 Dec

MALAYSIA	2022
New Year's Day *	01-Jan
Chinese New Year	01-Feb
	02-Feb^
Labour Day	01-May
Hari Raya Aidilfitri**	03-May
	04-May
Wesak Day	15-May
King/Agong's Birthday	06-Jun
Hari Raya Qurban**	10-Jul
Awal Muharam (Islamic New Year)	30-Jul
National Day	31-Aug
Malaysia Day	16-Sep
Prophet Muhammad's Birthday	09-Oct
Deepavali**	24-Oct^^
Christmas Day	25-Dec

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

** *Subject to change*

^ *Except Kelantan & Terengganu*

^^ *Except Sarawak*

(Cont'd)

PUBLIC HOLIDAYS

	2022
SINGAPORE	
New Year's Day	01 Jan
Chinese New Year	01 Feb
	02 Feb
Good Friday	15 Apr
Labour Day	01 May#
Hari Raya Puasa	03 May
Vesak Day	15 May#
Hari Raya Haji	10 Jul#
National Day	09 Aug
Deepavali	24 Oct
Christmas Day	25 Dec#

The following Monday will be a public holiday.

	2022
THAILAND	
New Year	03 Jan[1]
Makha Bucha Day	16 Feb
Chakri Memorial Day	06 Apr
Songkran Festival	13 Apr
Songkran Festival	14 Apr
Songkran Festival	15 Apr
Labour Day	02 May[2]
Coronation Day	04 May
Wisakha Bucha Day	16 May[3]
H.M. Queen Suthida Bajrasudhabimalalakshana's Birthday	03 Jun
Asarnha Bucha Day	13 Jul
H.M. King Maha Vajiralongkorn's Birthday	28 Jul
H.M. Queen Sirikit The Queen Mother's Birthday / Mother's Day	12 Aug
H. M. King Bhumibol Adulyadej Memorial Day	13 Oct
Chulalongkorn Day	24 Oct[4]
H.M. King Bhumibol Adulyadej's Birthday / Father's Day	05 Dec
Constitution Day	12 Dec[5]
New Year's Eve	31 Dec

1 - As New Year Day falls on Saturday (01 January), Monday is designated as a general holiday in substitution

2 - As National Labour Day falls on Sunday (01 May) , Monday is designated as a general holiday in substitution

3 - As Wisakha Bucha Day falls on Sunday (15 May) , Monday is designated as a general holiday in substitution

4 - As Chulalongkorn Day falls on Sunday (23 October) ; Monday is designated as a general holidays in substitution

5 - As Constitution Day falls on Saturday (10 Dec) , Monday is designated as a general holiday in substitution

(Cont'd)

PUBLIC HOLIDAYS

	2022
VIETNAM	
New Year's Day	01 Jan
	03 Jan[1]
Lunar New Year	29-31 Jan 01-04 Feb
Hung Vuong King Celeration	10 Apr
	11 Apr[2]
Liberation Day of Saigon	30 Apr
International Labour Day	01 May
	02-03 May[3]
National Day	01-02 Sep
Christmas Day	24-25 Dec

 # - Substitute

1 - As New Year's Day falls on Saturday (01 Jan) , Monday is designated as a general holiday in substitution

2 - As Hung Vuong King Celeration falls on Sunday (10 Apr) , Monday is designated as a general holiday in substitution

3 - As Liberation Day of Saigon falls on Saturday (30 Apr) and International Labour Day falls on Sunday (01 May) , Monday and Tuesday are designated as a general holiday in substitution

