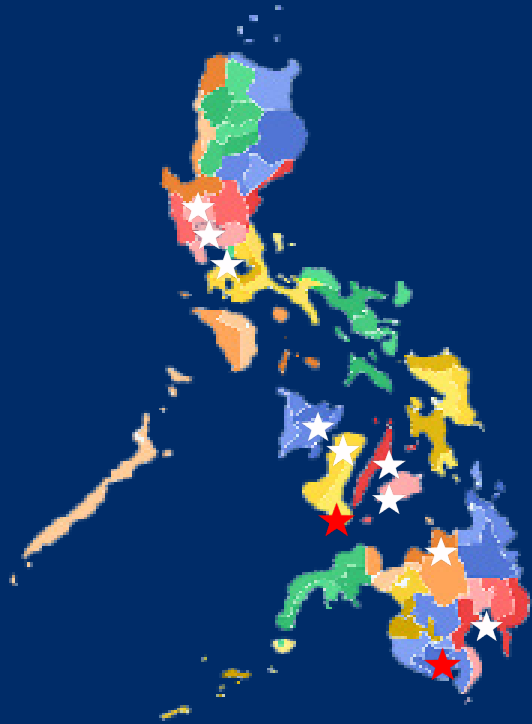




RIDERS DIGEST 2023

PHILIPPINE
EDITION



LEGEND:

- ★ **RLB Phils., Inc Office:**
 - Manila
 - Sta Rosa, Laguna
 - Cebu
 - Davao
 - Cagayan de Oro
 - Bacolod
 - Iloilo
 - Bohol
 - Clark

- ★ **RLB Future Expansions:**
 - Dumaguete
 - General Santos

RIDERS DIGEST PHILIPPINES 2023

A compilation of cost data and related information on the
Construction Industry in the Philippines

Compiled by:

Rider Levett Bucknall Philippines, Inc.

A proud member of Rider Levett Bucknall Group

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Cost information in this publication is indicative and for general guidance only. Prices and rates are as at 3rd Quarter of 2022 and expressed in Philippine Peso unless otherwise stated. References to legislative provisions and regulations are as at 31 December 2022 only.

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Message from the CHAIRMAN AND PRESIDENT

Rider Levett Bucknall Philippines, Inc. proudly presents to you the eleventh Philippine Edition of “**Riders Digest**,” a compilation of cost data and related information in the Philippine Construction Industry.

Rider Levett Bucknall Philippines is a member of the Rider Hunt, Levett & Bailey, and Bucknall Austin Group now **RIDER LEVETT BUCKNALL (RLB)**, an independent global property and construction practice with 120 offices in 80 different countries covering six continents namely OCEANIA, which covers all of Australia and New Zealand; ASIA, which covers The Philippines, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Singapore, Taiwan, Thailand and Vietnam; EMEA, which covers Europe and Middle East; NORTH AMERICA which covers Phoenix, Boston, Chicago, Denver, Honolulu, New Jersey, Las Vegas, Los Angeles, Florida, Portland Oregon, San Francisco, Seattle, and Washington DC together with Canada; and SOUTH AFRICA which includes Cape Town, Johannesburg, and Pretoria.

Our group employs almost 4,000 people in its offices across the world, integrating local knowledge and expertise with access to the global network to provide the best and most up-to-date service our clients deserve. Our open communication and interaction between offices transform to greater experience across every sector in the Construction Industry. The Philippine office is now operating in its 34th year, having commenced its operation in 1989.

We have provided our Quantity Surveying and Project/Construction Management Services on over 1,300 projects in the Philippines, ranging from Office Towers, Residential Condominiums, Hotels, Residential Estates, Industrial Development Plants, Institutional Schools, Ports and Harbors, Roads and Bridges, Airports and Airport Buildings, Commercial Centers, Hospitals, BPOs, and Land Development Works. We have also served a number of overseas projects within the Pacific Rim including Guam, Saipan, Palau, Hawaii, Australia, Malaysia, Vietnam, and as far as the Middle East, Pakistan, and Syria.

Our corporate vision is to be the leading global practice in our respective market and deliver sustainable and competitive advantage to our clients through the passion of our people and

our focus on integrity, professionalism, innovation, team work, and client satisfaction. We have adopted our core values and objectives, together with our global network and in-depth knowledge, making Rider Levett Bucknall Philippines, Inc. truly unique and consistent in providing quality services to our clients.

Our combined experience and expertise enable us to provide excellent and efficient services. We protect our integrity, optimize the use of resources, and create maximum performance and value throughout the life cycle of every project we handle. Rider Levett Bucknall Philippines, Inc. is committed to developing tools and techniques that help our clients save costs while getting their desired results, not only at present, but also in the future.

The entire Rider Levett Bucknall Group ensures that a significant fund is allocated for research and development programs, uses the latest technology, and develops training to maintain quality staff performance.

The publication of our Riders Digest and International Report on Construction Market Intelligence from our global network of offices will continue to be beneficial by providing professional input, expert advice, and value added services to our clients. As key resources in the International Construction Industry, these will prioritize benchmarking of construction services throughout the International market.

Rider Levett Bucknall Philippines, Inc. hopes that you find this publication informative and useful, aiding in the successful completion of your construction needs.

Corazon Clemeña Ballard

CHAIRMAN & PRESIDENT

Rider Levett Bucknall
Philippines, Inc.



QUALITY POLICY STATEMENT



RIDER LEVETT BUCKNALL PHILIPPINES, INC.

QUALITY POLICY STATEMENT

RIDER LEVETT BUCKNALL PHILIPPINES' Policy is to provide optimal services in accordance with stated customer requirements. Guided by our principles of excellence, quality and sustainability, we foster lasting customer confidence and business relations while meeting our contractual obligations. The services we offer in full or in combination are as follows:

- Quantity Surveying (QS)
- Project Management (PM)
- Construction Management (CM)
- Special Services within our expertise

We are ambitious and dedicated to push outside the boundaries of limitations to capture and implement innovations relevant to our company goals and stakeholder needs and expectations.

We are steadfast in our compliance to our managements systems and our Chairman and President has the ultimate authority and responsibility to ensure continuing effectiveness and improvement of our policies and processes conformable to international and global standards.

It is part of our company's training programme that this policy is understood, implemented and maintained at all levels in the organization. It is also communicated to our stakeholders for their information and cooperation.

This statement represents our executive management commitment, on behalf of the Corporation, to the Quality Policy.

Signed : 
CORAZON C. BALLARD
Chairman & President

Date : 10 July 2017

ISO 9001:2015 CERTIFICATE

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 085988**

Certificate Holder:



Rider Levett Bucknall Philippines, Inc.
Corazon Clemenña Compound, 54 Danny Floro
Street, Bagong Ilog, 1600 Pasig City, Philippines

including the locations according to annex

Scope:

Quantity Surveying, Project Management, Construction
Management, Construction Claims, Cost Consultancy and
Special Project Services

Proof has been furnished by means of an audit that the
requirements of ISO 9001:2015 are met.

Validity:

The certificate is valid from 2020-12-10 until 2023-12-09.
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Organization:

RLB

Rider
Levett
Bucknall

Rider Levett Bucknall Philippines, Inc.
Corazon Clemencia Compound, 54 Danny Floro
Street, Bagong Ilog, 1600 Pasig City, Philippines

Site:

c/o **Rider Levett Bucknall Philippines, Inc.**
9th floor, Unit 2-901, OITC2, Oakridge Business Park,
880 A. S. Fortuna St., Banilad, Mandaue City, Philippines

Scope:

Quantity Surveying, Project Management, Construction
Management, Construction Claims, Cost Consultancy and
Special Project Services

Validity:

Proof has been furnished by means of an audit that the
requirements of ISO 9001:2015 are met.
The certificate is valid in conjunction with the main certificate 01
100 085988 from 2020-12-10 until 2023-12-09.

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Standard

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Certificate Registr. No.