IDD CODES AND TIME DIFFERENCES

LOCATION	IDD COUNTRY CODE	AREA CODE	TIME DIFFERENCE (Hours)*
Australia:			
Melbourne	61	3	3
Perth	61	8	0
Sydney	61	2	3
Bahrain	973	-	-5
Bangladesh (Dhaka)	880	2	-2
Butan (Thimphu)	975	2	-2
Brunei:			
Bandar Seri Begawan	673	2	0
Kuala Nelait	673	3	0
Cambodia (Phnom Penh)	855	23	-1
Canada			
Toronto (Metropolitan)	1	416	-13
Vancouver	1	604	-16
China:			
Beijing	86	10	0
Guangzhou	86	20	0
Hong Kong	852	-	0
Macau	853	-	0
Shanghai	86	21	0
Shenzhen	86	755	0
France (Paris)	33	1	-7
India:			
Bangalore	91	80	-2.5
Chennai	91	44	-2.5
New Delhi	91	11	-2.5
Mumbai	91	22	-2.5
Indonesia:			
Bali	62	36	0
Jakarta	62	21	-1
Ireland:			
Cork	353	21	-8
Dublin	353	1	-8
Japan:			
Tokyo	81	3	1
Osaka	81	6	1
Korea (Seoul)	82	2	1
Korea (Pyongyang)	850	2	1
Laos (Vientiane)	856	21	0.5

Source : *www.worldtimeserver.com* ; *www.worldtimezone.com*
www.timeanddate.com

IDD CODES AND TIME DIFFERENCES

LOCATION	IDD COUNTRY CODE	AREA CODE	TIME DIFFERENCE (Hours)*
Malaysia			
Johor Bahru	60	7	0
Kota Kinabalu	60	88	0
Kuala Lumpur	60	3	0
Kuching	60	82	0
Penang	60	4	0
Mongolia (Ulaanbaatar)	976	11	0
Myanmar (Yangon)	95	1	-1.5
Nepal (Kathmandu)	977	1	-2.25
Netherlands:			
Amsterdam	31	20	-7
New Zealand:			
Aucland	64	9	5
Wellington	64	4	5
Pakistan (Karachi)	92	21	-3
Philippines (Manila)	63	2	0
Qatar	974	-	-5
Singapore	65	-	0
South Africa:			
Johannesburg	27	11	-6
Cape Town	27	21	-6
Sri Lanka (Colombo)	94	11	-2.5
Russia (Moscow)	7	495	-5
Taiwan (Taipei)	886	2	0
Thailand:			
Bangkok	66	2	-1
Phuket	66	76	-1
United Arab Emirates:			
Abu Dhabi	971	2	-4
Dubai	971	4	-4
United Kingdom			
London	44	20	-8
Edinburgh	44	131	-8
USA:			
Los Angeles	1	213	-16
New York	1	212	-13
Vietnam			
Ho Chi Minh City	84	8	-1
Hanoi	84	4	-1

Source: www.worldtimeserver.com;
www.worldtimezone.com;
www.timeanddate.com

ARCADIS

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	640 acre	=	1 mile^2
VOLUME					
1,000 ml	=	1 L	0.83 gal. (UK)	=	1 gal. (US)
1,000 L	=	1 m^3	8 pt. (US)	=	1 gal.(US)
1,000 cm^3	=	1 L	4 qt. (US)	=	1 gal. (US)
MASS / FORCE					
9.806 N	=	1 kg	1,000 lbs.	=	1 kip
1,000 g	=	1 kg	16 oz	=	1 lb
1,000 kg	=	1 tonne	2,224 lb	=	1 ton
16 tael	=	1 catty			
POWER					
1 w	=	1 kw	550 ft-lb/sec	=	1hp
1 w	=	1VA x pf*			
PRESSURE					
1 Pa	=	1 N/m^2	0.068 atm	=	1 psi
1,000 Pa	=	1 KPa	14.5 psi	=	1 bar
1 Mpa	=	1 N/mm^2	0.491 psi	=	1 in. Hg
0.01 kg/cm2	=	1 Kpa			
TEMPERATURE					
COOLING LOAD			3,024 kcal/hr	=	1TR
12 BTU/hr	=	1TR	1.5 hp	=	1TR

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

CONVERSION FACTORS

TO IMPERIAL (APPROX)	TO METRIC (APPROX)
1 in = 25.400 mm	12 in = 1 ft
1 ft = 30.480 cm	3 ft = 1 yd
1 yd = 0.914 m	1,760 yd = 1 mile
1 mile = 1.609 km	
AREA	
10,000 m^2 = 1 ha	9 ft2 = 1 yd^2
100 ha = 1 km^2	4,840 yd2 = 1 acre
	640 acre = 1 $mile^2$
VOLUME	
1,000 ml = 1 L	0.83 gal. (UK) = 1 gal. (US)
1,000 L = 1 m3	8 pt. (US) = 1 gal. (US)
1,000 cm^3 = 1 L	4 qt. (US) = 1 gal. (US)
MASS / FORCE	
9.806 N = 1 kg	1,000 lbs. = 1 kip
1,000 g = 1 kg	16 oz = 1 lb
1,000 kg = 1 tonne	2,224 lb = 1 ton
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PRESSURE	
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1,000 Pa = 1 KPa	14.5 psi = 1 bar
1 Mpa = 1 N/mm2	0.491 psi = 1 in. Hg
0.01 kg/cm2 = 1 Kpa	
POWER	
1,000 w = 1 kw	550 ft-lb/sec = 1 hp
1 w = 1 VA x pf*	
TEMPERATURE/ COOLING LOAD	
12,000 BTU/hr = 1 TR	3,024 kcal/hr = 1 TR
	1.5 hp = 1 TR

ARCADIS PROFESSIONAL SERVICES
COST AND COMMERCIAL MANAGEMENT

- Preliminary cost advice and cost planning
- Advice on the type of contractual arrangements to be used
- Advice on obtaining tenders
- Preparation of tendering documents
- Negotiation with contractors
- Visiting site and valuation of works in progress
- Assessing the cost of proposed variations
- Attending site and other meetings
- Preparation of financial statements
- Settlement of final cost with contractors and sub-contractors
- Advice on contractor's claims
- Cost engineering
- Evaluation and operation of serial (maintenance) contracts
- Financial evaluation of "package' bid contracts
- Cost and contract research
- Advice on litigation
- Life Cycle Costing
- Lender's Technical Advisory
- Procurement Advisory
- Reinstatement Valuation
- Due Diligence
- 5D BIM Management

ARCADIS PROFESSIONAL SERVICES COST AND COMMERCIAL MANAGEMENT

Budget Formulation

- Construction Feasibility Studies
- Budget Formulation
- Analysis of cost/design options
- Cost Planning
- Value engineering
- Cash flow evaluations
- Cost monitoring and/or cost control of construction works
- Project management or coordination
- Reinstatement assessments for fire insurance
- Quantifying mechanical and electrical installation works
- Quantifying civil engineering works
- Definition and operation of plant procurement programmes
- Tax treatment of construction expenditure
- Research and consultancy in all aspects of construction economics
- Interior decoration and fitting-out works
- Preparations of fixed asset registers
- Environmental certification

ENVIRONMENTAL SUSTAINABILITY

Overview of Leadership in Energy & Environmental Design (LEED)

The U.S. based Leadership in Energy & Environmental Design (LEED) Green Building System is a voluntary third-party rating system in which credits are earned for satisfying specified green building criteria. Projects are evaluated within six environmental categories, as follows:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design

Certified, Silver, Gold and Platinum levels of green building certification are awarded based on the total points earned.

Pre Design

Sustainable design solutions is more efficient and economical if identified and integrated into the project at an early stage.

- Assist in team selection
- Evaluate sustainable concepts and technologies that are applicable to the project.
- Conduct a LEED Design Charette
- Register the project to LEED Online

ENVIRONMENTAL SUSTAINABILITY

Design

Establishing clear LEED goals during this stage will ensure that requirements are accounted for in the project cost.

- Manage the LEED process by monitoring team responsibilities.
- Conduct plan reviews to check if all LEED requirements are incorporated.
- Develop Green Specifications.
- Perform cost analysis when recommending high-cost strategies.
- Liaise with USGBC and GBCI.
- Manage the preparaton of LEED documentation for Design Phase Review and ensure these are according to the criteria.
- Develop a whole building simulation to demonstrate the projected annual energy savings of the project.
- Provide technical support (including calculation methodologies and advise in benefits and implications of sustainable measurer) to the team.