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No.	Location	Scope
/01	Rider Levett Bucknall Philippines, Inc. Corazon Clemencia Compound, 54 Danny Floro Street, Bagong Ilog, 1600 Pasig City, Philippines	Quantity Surveying, Project Management, Construction Management, Construction Claims, Cost Consultancy and Special Project Services
/02	Rider Levett Bucknall Philippines, Inc. 9th floor, Unit 2-901, OITC2, Oakridge Business Park, 880 A. S. Fortuna St., Banilad, Mandaue City, Philippines	Quantity Surveying, Project Management, Construction Management, Construction Claims, Cost Consultancy and Special Project Services

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Philippine Construction Trends

Number of Construction
Projects by Type

Distribution of Construction
Projects by Region

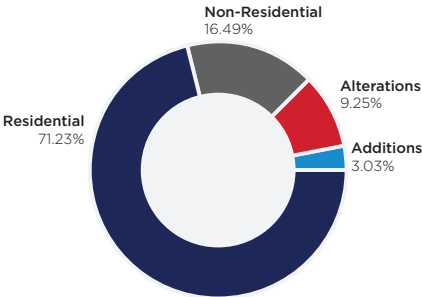
Value of Construction
By Type of Building

Number and Value
of Residential Construction

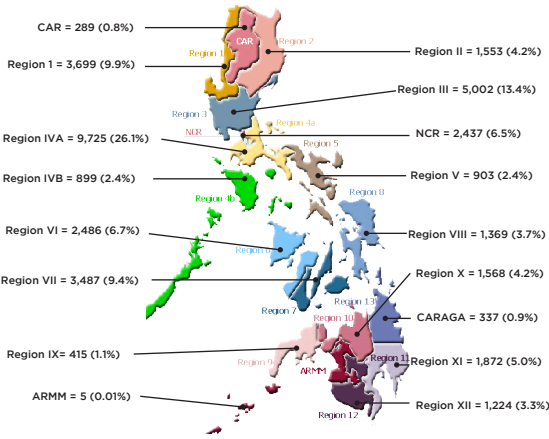
Number and Value of Non-Residential
Construction By Type

Number of Construction Projects by Type
First Quarter 2022

TYPE	NUMBER
Additions	1,131
Alterations and Repairs	3,448
Non-Residential	6,145
Residential	26,546
TOTAL:	37,270

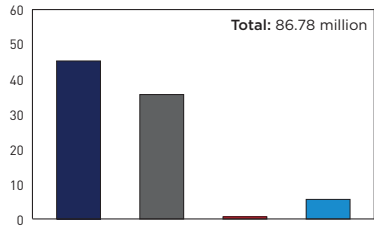


Distribution of Construction Projects by Region
First Quarter 2022



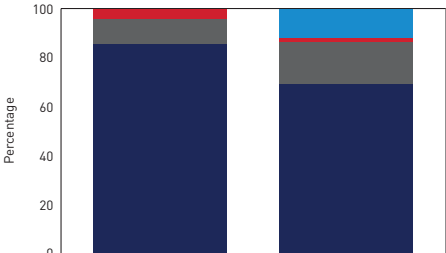
Data Source: PSA

Value of Construction Projects by Type
First Quarter 2022



TYPE	Residential	Non-Residential	Additions	Alterations & Repairs
VALUE (in million pesos)	45.01	35.40	.73	5.63

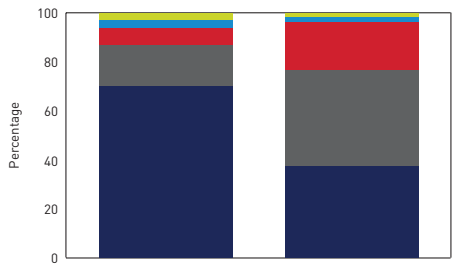
Number and Value of Residential Construction by Type
First Quarter 2022



TYPE	Number of Residential Construction	Value of Residential Construction
Single House	22,790 (85.85%)	31.22 billion (69.36%)
Apartment/Accessoria	2,700 (10.17%)	7.71 billion (17.13%)
Duplex/Quadruplex	1,007 (3.79%)	0.65 billion (1.44%)
Residential Condominium	14 (0.05%)	5.38 billion (11.95%)
Other Residential	35 (0.13%)	0.04 billion (0.09%)
TOTAL:	26,546	45.01 billion

Data Source: PSA

Number and Value of Non-Residential Construction by Type, First Quarter 2022



TYPE	Number of Non-Residential Construction	Value of Non-Residential Construction
Commercial	4,324 (70.37%)	13.34 billion (37.68%)
Institutional	1,007 (16.39%)	13.84 billion (39.10%)
Industrial	450 (7.32%)	6.97 billion (19.69%)
Agricultural	189 (3.08%)	0.64 billion (1.81%)
Other Non-Residential	175 (2.85%)	0.62 billion (1.75%)
TOTAL: 6,145		TOTAL: 35.40 billion

Data Source: PSA

Philippine Construction Cost Data

Definition of Terminologies

Building Construction Prices

Office Fit-Out

Office Refurbishment

Hotel Fit-Out

External Works

Definition of Terminologies - Building Services

Building Services

Construction Elements

Construction Materials Wholesale Price Index

Summary of Current Regional Daily Minimum Wage Rates

Definition of Terminologies

Central Business District (CBD)

The Central Business District is within the Metro Manila cities of the Philippines. It consists of seven planning areas, namely Makati City, Global City-Taguig, Quezon City, Pasig City, Mandaluyong City, San Juan, and Manila. It is the prime area of all the commercial and financial activities in the region and includes developments from nearby provinces around the perimeter of Metro Manila.

The office within the CBD refers to good quality office buildings located at the Central Business District, for the upper range of the rental market and leading owner occupiers, such as head quarter offices for financial institutions and major companies.

Offices outside CBD refer to medium quality office buildings that are built for the middle range of the rental market.

Construction Floor Area (CFA)

CFA is the area of all building enclosed covered spaces measured to the outside face of the external walls, including covered basement and above ground car park, areas.

Gross Floor Area (GFA)

GFA is the sum of fully enclosed covered areas and the unenclosed covered areas of the building for purposes of planning submissions (refer to Page 59: Measurement of Building Areas for more information).

Net Lettable Area (NLA)

NLA is the total tenancy area designated for rentable purposes.

Building Works

Building Works include substructure (piling, foundation, and basement), super-structure, architectural works, finishes and fittings, external works, site works, preliminaries, attendance, and other builder's work in connection with services.

Building Services

Building Services include mechanical services, including heating, air conditioning, mechanical, ventilation, fire protection system, sanitary, and plumbing; and electrical services, which include electrical installation, vertical transportation, and building management systems. Exclusions; Special equipment – Chutes, incinerators, compactors, pneumatic refuse disposal system, facade maintenance equipment, engineered smoke control systems etc., IT services – high speed cables etc.

Hotels

Types of hotels listed are based on 'five-star', 'four-star' and 'three-star' international hotel ratings.

Retail – Shopping Malls

Shopping malls with typical amenities and finishes in common spaces. Exclusions: Tenant equipment, shop fittings and finishes in tenancy spaces.

Industrial Buildings

Quality reflects a simplified type of construction suitable for light or heavy industries, Exclusions: Special and operating equipment, processing plant and proprietary systems.

Residential

Ratio of kitchen, laundry and bathroom areas to living areas and the quality of finishes required will affect the cost range. Range given is significantly affected by the height and configuration of the building. Exclusions: Show apartments. Loose furniture, special light fittings, household electrical appliances, kitchen equipment and building owners' special requirements.

Institutions of Higher Learning

Tertiary educational schools such as universities, polytechnics, and other colleges that require full range of educational facilities and amenities.

Car Park

Above Grade – minimal external walling excluding mechanical ventilation.

Basement – diaphragm wall or contiguous bored piles wall with standard mechanical ventilation provisions.

Building Construction Prices

All construction prices for the Philippines are indicative only and are as at Fourth Quarter 2022. Items generally excluded from the order of costs are land costs, legal and professional fees, development charges, authority fees, finance costs, loose furniture, fittings, art works, tenancy works such as but not limited to

DEVELOPMENT TYPE
Office Buildings
Base Build
Base Build + Fit-Out
BPO
with Fit-Out Works
without Fit-Out Works
Mix-Used
BPO and Retail
Office and Retail
Residential, BPO and Retail
Hotel and Office
Hotels Including FF&E
Five (5) Star
Four (4) Star
Three (3) Star
Resort
Industrial
Warehouse and Cold Storage
Distribution/Manufacturing
Data Center/Data Hosting Centres
Institutional
Schools
Hospitals with FF&E
Retail - Shopping Malls
Retail Strip
Shopping Malls
Residential
High-End Residential Building
Mid-End Residential Building
Low-End Residential Building
Row House (1 to 4 storeys)
Single Detached (Mid/High-End)
Single Detached (Low-End)
Clubhouse
Clubhouse
Carparks
Open Parking
Steel Parking Building
Concrete Parking Building
Mechanical Parking (cost platform and system only)

Exclusions: * Land Cost * Legal and Professional Fees * Development Charges * Local Authority Fee * Finance Cost * Loose Furniture, Fittings and Works of Art * Tenancy Work * Site Infrastructure Work * Diversion of Existing Services * Resident Site Staff Cost * Models and Prototypes * Future Cost Escalation * Goods and Services Tax

sub-divisional partitions in office building and shop fit-out in retail spaces, private telephone systems, site infrastructure work, diversion of existing services, resident site staff cost, models and prototypes, and future cost escalation (unless otherwise stated). All prices stated below include a general allowance for foundation and external works.

RANGE OF COSTS PER CONSTRUCTION FLOOR AREA	
Low	High
PHP/m ²	
43,200	137,800
89,600	259,000
PHP/m ²	
49,000	58,100
28,900	48,800
PHP/m ²	
56,700	69,000
54,500	92,000
71,700	109,000
78,800	114,000
PHP/room	
108,000	254,000
82,400	107,000
67,000	81,900
46,400	112,500
PHP/m ²	
73,700	161,000
42,200	230,000
208,000	617,000
PHP/ea	
53,800	84,600
49,400	120,000
PHP/m ²	
37,600	62,900
44,700	68,000
PHP/m ²	
63,200	106,800
50,000	63,100
40,400	51,900
26,000	83,500
58,400	92,600
31,400	42,100
PHP/m ²	
75,100	369,000
PHP/m ²	
10,800	17,700
46,300	55,000
21,100	38,000
72,300	257,000

Note: As foreign currency exchange rates fluctuate on a daily basis, we have not converted the Philippine Peso rate to foreign currencies.

Fit-Out Works

The following costs varies within the wide range and dependent on the quality of finishes specified for good quality office and hotel accommodations. Scope of fit-out includes preliminaries, floor, wall and ceiling finishes, painting, timber fitments, sanitary wares and bathroom accessories, glazing at bathroom, installation of decorative lighting, curtains and blinds. Costs are exclusive of loose items, such as but not limited to furniture, room equipment and appliances, supply of deorative lighting and bedding.

Type of Tenancy Philippine Peso per Square Metre	Open Planned Php /m ²	Fully Partitioned Php /m ²
Office Fit-out per square meter	49,300	138,000
Hotel Fit-out, Five (5) Star, per room	9,180,000	13,010,000
Hotel Fit-out, Four (4) Star, per room	6,069,000	8,930,000
Hotel Fit-out, Three (3) Star, per room	2,601,000	7,568,058

Refurbishment Works

The following refurbishment costs include demolition and removal of partitions and internal finishes, provide new floor, ceiling and wall finishes but excluding fit-out. The lower end of the range indicates re-use and modification.

Type of Office Philippine Peso per Square Metre	Php / m ²	
Office Refurbishment	57,700	143,100
Hotel Refurbishment, Guest Room	82,300	151,000
Hotel Refurbishment, Main Lobby	90,200	230,000
Hotel Refurbishment, Restaurant	155,000	205,000

Hotel Fit-Out

The cost of typical hotel guest room fit-out varies within its wide range of services and amenities offered and is dependent on the quality of finishes specified for different rating hotels. Scope of fit-out includes preliminaries, wall, floor and ceiling finishes, painting, timber fitments, sanitary wares and bathroom accessories, glazing at bathroom, installation of decorative lighting, curtains, blinds, etc. These costs exclude loose items, such as but not limited to furniture, room equipment and appliances, supply of decorative lighting, and bedding.

Hotel Rating Philippine Peso per Square Metre	Php / Room	
Three Star	9,180,000	13,010,000
Four Star	6,069,000	8,930,000
Five Star	2,601,000	7,568,058

External Works

LANDSCAPING Philippine Peso per Square Metre	Low	High
Softscape	4,240	32,900
Hardscape	5,970	26,600
S&I of Vertical Landscaping or Greenwall	25,500	35,000
CAR PARKS - ON GROUND Philippine Peso per Car	Low	High
Open Parking	163,000	266,000
Steel Parking Building	200,000	485,000
Concrete Parking Building	275,000	520,000
Mechanical Parking (Cost Platform and System)	570,000	1,370,000

Building Services

Definition of Terminologies

HVAC (Heating Ventilation and Air Conditioning)

HVAC includes chiller plant, cooling towers, chilled water, condenser water pumps and pipework, air-handling unit systems, and fan coil systems.

It also includes AC ductwork, diffusers, split type air-conditioning units and ductwork, mechanical ventilation ('MV') fan system, MV ductwork, diffusers and accessories, AC electrical, and automatic control works where appropriate.

Sanitary & Plumbing

Sanitary & Plumbing works refer to water tanks and pumps, hot/cold water distribution piping, installation of water piping to sanitary ware and fittings, installation of waste piping to sanitary ware, aboveground and underground drainage piping system where appropriate.

Fire Protection System

Fire Protection system includes sprinkler, external fire hydrants, hoses, wet and dry risers, automatic fire alarms, and fire extinguishers where appropriate.

Electrical Installation

Electrical Installation refers to power transformer, substation, HV & LV switch gear, distribution/sub-main cables, final sub-circuits, cable support systems and containments. Lightning protection system, earthing system, luminaries and lightning control system, standby generators, telecommunications system, public address system, intercom system, and MATV/CATV system may also fall under Electrical Installation, where appropriate.

Vertical Transportation

Vertical Transport spans Lifts, Escalators, Travelators, Dumbwaiters, etc, where appropriate.

Building Management Systems (BMS)

BMS include Control Systems (mainly for HVAC services) where appropriate.

Exclusions

Security Systems, IT systems, AV systems, car parking System, compactors, chutes; special equipment such as proprietary systems, medical gases, incinerators, pneumatic refuse disposal system, facade maintenance equipment, engineered smoke control systems etc.; supply of kitchen equipment.

Building Services

As at Fourth Quarter 2022, in Philippine Pesos per Square Metre

Development Type	Range of Costs per Construction Floor Area											
	HVAC		Sanitary and Plumbing		Fire Protection		Electrical		Vertical Transport		Total Services	
Office Buildings	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	3,546	6,400	1,456	2,478	880	1,664	4,600	6,500	1,200	1,723	11,682	18,765
	7120	12,800	2,252	2,720	880	1,664	11,515	21,000	1,200	1,723	23,057	39,907
Hotels Incl. FF&E												
Five Star	7,500	9,477	3,156	5,743	1,113	3,586	8,190	15,412	2,125	2,572	22,085	36,789
Four Star	5,060	7,848	3,021	5,151	1,061	1,572	5,700	12,019	1,100	1,726	15,942	28,316
Three Star	2,954	4,993	2,300	3,700	807	1,364	5,099	7,000	1,145	1,488	12,305	18,545
Resort	3,101	5,241	1,060	5,753	650	950	4,319	7,400	NA	NA	9,130	19,344
Retail - Shopping Malls												
Retail Strip	1,697	2,899	2,033	4,242	1,044	1,599	4,273	8,300	127	343	9,173	17,343
Shopping Malls	3,111	4,302	1,400	2,500	940	1,350	4,500	6,500	650	1,929	10,601	16,581

PHILIPPINE CONSTRUCTION COST DATA

Note: The order of costs for Building Services provided herein is indicative and based on Construction Floor Area Assumptions. Detailed Requirements and Specifications for Building Services need to be considered and provided in conceptual designs to derive at cost estimates for specific project budgetary purposes.