Construction

Normally, a third of the target points are assigned to the Construction team. Proper monitoring and implementation of the agreed green building measures are key in earning/ achieving these targets.

- Provide pre-bid conferences and contractor training
- Evaluate compliance and progress through submittals and reports from contractor.
- Inspect site condition if according to approved guidelines.
- Liaise with USGBC and GBCI
- Manage the preparation of LEED documentation for Construction Phase (final) Review.

Operations

- Perform post-occupancy project audits - lessons

Being part of LEED

Global Linkage and Credentials

Arcadis Philippines Inc. is a member of US Green Build-ing Council (USGBC) and the Philippine Green Building Council (PhilGBC).

Our environmental sustainability team composed of highly skilled architects and engineers, has the most number green professional accrediatation than any other company - a combination of LEED AP's, LEED GA's and Certified BERDE Professionals. The team is further strengthened by a group of building energy analysts.

Building energy analysis includes:

- Identification of energy reduction and cost saving measures for new and existing buildings
- Development of final models for use in LEED NC / green building certification
- Our simulation service includes: whole building simulation, artificial light simulation, daylight simulation.

ENVIRONMENTAL SUSTAINABILITY

Energy Modeling

An energy model is a computer simulation based on building design, envelope, orientation, schedule, controls and energy-using systems to predict comparative consumption and expenditures.

BERDE Consultancy

The rating schemes include the minimum requirements and the attainable points for BERDE. You can achieve a BERDE Certificate upon completion of the formal BERDE Assessment and Certification process, complying with the requirements, and achieving the minimum cumulative score.

WELL Consultancy

WELL is composed of over one hundred Features that are applied to each building project, and each **WELL** Feature is designed to address issues that impact the health, comfort, or knowledge of occupants through design, operations and behavior.

Green Building Facts

- An up-front investment of 5-7% in green building design, on average, results in life cycle savings of 20%of the total construction cost.

Source: The Costs and Financial Benefits of Green Buildings: A report to California's sustainable Building Task Force, October 2003.

- Operating cost decrease by 9%
- Decreased Operating Costs Over Five Years:13%-14%
- Increased Building Value for Green versus
- Non-Green Projects: 7%-8%
- Increased Asset Value for Green versus Non-Green
- Projects 7%
- Payback Time for Green Investments – 6%-8% Years

Source: World Green Building Trends 2016 Developing Markets Accelerate Global Green Growth SmartMarket Report, 2016

- By reducing potable water use consumption inside and outside, green buildings can reduce up to 40% of water use.

Source: Poplar Network

- The emissions savings potential of green buildings is said to be as much as 84 gigatonnes of CO_2 ($GtCO_2$) by 2050, through direct measures in buildings such as energy efficiency, fuel switching and the use of renewable energy
- The building sector has the potential to make energy savings of 50% or more in 2050, in support of limiting global temperature rises to 2°C (above pre-industrial levels)

Source: World Green Building Council

- Green buildings reduce energy use by an average of 15-20%

PROJECT & PROGRAMME MANAGEMENT

OUR APPROACH

We provide advice and consulting services at strategic, policy and operational levels, concentrating on three key areas:

· Project Feasibility
· Project Set-up
· Project Delivery

Our multidisciplinary team is skilled in change management, process improvement, procurement, sustainability, economics, market analysis and research. In everything we do, we are committed to creating value for our clients by:

· Working collaboratively with them
· Developing a deep understanding of their needs and aspirations
· Providing tailor-made solutions
· Being accessible and responsive

PROJECT MANAGEMENT

Integrated Project Management is based on four distinctive phases in the project life cycle:

1. Business Needs and Project Inception

In the early stages of a project, Arcadis Philippines Inc. creates the conditions for success by defining a set of value drivers based on an understanding of all stakeholder interests and requirements.

We consider needs, identify risk and can assist with business planning. Where appropriate, we assist with the development of master plans, option appraisals, overseeing of site acquisitions, management of planning consents and advice on funding strategies. We work with clients to manage the appointment of suitable consultants, including the agreement of services and fees.

2. Project Strategy & Development

At the early development stage we compile strategic and design briefs and produce an overall project execution plan. We oversee the production of costs to agree budgets and provide a detailed master programme for project delivery. We recommend the most appropriate procurement strategy and manage the selection of the best value construction team. We provide a single point of contact for the client when dealing with third parties, contractors and suppliers.

3. Project Control & Delivery

Prior to commencing, we make sure that a commercially viable solution has been agreed, that all contracts are administered in the correct form and that necessary management procedures are in place. We set up systems and processes to enable the sharing of information, management of change and identification of potential risks to successful project delivery. We monitor quality, time and costs and provide leadership to the team, resolving issues, liaising with third parties, and reporting on progress as agreed with the client.

PROJECT & PROGRAMME MANAGEMENT

4. Commissioning & Asset Management

In the final stages of the project, we monitor commissioning, agree completion, settle final accounts and enable the smooth transition of the asset through to ongoing management.

Post-handover, we instigate project reviews and feed lessons learned to the client.

PLANNING

The planning and programming team is a multifunctional group of professionals who are dedicated to the primary management requirement of planning and programming. Our approach is to assist in controlling progress, not simply monitoring it.

Benefits

Professional planning and programming

- Enhances management's understanding of progress and assists trade-offs and decision making
- Reduces uncertainty in project completion deadlines
- Avoids costly time overruns
- Provides expert advice that designers and clients understand
- Gives high quality clear outputs that make a real contribution to project success
- Enables corrective action advice to mitigate programme slippages and variations

WATER CONSULTANCY

OUR APPROACH

Having acquired and consolidated a number of major international consulting firms, Arcadis now has a technical and managerial resource unmatched in the Philippines. These resources, include the world leaders in Flood Management, Seismic Engineering, and Climate Change Adaption, all areas of concerns becoming increasingly high-profile in the Philippines.

Our resources and pedigree differentiate us in our capacity to provide comprehensive environmental engineering and management consulting services to solve our client's increasingly complex water challenges, and enable us to go beyond individual projects, or even programs, and fill the roles of trusted advisor and business partner.

We can create solutions that endure at every phase of the water cycle, however some of our specialized services include:

Water Supply and Treatment

Providing safe water to meet growing demand and increasingly stringent water quality standards, while protecting the environment by providing wastewater treatment systems against a backdrop of ever intensifying population densities.

WATER CONSULTANCY

Conveyance

Planning, design and construction services for new and rehabilitated trunk sewers, force mains, interceptors, pumping stations and tunnels.

Water Management

Philippines is not only prone to natural calamity and perennial flooding, but is also now recognized as vulnerable to consequences of climate change that will affect water and food security. With our experts in water management, having lead projects such as New Orleans and New York flood defenses, Arcadis aims to enhance the quality, safety and adaptibility of urban and coastal, river and ecosystems of the Philippines.

Water for Industry

Our industrial specialists have a thorough understanding of facility operations and waste generating practices. For a company planning new production operations or updating existing plant, we strive to develop water/ wastewater management strategies that meet regulatory and production objectives.

Business Advisory

To optimize our clients' ability to manage critical infrastructure by driving better business outcomes, through:

- Asset Valuation
- Regulatory Compliance Review
- Capital Improvement Planning
- Water Demand Projections
- Social and Environmental Feasibility Studies

PPP and Infrastructure Consultancy

Here at Arcadis Philippines, we understand that major infrastructure projects are by nature complicated in more ways than one. Being marred with uncertainties and prone to risks, these types of developments require solutions that are cost-effective, sustainable, efficient and delivered where risks are identified at the onset and effectively managed throughout the project's life cycle.

Being a strong player in the infrastructure industry with significant and in-depth positions in roads, rail, ports and airports, Arcadis can help both the public and private sector to lay the foundations for a better future.