DEVELOPMENT TYPE	RANGE OF COSTS PER CONSTRUCTION FLOOR AREA									
	HVAC		Sanitary and Plumbing		Fire Protection		Electrical		Vertical Transport	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
RESIDENTIAL										
High-End Residential Building	2,977	3,610	3,350	5,250	860	1,278	4,600	6,738	1,163	2,100
Mid-End Residential Building	1,740	3,646	1,822	3,915	925	1,297	4,058	6,581	844	1,791
Low-End Residential Building	1,387	2,028	1,799	3,346	785	1,228	3,771	4,822	622	1,309
Townhouse (1 to 4 storeys)	2,505	3,526	1,188	4,749	NA	NA	2,178	5,580	NA	NA
Duplex	454	727	1,188	1,465	NA	NA	594	718	NA	NA
Single Detached (Mid/High End)	1,066	1,666	2,573	6,451	NA	NA	2,200	4,500	NA	NA
Single Detached (Low End)	500	800	1,224	2,573	NA	NA	820	1,474	NA	NA

DEVELOPMENT TYPE	RANGE OF COSTS PER CONSTRUCTION FLOOR AREA									
	HVAC		Sanitary and Plumbing		Fire Protection		Electrical		Vertical Transport	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
INDUSTRIAL										
Cold Warehouse and Cold Storage	9,237	21,723	2,128	3,157	1,802	2,404	12,315	67,296	NA	NA
Distribution/Manufacturing	3,408	5,759	1,331	2,250	3,913	6,613	6,925	11,704	NA	NA
Data Centre/ Data Hosting Centres	19,799	23,731	950	1,311	7,045	9,034	81,102	113,542	NA	NA
BPO										
with Fit-Out Works	6,839	14,080	1,313	2,200	991	1,664	9,500	23,000	1,667	2,009
without Fit-Out Works	3,500	4,280	1,313	1,785	991	1,664	5,625	7,200	1,667	2,009
CLUBHOUSE										
Premier	9,179	15,513	1,996	7,856	8,055	13,614	6,701	20,903	NA	NA

DEVELOPMENT TYPE	RANGE OF COSTS PER CONSTRUCTION FLOOR AREA											
	HVAC		Sanitary and Plumbing		Fire Protection		Electrical		Vertical Transport		Total Services	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
INSTITUTIONAL												
Schools	4,674	8,352	1,400	3,477	600	1,320	6,921	8,597	915	2,512	14,510	24,258
Hospitals with FF&E	5,125	12,248	1,587	3,339	1,215	1,438	5,170	12,517	1,091	1,130	14,189	30,671

Construction Elements

The following rates are indicative only and include an allowance for profit and overheads but exclude preliminaries. The rates are not valid for tendering or pricing of variations.

SUB-STRUCTURE Philippine Peso per Cubic Metre	Low	High
Pile Caps	18,400	29,800
Bored Piles (compression)	19,300	30,400
Bored Piles (tension)	25,400	39,100
Raft Foundation	20,100	28,000
RC Pad Footings	16,100	22,000
Ground Beams	25,400	35,600
Retaining Wall	24,900	34,800
RC Wall	25,000	34,600
Slab	14,900	21,600
Edge Beams	30,600	42,700
SUPERSTRUCTURE Philippine Peso Cubic Metre	Low	High
Columns	34,400	52,000
Beams	33,600	46,700
Slabs	21,400	32,400
Walls (core)	25,600	37,400
Lift Core	21,400	31,300
Household Shelter	39,600	60,200
Stairs	35,300	56,300
STRUCTURAL STEEL Philippine Peso per Square Metre	Low	High
Roof Framing	3,000	7,270
Steel Framing System (commissary)	9,000	14,600
Metal Decking	1,100	1,930
FLOOR FINISHES Philippine Peso per Square Metre	Low	High
Ceramic Tiles	1,390	2,330
Porcelain Tiles	1,470	4,090
Homogenous Tiles	1,730	11,870
Granite	5,250	28,100
Marble	16,730	55,000
Carpet	2,690	16,400
Engineered Wood Flooring	4,030	10,800
Laminated Wood Flooring	2,300	4,360
Wood Planks	6,200	12,210

Construction Elements

Vinyl Tiles	1,040	2,010
Rubber Flooring	2,640	15,100
Straight to Finish	179	790
Plain Cement	222	710
Epoxy Coating	509	14,570
CEILING FINISHES Philippine Peso per Square Metre	Low	High
Rubbed Concrete	160	375
Painted	354	710
Gypsum Ceiling	1,080	3,620
Acoustic Ceiling	2,210	3,726
Fiber Cement Board Ceiling	2,310	8,260
WALL FINISHES Philippine Peso per Square Metre	Low	High
Homogenous Tiles	2,310	8,260
Ceramic Tiles	2,210	2,720
Rubbed Concrete	151	300
Skim Coating	205	400
Painted	342	86,280
Porcelain Tiles	2,570	4,000
Natural Stone Cladding	5,930	56,100
Wood Cladding	6,510	29,700
Wall Paper	2,620	26,800
Wood Veneer	4,540	7,060
Aluminum Composite Panel	6,510	9,470
EXTERNAL WALLS Philippine Peso per Square Metre	Low	High
Pre-Cast Wall	5,630	8,480
RC Wall	3,750	17,300
CHB Wall	1,570	4,020
EXTERNAL DOORS AND WINDOWS (Excluding Ironmongery) Philippine Peso per Number	Low	High
Steel Door	8,600	24,100
Aluminum Framed Glass Door	13,700	36,900
Aluminum Framed Fixed Windows	10,800	23,500
Aluminum Framed Awning Windows	12,500	45,900
Aluminum Framed Sliding Windows	13,900	33,600

Aluminum Framed Casement Windows	17,250	57,800
Curtain Wall	19,700	58,600
Aluminum Louver	12,000	44,000
Steel Louver	8,600	29,900
INTERIOR WALLS AND PARTITIONS Philippine Peso per Square Metre	Low	High
RC Wall	3,750	17,300
CHB Wall	1,080	3,710
Gypsum Drywall	2,030	3,880
INTERNAL DOORS (Excluding Ironmongery) Philippine Peso per Number	Low	High
Wood Door	10,130	25,840
Steel Door	6,420	19,600
Steel Door, fire-rated	8,600	24,100
PVC Door	2,910	4,750
SPECIALIST SERVICES		
SANITARY AND PLUMBING Philippine Peso per Number	Low	High
Average cost per plumbing point including fixture, soil waste and vent	36,400	92,000
Average cost for storm water drains, per drain	15,900	29,600
VERTICAL TRANSPORTATION Philippine Peso per Number	Low	High
High Rise Capacity: 1,600kg; Speed: 3m/s with machine room	430,000	680,000
Low Rise Capacity: 1,600kg; Speed: 3m/s with machine room	750,000	951,000
OTHER ITEMS Philippine Peso per Cubic Metre	Low	High
Structural excavation	590	1,190
Philippine Peso per Square Metre	Low	High
Waterproofing	598	6,280
Pre-painted G.I. Roofing	1,497	4,122
Polycarbonate Roofing	8,100	13,680

Construction Materials Wholesale Price Index
National Capital Region, January 2022-October 2022
(2012=100)

COMMODITY GROUP	JAN	FEB	MAR	APR
Sand and Gravel	141.0	141.0	142.0	142.2
Concrete Products and Cement	127.0	127.0	128.9	129.3
Hardware	125.4	125.6	126.5	127.9
Plywood	117.1	118.4	119.7	119.6
Lumber	137.2	137.2	137.9	137.9
G.I. Sheet	126.8	126.8	127.6	127.6
Reinforcing & Structural Steel	126.4	127.6	131.6	132.4
Tileworks	134.3	134.3	135.8	135.8
Glass and Glass Products	128.6	130.4	130.4	130.4
Doors, Jambs and Steel Casement	113.2	113.1	113.1	113.8
Electrical Works	135.6	136.3	138.7	139.5
Plumbing Fixtures & Accessories / Waterworks	130.6	131.6	131.5	132.2
Painting Works	110.4	110.7	111.3	111.6
PVC Pipes	121.9	122.4	122.4	123.0
Fuels and Lubricants	144.0	153.4	168.1	173.5
Asphalt	104.2	104.2	104.2	104.2
Machinery and Equipment Rental	146.9	146.9	146.9	146.9