BIM Management

Arcadis' mission of "improving quality of life" extends beyond the traditional construction consultancy scope, and our BIM experience and capabilities have allowed us to deliver value in the Digital Age.

Arcadis Philippines is an established construction consultant that has supported private sector clients in the Philippines since 1982. We work across a range of sectors supporting local and foreign companies with technically viable solutions that manage quality, time, cost and health and safety. We lead our projects from the Philippines but work collaboratively with our partner offices to bring the world's best to each project as required. We aim to work alongside our clients as partners, bringing not only a quality 'service', but also knowledge and expertise that help make informed decisions.

Arcadis Philippines has supported high profile clients deliver successful projects and realize benefits from their investments. Whether straightforward or complex, we have the necessary expertise to provide advisory and consultancy for clients with unique requirements.

As BIM Advisors and Digital Solutions experts, we bring global capabilities to the Philippine market, ensuring that our clients are always within reach of the very best construction digital solutions and have the industry best practices in their arsenal.

Digital Solutions

Many companies know that digital tools and platforms can help their business but need guidance on the best ways to unlock their full potential. Our team understand digital technologies and help our clients leverage them to generate value.

IMMERSIVE DATA VISUALIZATION (HOLOBUILDER):

360° Reality Capture is our Virtual Reality & Augmented Reality toolset for Project Management & Construction Management, Virtual Asset Data Models, and Operational and Health & Safety Training.

Holobuilder provides enhanced visualization of construction project progress and can be an optional add-on to our core service where you can:

- **Capture:** Capture your jobsite in the most and efficient way possible.
- **View:** See your jobsite in 360 degrees from anywhere, anytime. Photos become available instantly. Your project is fully documented and recorded for photographic proof of progress.
- **Control:** Easily compare photos side by side with your historical photos to make sure project progress is going as planned.

ADDITIONAL DIGITAL OFFERINGS

- Facade Inspections - using infrared technology and drones
- Road Maintenance Inspections - visual recognition and AI
- Digital Scanning & 3D modelling

4 OTHER INFORMATION

Our Local Services:

- Cost Management
- Environmental Accreditation
- Development Management
- Project Management
- Construction Management
- Water Consultancy
- Conveyance and Network Consultancy
- BIM Management
- Digital Solutions

Our Global Services:

- Architectural Design
- Landscape Architecture
- Performance Driven Design
- Comprehensive Planning
- Sustainable Urban Development
- Transportation Planning
- Urban Planning
- Asset Strategy and Performance
- Business Transformation and Resiliency
- Investment and Finance
- Technology and Information
- Civil Engineering
- Structural Engineering

QUALITY SYSTEM
ISO 9001:2015

Arcadis Philippines Inc. recognises the importance of Quality Assurance especially in a country where Quantity Surveying is not a well recognized profession and quality service is of paramount importance.The establishment of a standard quality control system for all aspects of the services being provided, coupled with our in-house staff training programmes, ensures that Arcadis Philippines Inc. continues to provide the best services available to our clients.

The Certification for ISO 9001:2015 and ISO 14001:2015 was issued by BSI (British Standard Institution). BSI is the business standards company that helps over 80 clients worldwide adopt standards of best practice and turn them into habits of excellence. BSI was appointed by Royal Charter as the world's first national Standards Body to develop standards for the UK and was a founding member of the International Organization for Standardization (ISO). BSI is responsible for originating many of the world's most commonly used standards incl. ISO 9001 and publishes over 2,500 product specification and business process standards annually. These standards address today's issues from sustainable events to nano-technology; spanning sectors including aerospace, construction, healthcare and IT.

QUALITY SYSTEM ISO 9001:2015 QUALITY MANAGEMENT SYSTEM


bsi.