MAY	JUN	JUL	AUG	SEP	OCT
143.8	144.7	145.4	147.4	149.3	149.4
129.4	130.1	130.7	131.6	139.1	139.9
129.0	129.7	130.4	131.0	133.1	133.8
120.1	120.6	121.0	121.2	123.2	123.5
139.0	141.1	142.3	142.3	145.6	146.7
128.2	129.1	129.4	129.4	144.1	145.6
135.3	137.3	137.1	137.1	139.8	141.0
136.8	137.5	138.9	138.9	138.8	140.5
130.7	130.7	130.7	130.7	130.7	130.7
114.1	114.4	114.8	114.8	119.9	119.9
140.7	141.4	142.1	142.9	143.5	145.4
131.9	132.6	133.1	133.1	134.5	134.5
112.5	113.7	114.9	115.2	120.0	121.8
128.6	129.7	131.2	131.2	123.5	124.1
182.3	190.9	187.5	172.5	172.1	166.7
104.2	104.2	104.2	104.2	104.2	104.2
146.9	146.9	146.9	146.9	146.9	146.9

Source: Philippine Statistics Authority

Summary of Current Regional
Daily Minimum Wage Rates
Non-Agriculture, Agriculture
As at December 2022, in Philippine Pesos

REGION	WAGE ORDER NO.	DATE OF EFFECTIVITY	NON-AGRI	AGRICULTURE	
				PLANT	NON-PLANT
NCR	WO 23	June 4, 2022	P533.00 - P570.00	P530.00	P533.00
CAR	WO 21	June 14, 2022	P380.00	P380.00	P380.00
I	WO 21	June 6, 2022	P312.00 - P370.00	P325.00	P312.00
II	WO 21	June 8, 2022	P400.00	P375.00	P375.00
III	WO 23	June 20, 2020	P399.00 - P450.00	P384.00 - P420.00	P372.00 - P404.00
IV-A	WO 19	June 30, 2022	P334.00 - P435.00	P327.00 - P401.00	P327.00 - P401.00
IV-B	WO 10	June 10, 2022	P329.00 - P355.00	P329.00 - P355.00	P329.00 - P355.00
V	WO 20	June 18, 2022	P345.00	P345.00	P345.00
VI	WO 26	June 5, 2022	P420.00 - P450.00	P410.00	P410.00
VII	WO 23	June 14, 2022	P387.00 - P435.00	P382.00 - P425.00	P382.00 - P425.00
VIII	WO 22	June 27, 2022	P350.00	P320.00	P320.00
IX	WO 21	June 25, 2022	P351.00	P323.00	P323.00
X	WO 21	June 18, 2022	P368.00 - P390.00	P356.00 - P378.00	P356.00 - P378.00
XI	WO 21	June 19, 2022	P427.00	P422.00	P422.00
XII	WO 22	June 9, 2022	P352.00	P331.00	P331.00
CARAGA	WO 17	June 6, 2022	P340.00 - P350.00	P340.00 - P350.00	P340.00 - P350.00
BARMM	WO 02	July 21, 2022	P316.00 - P341.00	P306.00 - P316.00	P306.00 - P316.00

Note: WO - Wage Order
RA - Republic Act
COLA - Cost Of Living Allowance
ECOLA - Emergency Cost Of Living Allowance

Summary of Daily Minimum Wage Rates
Per Wage Order, By Region, Non-Agriculture
(1989 - 2022)

National Capital Region

RA/ WO	DATE	AMOUNT		
		BASIC	ALLOWANCE	TOTAL
RA 6727	July 1, 1989	P 89.00		P 89.00
WO 01	Nov. 1, 1990	106.00		106.00
WO 02	Jan. 8, 1991	118.00		118.00
WO 03	Dec. 16, 1993	135.00		135.00
	April 1, 1994	145.00		145.00
WO 04	Feb. 2, 1996	161.00		161.00
	May 1, 1996	165.00		165.00
WO 05	Feb. 6, 1997	180.00		180.00
	May 1, 1997	185.00		185.00
WO 06	Feb. 6, 1998	198.00		198.00
WO 07	Oct. 31, 1999	198.00 - 223.50		198.00 - 223.50
WO 08	Nov. 1, 2000	213.00 - 250.00		213.00 - 250.00
WO 09	Nov. 5, 2001	213.00 - 250.00	15.00	228.00 - 265.00
	Feb. 1, 2002	213.00 - 250.00	30.00	243.00 - 280.00
WO 10	Jul. 10, 2004	213.00 - 250.00	50.00	263.00 - 300.00
WO 11	Jun. 16, 2005	238.00 - 275.00	50.00	288.00 - 325.00
WO 12	Jul. 11, 2006	288.00 - 300.00	50.00	313.00 - 350.00
WO 13	Aug. 28, 2007	325.00 - 362.00		325.00 - 362.00
WO 14	June 14, 2008	340.00 - 377.00	5.00	345.00 - 382.00
	Aug. 28, 2008	345.00 - 382.00		345.00 - 382.00
WO 15	Jul. 1, 2010	367.00 - 404.00		367.00 - 404.00
WO 16	May 26, 2011	367.00 - 404.00	22.00	389.00 - 426.00
WO 17	Jun. 3, 2012	389.00 - 426.00	20.00	409.00 - 446.00
	Nov. 1, 2012	389.00 - 426.00	30.00	419.00 - 456.00
WO 18	Oct. 4, 2013	399.00 - 436.00	30.00	429.00 - 466.00
	Jan. 1, 2014	414.00 - 451.00	15.00	429.00 - 466.00
WO 19	April 4, 2015	444.00 - 466.00	15.00	459.00 - 481.00
WO 20	June 2, 2016	444.00 - 481.00	10.00	454.00 - 491.00
WO 21	October 5, 2017	465.00 - 502.00	10.00	475.00 - 512.00
WO 22	November 22, 2018	500.00-537.00		500.00-537.00
WO 23	June 4, 2022	533.00 - 570.00		533.00 - 570.00

PHILIPPINE CONSTRUCTION COST DATA

Region VII – Metro Cebu

RA/ WO	DATE	AMOUNT		
		BASIC	ALLOWANCE	TOTAL
RA 6727	July 1, 1989	P 89.00		P 89.00
WO 01	Nov. 8, 1990	89.00-105.00		89.00-105.00
WO 02	Feb. 1 - Sept. 30, 1991	89.00-105.00	250/mo. or 9.55/day	98.55-114.55
WO 02 A	Oct. 1, 1991	89.00-105.00	5.73	89.00-110.73
WO 03	Dec. 19, 1993	79.00-120.73		79.00-120.73
WO 04	Jan. 1, 1996	84.00-131.00		84.00-131.00
	July 1, 1996	89.00-136.00		89.00-136.00
	Oct. 1, 1996	94.00-141.00		94.00-141.00
WO 05	March 15, 1997	96.00-145.00		96.00-145.00
WO 05 A	July 1, 1997	101.00-150.00		101.00-150.00
	Oct. 1, 1997	101.00-155.00		101.00-155.00
WO 06	Apr. 1, 1998	106.00-160.00		106.00-160.00
	Oct. 1, 1998	111.00-165.00		111.00-165.00
	Apr. 1, 1999	116.00-165.00		116.00-165.00
	Oct. 1, 1999	121.00-165.00		121.00-165.00
WO 07	Jan. 1, 2000	126.00-170.00		126.00-170.00
WO 08	Nov. 10, 2000	146.00-180.00		146.00-180.00
WO 09	Jan. 6, 2002	170.00-200.00		170.00-200.00
WO 10	Aug. 8, 2004	178.00-208.00		178.00-208.00
WO 11	June 16, 2005	190.00-223.00		190.00-223.00
WO 12	Aug. 2, 2006	200.00-241.00		200.00-241.00
WO 13	Nov. 11, 2007	205.00-250.00		205.00-250.00
WO 14	Jun. 16, 2008	222.00-267.00		222.00-267.00
WO 15	Sep. 1, 2010	240.00-285.00		240.00-285.00
WO 16	Sep. 12, 2011	260.00-305.00		260.00-305.00
WO 17	Dec. 7, 2012	282.00-327.00		282.00-327.00
WO 18	Mar. 21, 2014	282.00-327.00	13.00	282.00-327.00
WO 18-A	Dec. 14, 2014	295.00-340.00		295.00-340.00
WO 19	Oct. 10, 2015	308.00-353.00		308.00-353.00
WO 20	Mar. 10, 2017	308.00-366.00		308.00-366.00
WO 21	Aug. 3, 2018	318.00-386.00		318.00-386.00
WO 22	Jan. 5, 2020	356.00 - 404.00		356.00 - 404.00
WO 23	June 14, 2022	387.00 - 435.00		387.00 - 435.00

Region XI – Davao Region

RA/ WO	DATE	AMOUNT		
		BASIC	ALLOWANCE	TOTAL
RA6727	July 1, 1989	P 79.00 - 89.00		P 79.00 - 89.00
WO 01	Nov. 21, 1990	89.00 - 104.00		89.00 - 104.00
WO 02	Feb. 15, 1991 - May 15, 1991	89.00 - 104.00	7.12 - 8.32	96.12 - 112.32
WO 03	Dec. 1, 1993	89.00 - 104.00	25.00	114.00 - 129.00
WO 04	Jan. 1, 1995	104.00 - 119.00		104.00 - 119.00
WO 05	Jan. 1, 1997	115.00 - 129.00		115.00 - 129.00
	June 1, 1997	121.00 - 135.00		121.00 - 135.00
WO 06	Jan. 1, 1998	121.00 - 135.00	10.00	136.00 - 145.00
WO 07	Nov. 1, 1999	146.00 - 148.00	10.00	156.00 - 158.00
WO 08	Nov. 1, 2000	158.00 - 160.00	10.00	168.00 - 170.00
	May 1, 2001	168.00 - 170.00	10.00	178.00 - 180.00
WO 09	Jan. 1, 2002	168.00 - 170.00	25.00	193.00 - 195.00
WO 10	Jan. 1, 2004	193.00 - 195.00		193.00 - 195.00
WO 11	Feb. 5, 2005	207.00 - 209.00		207.00 - 209.00
WO 12	July 2, 2005	207.00 - 209.00	15.00	222.00 - 224.00
WO 13	July 27, 2006	222.00 - 224.00	16.00	238.00 - 240.00
WO 14	Sep. 16, 2007	222.00 - 224.00	26.00	248.00 - 250.00
WO 15	June 16, 2008	240.00	25.00	265.00
	Sep. 16, 2008	250.00	15.00	265.00
WO 16	Sep. 1, 2010	271.00	15.00	286.00
WO 17	Jan. 1, 2012	286.00	5.00	291.00
	May. 1, 2012	286.00	15.00	301.00
WO 18	June 1, 2014	312.00		312.00
	Dec. 1, 2014	312.00	5.00	317.00
WO 19	Dec. 16, 2016	335.00	5.00	340.00
	May 1, 2017	340.00		340.00
WO 20	Aug. 16, 2018	370.00		370.00
	Feb. 16, 2019	396.00		396.00
WO 21	June 19, 2022	427.00		427.00
	Jan. 1, 2023	443.00		443.00

Source: Department of Labor and Employment, National Wages and Productivity Commission



Bench Headquarters

Estimating Data

Reinforcement Ratios

Average Construction
Payment Drawdown

Vertical Transport Services

Reinforcement Ratios

The following ratios give an indication of the average weight of high tensile rod reinforcement per cubic metre of concrete (Grade 35) for the listed elements. Differing structural systems, ground conditions, height of buildings, load calculations and sizes of individual elements and grid sizes will result in considerable variation to the stated ratios. For project specific ratios, a civil & structural engineer should be consulted.

Element	Ave kg / m ³
Pile caps	115 - 250
Bored Piles (compression)	30 - 60
Bored Piles (tension)	150 - 250
Raft Foundation	150 - 220
RC pad footings	70 - 100
Ground beams	200 - 300
Basement	Ave kg / m ³
Retaining Wall	150 - 250
RC Wall	125 - 150
Slab	100 - 200
Edge Beams	220 - 300
Above Ground	Ave kg / m ³
Columns	250 - 500
Beams	180 - 300
Slab	110 - 200
Walls (core)	130 - 320
Lift Core	125 - 200
Household Shelter	200 - 300
Stairs	130 - 160

Average Construction Payment Drawdown

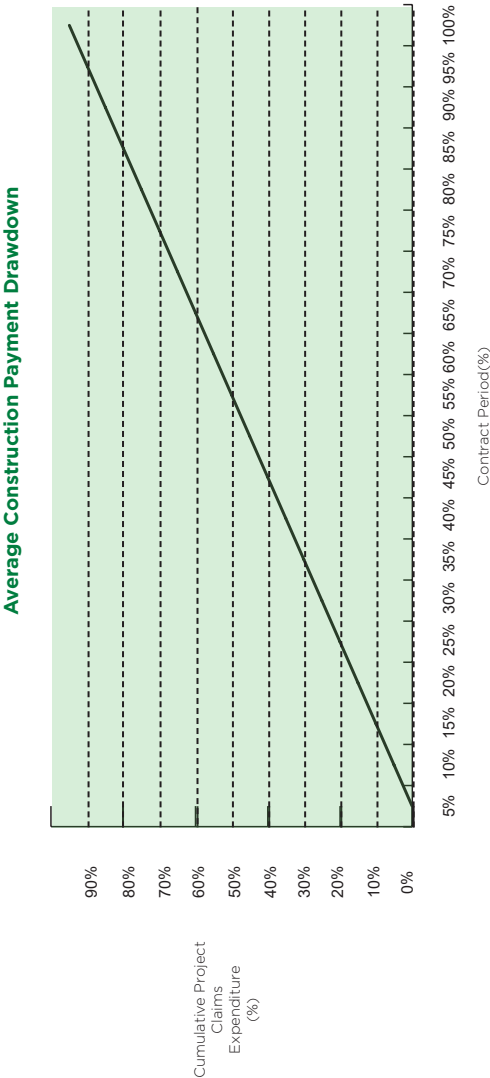
The tabulation below is derived from the statistical average of a series of case histories, which gives an indication of the anticipated rate of expenditure when used for a specific project for preliminary budgetary purposes. All data are related to the date of submission of contractors' claims to the client and not actual payment, which is generally one month later.

No adjustment has been made for the retention money on the assumption that such money will be paid by the client into a joint account with the Contractor. The payment of the outstanding monies due to the contractors and sub-contractors after the date of practical completion takes place at irregular intervals with payments spread over an indefinite period.

The average rate of claims expenditure on construction projects are from Php 100,000,000 to PhP 1,300,000,000 and/or greater than one year but less than two years construction period to practical completion.