Certificate of Registration

QUALITY MANAGEMENT SYSTEM

This is to certify that: Arcadis Philippines Inc.
Unit 12B & 12C, 12F
8 Rockwell Hidalgo Drive
Rockwell Center, Poblacion
Makati City
1210
Philippines

Is included as a location on Certificate number: **FS 684805**

And BSI location is: 0047647281-044

Operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following location activity:

The Provision of Quantity Surveying, Development Management, Water Solutions Consultancy Services, Environmental Sustainability for Building and Engineering Sectors.

For and on behalf of BSI:

Chris Cheung, Head of Compliance & Risk – Asia Pacific

Original Registration Date: **2018-04-13** Expiry Date: **2024-04-12**

...making excellence a habit.™

This certificate is not the legal certificate and is for presentation purpose only.
Refer to the legal certificate for full details of schemes and scopes.
This certificate remains the property of BSI and is bound by the conditions of the contract.

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: +44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.

Arcadis Philippines Inc. operates Quality Management System that complies with the requirements of ISO 9001:2015 for the following scope of services:

- Quantity Surveying
- Environmental Sustainability and Services
- Development Management Services that includes our Programme and Project Management Services
- Water Services.

The current certification is valid until 12 April 2024.

Quality Management System plays crucial role in securing optimum performance in every service we deliver. ISO 9001 enables us to manage our processes and actions thereby consistently monitoring and placing preventive controls in place for risks associated to operations

QUALITY SYSTEM ISO 14001:2015 ENVIRONMENTAL MANAGEMENT SYSTEM

Arcadis Philippines Inc. operates Environmental Management System that complies with the requirements of ISO 14001:2015.

The current certification is valid until 12 April 2024.

bsi.

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM

This is to certify that: Arcadis Philippines Inc.
Unit 12B & 12C, 12F
8 Rockwell Hidalgo Drive
Rockwell Center, Poblacion
Makati City
1210
Philippines

Is included as a location on Certificate number: **EMS 685471**

And BSI location is: 0047647281-044

Operates a Environmental Management System which complies with the requirements of ISO 14001:2015 for the following location activity:

The provision of Quantity Surveying, Development Management and Environment Sustainability Consultancy Services for building and Engineering Sectors.

For and on behalf of BSI:

Chris Cheung, Head of Compliance & Risk – Asia Pacific

Original Registration Date: **2018-04-13**　　Expiry Date: **2024-04-12**

...making excellence a habit.™

This certificate is not the legal certificate and is for presentation purpose only.
Refer to the legal certificate for full details of schemes and scopes.
This certificate remains the property of BSI and is bound by the conditions of the contract.

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: +44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.

ISO 14001 requires organizations to consider all environmental aspects such as air pollution, water and sewage, issues, waste management, soil contamination, climate change mitigation and adaptation, and resource use and efficiency of its activities and services and determine it has control or influence over a life cycle perspective relevant to its operations. As we strengthen our focus on environmental sustainability, we are proud to comply on this globally accredited standard and together with our clients, help to respond in ever changing environmental conditions properly.

ARCADIS GLOBAL BUSINESS AREAS

MOBILITY

We partner with our clients across the globe to design thriving and connected cities and communities that enable opportunities for all and keep the world moving.

We design connected, sustainable solutions that integrate existing infrastructure with new technologies, and optimize the mobility of people and goods.

MOBILITY SOLUTIONS:

New Mobility
We partner with clients across the world to deliver solutions that help make sustainable, efficient, integrated and human-centric mobility ecosystems possible through the latest in mobility technology innovation

Intelligent Rail and Transit
We deliver cost-effective, sustainable and safe mobility and logistics solutions throughout the lifecycle of rail and urban transport assets

Connected Highways
Every journey matters. Our connected highway solutions help create a net zero future that drives an improved quality of life.

In working with our clients across the globe, we rethink how infrastructure is built and future demand is met. Our teams harness digital advances to create sustainable, data-led and connected highway solutions. In doing so, we improve the way highways are designed, built, operated and used.

Integrated Airports
We work with the world's leading airports and global airport operators to create sustainable solutions that help further the industry's commitment to a net-zero future.

ARCADIS GLOBAL BUSINESS AREAS

PLACES

We work with our clients around the world to create, support and enhance smart, safe and sustainable places where people live, learn and thrive. By bringing together innovative future-facing solutions – alongside our expertise in Design and Engineering, Program, Project, and Cost and Commercial Management – we consider the whole asset lifecycle to create vibrant, healthy and successful places for owners, investors, users, communities and visitors to enjoy.

PLACES SOLUTIONS

Future Workplace
The way we work is changing. As the priorities, needs and expectations of people evolve, we recognize that the workplace must be reshaped and reimagined to help our clients, their businesses, and their people thrive.

Industry 4.0 - Facilities of the Future
The next phase of industrial progress is setting new benchmarks for productivity and efficiency. Unlocking and connecting the potential of big data, people and skills, sustainability, services and systems, we help clients transform their assets to meet customer demand.

LifeCycle Think
Our data-rich digital products and tools provide valuable insights that help inform sustainable investment planning and decision making at every stage of a project lifecycle.

Net Zero Facilities and Sustainable Communities
With the clock ticking on climate change, we can help organizations, asset owners and communities reach their net zero goals, designing and delivering a sustainable future in a way that improves quality of life for all.

PlaceTech
Whether planning, creating, redefining or recycling a place, our suite of digital tools use data to provide greater control and visibility of our buildings and spaces.

ARCADIS GLOBAL BUSINESS AREAS

RESILIENCE

We work to protect our natural environment and water resources, while powering our world for future generations. Around the world, we're feeling the effects climate change, rapid urbanization, loss of biodiversity. The rate at which we're seeing large-scale, unforeseen events such as floods and wildfires, is becoming more frequent.

We need to help our cities and communities. To create healthier lives, thriving nature a more resilient future. We are here to protect our natural environment and water resources, while powering our world for future generations. The result: stronger communities, a more sustainable planet, and improved quality of life.

RESILIENCE SOLUTIONS

Energy Transition

We reduce global warming by helping our clients transition towards low-carbon and renewable sources of energy, including spatial energy strategies, energy transmission, distribution and storage. Solutions include smart energy networks for Electric Vehicles and local production. Our focus is on planning and designing for energy efficiency, helping our clients develop their carbon capture strategies or reduce their carbon footprint.

Climate Adaptation

Ensuring our communities continue to thrive in the face of climate uncertainty by providing full climate adaptation measures across the life-cycle of any asset – from risk mapping, vulnerability assessments, and community-based resilience plans to the design and engineering of flood defense systems and stormwater infrastructure.

Water Optimization

Managing water resources in a sustainable way by offering a full-breadth of services throughout the entire water cycle, from water supply to water resource planning, treatment, and systems optimization.

ARCADIS GLOBAL BUSINESS AREAS

We help create intelligent water networks and advanced asset management strategies, as well as advising on water re-use and desalination for both public and private clients.

Enviro Socio Permitting
Ensuring capital projects and the use of resources are protective of the environment, public safety and social risks, both today and for future generations. We work with our clients to protect natural resources and assess and reduce risks. Providing social and environmental licenses to construct and operate, we are committed to unlocking the value of Natural Capital for today and tomorrow.

Sustainability Advisory
We shape a more sustainable future through our environmental, social and governance advisory services for our clients' operations, products, and supply chain.
Our services include circular economy, product stewardship, footprinting services, non-financial reporting, advising on sustainability goals & roadmaps, ESG digital transformation & reporting

Environmental Restoration
Restoring the environment and protecting communities, we bring cutting-edge science and technology to help our clients across every aspect of their project, from site characterization to cleanup, closure and redevelopment, including for PFAS and other emerging contaminants. Our work includes liability advisory and the management of large portfolios, as well as Operations and Maintenance, and construction services.

Sustainable Operations
We ensure safe, compliant and sustainable operations to manage risk and meet social and environmental needs for future generations. Our focus is on non-financial risk management across EHS and sustainability functions. This includes Environmental Consulting Services and EHS&S across air, stormwater, surface water, hazard and solid waste management.

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