Contract Period	Overall Project
%	%
5	0.75
10	2.70
15	5.71
20	9.65
25	14.40
30	19.80
35	25.73
40	32.06
45	38.65
50	45.40
55	52.85
60	60.15
65	67.15
70	73.68
75	79.60
80	84.79
85	89.07
90	92.29
95	94.32
100	97.50

Note: The remaining 2.5% would be released after a period of six to twelve months after hand-over of the project



Vertical Transport Services

Application	Lift Type	Speed (M/ Sec)	Base Cost (\$)	No. of Floors Served	\$/Floor Additional Floors Served	\$/Floor By passed
OFFICE & RESIDENTIAL	Electro-Hydraulic passenger	0.5	\$70,000 - \$95,000	2	\$8,500	\$6,500
	Gearless 9 to 13 Passenger	1.0	\$75,000 - 105,000	2	\$7,000	\$5,000
	Gearless 9 to 13 Passenger	1.65 - 1.75	\$95,000 - 145,000	8	\$7,000	\$5,000
	Gearless Up to 17 Passenger	1.65 - 1.75	\$120,000 - \$170,000	8	\$7,000	\$6,000
	Gearless Up to 23 Passenger	2.0 - 2.5	\$150,000 - \$270,000	15	\$8,000	\$6,000
	Gearless	3.0 - 3.5	\$435,000	20	\$8,000	\$6,000
	Gearless	4.0	\$575,000	20	\$10,000	\$8,000
	Gearless	5.0	\$660,000	20	\$10,000	\$8,000
	Gearless	6.0	\$920,000	30	\$10,000	\$8,000
	Gearless	7.0	\$990,000	30	\$10,000	\$8,000
	Gearless	8.0	\$1,100,000	40	\$10,000	\$8,000

Vertical Transport Services

Application	Lift Type	Speed (M/ Sec)	Base Cost (\$)	No. of Floors Served	\$/Floor Additional Floors Served	\$/Floor By passed
HOSPITALS	Gearless 23 pax Bed Lift	1.75	\$180,000	8	\$7,000	\$5,000
	Gearless Up to 40 Passenger	2.50	\$680,000	10	\$13,500	\$8,000
LARGE GOODS LIFTS	Gearless Up to 2000kg	1.0	\$305,000	2	\$14,000	\$8,000
	Gearless Up to 5000kg	0.50	\$510,000	2	\$16,500	\$10,500
SERVICE LIFT (DUMB-WATER)	Bench Height Unit	0.50	\$35,000	2	\$4,500	\$1,800
	Large Unit	0.20	\$55,000	20	\$5,500	\$2,300
ESCALATORS	Rise 2.5 to 5.0m	0.50	\$140,000 - \$320,000	20	N.A.	N.A.
TRAVELLATOR	Distance 1.3 to 5.0m	0.50	\$120,000 - \$340,000	N.A.	N.A.	N.A.
	To 4.0m	0.15	\$68,500	2	N.A.	N.A.
DISABLED PLATFORM LIFT	Above 4.0m	0.15	\$88,500	3	N.A.	N.A.

Notes:

Lift types up to 17-passenger capacity serving not more than 18 floors are more commonly equipped with motor room-less systems.

Costs provided above are indicative and vary depending on the brand name and technical specifications.

International Construction

Specific Definitions for International Construction Costs

Building Costs

Construction Market Activity Cycle Model

Sector Data



Specific Definitions for International Construction Costs

Office Building

Premium Offices

Refer to landmark high-quality office buildings located in a major Central Business District (CBD) office market, which are trendsetters in establishing rents and accommodating leading owner occupiers including headquarter buildings for banks, insurance, multi national corporations and other major companies.

Grade A Offices

Refer to high quality buildings which are built for the middle range of the rental market.

Hotel

Range of costs exclude FF&E.

Industrial

Quality reflects a simplified type of construction suitable for light industry.

Residential

Owner Occupied

Multi-storey units reflect medium to luxury quality, air-conditioned, and accommodation up to 20-stores in height.

Investment

Reflects low-medium quality with basic fit-out provisions.

Note:

The ratio of kitchen, laundry, and bathroom areas to living areas and finishes required will affect the cost range. Range given is significantly affected by the height and configuration of the building.

Exclusions:

Loose furniture, carpet, special light fittings, washing machines, dryers, refrigerators, and tenants special requirements.

Building Costs

All costs are stated in local currency as shown below, as at Fourth Quarter 2022. The following data represents estimates of current building costs in the respective market. Costs may vary as a consequence of factors such as site conditions, climatic conditions, standards of specification, market conditions etc.

Location /City	Local Currency	Cost per m²			
		OFFICE BUILDING			
		Premium Offices		Grade A	
		Low	High	Low	High
AMERICAS					
Boston	\$USD	3,765	5,920	2,420	3,500
Chicago	\$USD	3,230	5,380	1,940	3,230
Denver	\$USD	3,390	4,790	1,940	2,635
Honolulu	\$USD	3,605	6,135	2,260	3,550
Las Vegas	\$USD	2,155	3,765	1,455	2,045
Los Angeles	\$USD	2,635	3,985	1,990	2,960
New York	\$USD	3,930	9,095	2,315	5,705
Phoenix	\$USD	2,370	4,035	1,505	2,155
Portland	\$USD	2,475	3,390	2,260	3,335
San Francisco	\$USD	4,520	7,750	3,500	5,650
Seattle	\$USD	3,390	6,295	2,315	3,120
Washington D.C.	\$USD	3,605	5,920	2,475	3,875
ASIA					
Beijing	RMB	10,650	15,250	8,750	13,250
Chengdu	RMB	8,750	12,600	7,150	10,550
Guangzhou	RMB	9,300	13,200	7,600	11,500
Ho Chi Minh City	VND('000)	30,400	36,480	26,630	28,700
Hong Kong	\$HKD	25,100	35,900	21,300	27,500
Jakarta	IDR('000)	17,300	19,400	11,000	13,000
Kuala Lumpur	RINGGIT	3,200	4,700	2,300	3,400
Macau	MOP	18,700	25,100	15,400	21,700
Manila	PHP	89,600	259,000	49,000	58,100
Seoul	KRW('000)	3,260	3,880	2,270	2,790
Shanghai	RMB	9,200	13,400	7,500	11,650
Shenzhen	RMB	9,300	13,250	7,600	11,500
Singapore	\$SGD	3,900	6,300	3,450	4,950
EUROPE					
Birmingham	GBP	2,400	3,400	2,300	3,300
Bristol	GBP	2,300	3,250	2,050	3,250
London	GBP	3,200	4,150	3,050	3,950
Manchester	GBP	2,650	3,350	2,600	3,350
MIDDLE EAST & AFRICA					
Abu Dhabi	AED	6,000	7,200	4,900	6,800
Dubai	AED	6,400	7,600	5,100	7,200
Saudi Arabia	SAR	7,000	8,800	6,200	7,900
Doha	QAR	6,400	9,000	5,800	8,500
OCEANIA					
Adelaide	\$AUD	NA	NA	2,900	3,150
Auckland	\$NZD	NA	NA	4,600	5,300
Brisbane	\$AUD	3,900	5,000	3,500	4,300
Canberra	\$AUD	NA	NA	3,200	4,650
Christchurch	\$NZD	4,300	5,200	4,000	4,800
Darwin	\$AUD	3,450	4,400	NA	NA
Melbourne	\$AUD	4,400	4,950	3,350	3,950
Perth	\$AUD	4,500	6,100	3,400	4,800
Sydney	\$AUD	5,700	6,700	4,050	4,900
Wellington	\$NZD	4,700	5,600	NA	NA

Rates are in national currency per sqm of Gross Floor Area except as follows:
Chinese cities, Hong Kong and Macau: Rates are per square metre of Construction Floor Area, measured to outer face of external walls.
Singapore, Ho Chi Minh City, Jakarta and Kuala Lumpur: Rates are per square metre of Construction Floor Area, measured to outer face of external walls and inclusive of covered basement and above ground parking areas.
Chinese cities, Hong Kong, Macau and Singapore: All hotel rates are inclusive of Furniture, Fittings and Equipment (FF&E).

Cost per m ²					
RETAIL				RESIDENTIAL MULTI STOREY	
Mall		Strip Shopping			
Low	High	Low	High	Low	High
2,155	3,230	1,615	2,585	1,990	3,390
1,990	4,305	1,615	2,690	1,940	4,520
1,560	2,530	1,455	2,475	1,990	3,500
2,800	5,920	2,585	4,415	2,850	4,790
1,290	5,165	1,130	2,045	1,615	3,820
1,775	3,875	1,505	2,155	2,585	4,090
3,390	6,780	3,605	7,105	2,420	4,575
1,885	3,175	1,075	1,830	1,670	2,635
2,260	3,390	1,990	2,800	2,260	3,390
3,335	5,490	2,530	4,305	4,145	6,460
2,530	4,035	1,885	3,120	2,635	4,465
1,940	3,500	1,560	2,585	2,205	3,820
10,300	15,650	7,100	10,400	6,650	9,650
8,150	12,450	5,750	8,600	5,450	7,450
9,450	13,350	6,430	9,050	5,800	8,350
22,480	29,950	NA	NA	19,500	27,270
24,700	30,900	17,000	20,900	27,600	43,500
7,100	9,600	NA	NA	8,500	17,000
2,400	3,800	NA	NA	2,500	4,800
19,100	23,700	13,100	15,600	15,750	22,850
44,700	68,000	37,600	62,900	63,200	106,800
2,200	2,950	1,420	1,960	2,330	3,080
8,800	14,050	6,150	9,200	5,800	8,250
8,650	13,500	6,200	8,400	5,900	8,300
2,400	4,050	NA	NA	3,050	4,150
3,500	4,950	1,580	2,500	1,980	2,800
3,200	4,450	1,540	2,350	1,480	2,150
3,850	5,400	1,880	2,800	2,700	4,550
3,650	5,100	1,760	2,700	2,550	3,100
4,300	6,700	NA	NA	5,100	6,900
4,500	7,100	NA	NA	5,500	7,300
3,500	6,500	3,000	4,150	7,200	14,750
5,200	5,800	NA	NA	NA	NA
1,820	3,300	1,600	1,940	NA	NA
3,350	3,700	2,650	3,400	NA	NA
3,000	4,500	2,000	2,500	4,200	5,000
2,600	4,400	1,600	2,700	NA	NA
2,900	3,200	2,200	2,800	NA	NA
1,900	2,850	1,960	2,850	NA	NA
2,550	3,700	1,500	2,250	4,150	5,000
2,400	3,700	1,600	2,300	4,100	5,200
2,450	5,300	1,820	3,650	5,400	7,000
3,300	3,500	NA	NA	NA	NA

Building Costs

All costs are stated in local currency as shown below, as at Fourth Quarter 2022. The following data represents estimates of current building costs in the respective market. Costs may vary as a consequence of factors such as site conditions, climatic conditions, standards of specification, market conditions etc.

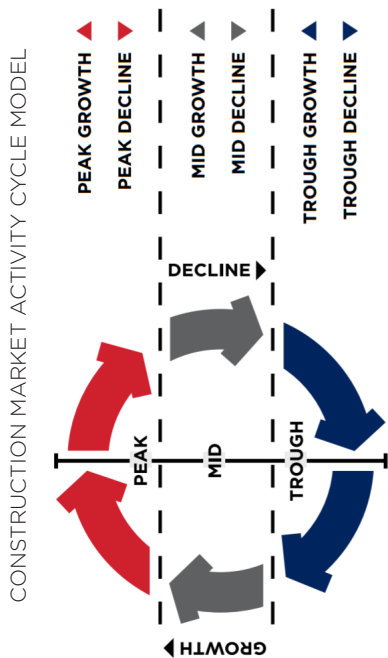
Location /City	Local Currency	Cost per m²			
		HOTELS			
		3 Star		5 Star	
		Low	High	Low	High
AMERICAS					
Boston	\$USD	2,960	4,200	4,305	6,245
Chicago	\$USD	3,445	4,845	4,845	7,535
Denver	\$USD	3,070	4,465	3,930	6,190
Honolulu	\$USD	3,985	6,350	6,945	8,450
Las Vegas	\$USD	1,990	3,390	3,335	6,245
Los Angeles	\$USD	3,175	4,035	4,200	6,190
New York	\$USD	3,605	4,900	4,900	7,320
Phoenix	\$USD	1,990	2,960	3,765	5,920
Portland	\$USD	3,015	4,145	3,875	4,950
San Francisco	\$USD	4,090	6,460	5,650	8,340
Seattle	\$USD	3,120	4,305	4,415	6,890
Washington D.C.	\$USD	3,015	4,680	4,575	6,995
ASIA					
Beijing	RMB	11,778	15,222	15,909	21,000
Chengdu	RMB	9,811	12,333	13,000	16,727
Guangzhou	RMB	11,056	13,444	14,909	19,273
Ho Chi Minh City	VND('000)	28,230	36,480	40,150	48,170
Hong Kong	\$HKD	31,222	35,889	37,182	45,364
Jakarta	Rp('000)	16,600	20,000	23,600	27,000
Kuala Lumpur	RINGGIT	2,700	3,900	5,500	8,500
Macau	MOP	23,667	27,222	29,364	36,000
Manila	PHP	67,000	81,900	108,000	254,000
Seoul	KRW('000)	2,200	3,060	4,110	6,030
Shanghai	RMB	10,667	13,778	14,545	19,182
Shenzhen	RMB	10,778	13,556	14,273	18,727
Singapore	\$SGD	NA	NA	NA	NA
EUROPE					
Birmingham	GBP	1,600	2,550	2,700	3,850
Bristol	GBP	1,540	2,050	2,650	3,550
London	GBP	2,050	2,600	3,050	4,050
Manchester	GBP	1,860	2,350	2,800	3,800
MIDDLE EAST & AFRICA					
Abu Dhabi	AED	6,300	8,800	9,300	12,500
Dubai	AED	6,600	9,800	9,800	15,500
Saudi Arabia	SAR	6,800	8,700	18,250	21,750
Doha	QAR	5,300	7,900	9,500	12,750
OCEANIA					
Adelaide	\$AUD	3,500	4,000	5,200	5,700
Auckland	\$NZ	5,000	6,000	6,800	7,500
Brisbane	\$AUD	3,600	5,000	5,000	6,500
Canberra	\$AUD	3,350	5,800	4,600	6,900
Christchurch	\$NZ	4,700	5,100	5,600	6,800
Darwin	\$AUD	3,000	3,750	3,800	4,750
Melbourne	\$AUD	3,400	4,350	4,750	6,500
Perth	\$AUD	3,300	4,600	4,400	6,000
Sydney	\$AUD	3,950	5,100	5,500	7,000
Wellington	\$NZ	4,600	5,100	5,700	7,500

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Singapore, Ho Chi Minh City, Jakarta and Kuala Lumpur: Rates are per square metre of Construction Floor Area, measured to outer face of external walls and inclusive of covered basement and above ground parking areas.
Chinese cities, Hong Kong, Macau and Singapore: All hotel rates are inclusive of Furniture, Fittings and Equipment (FF&E).

Cost per m²					
CAR PARKING				INDUSTRIAL WAREHOUSE	
Multi Storey		Basement			
Low	High	Low	High	Low	High
915	1,505	1,075	1,720	1,185	2,045
860	1,400	1,505	2,690	1,290	2,155
1,560	2,155	2,155	2,690	1,130	2,100
1,615	2,155	1,775	2,905	1,290	2,690
540	915	755	1,560	755	1,075
1,185	1,400	1,505	2,155	1,400	2,100
1,075	1,990	1,505	2,420	1,290	2,315
540	970	860	1,455	805	1,345
1,505	1,940	1,720	2,635	1,720	2,585
1,400	2,100	2,585	3,715	1,615	2,745
1,130	1,505	1,830	2,585	1,560	2,260
755	1,025	970	1,670	1,400	2,260
2,750	3,750	4,575	7,925	6,850	8,550
2,314	3,200	4,050	6,700	5,250	5,700
2,400	3,440	4,275	7,350	6,070	7,350
8,950	13,970	18,380	26,250	NA	NA
10,800	13,800	23,200	31,500	15,800	18,900
4,100	5,100	6,500	8,600	5,500	6,800
800	1,300	1,400	3,600	1,100	2,000
NA	NA	10,900	13,700	NA	NA
21,100	38,000	46,300	55,000	73,700	161,000
855	1,053	1,092	1,397	1,470	1,840
2,400	3,450	4,513	7,450	5,950	7,300
2,490	3,350	4,425	7,450	5,800	7,150
880	1,420	1,840	2,700	1,580	2,250
440	860	1,000	1,740	1,140	1,980
470	920	1,100	1,720	920	1,720
490	980	1,300	2,150	1,120	2,150
690	860	1,300	1,860	1,040	1,900
1,900	3,700	3,000	4,700	2,900	3,400
2,600	3,900	3,400	4,900	3,300	4,400
2,600	3,300	3,500	4,150	4,500	4,700
NA	NA	3,000	4,800	NA	NA
760	1,080	1,500	2,200	1,720	2,400
1,360	2,000	2,800	3,200	2,100	2,600
1,300	1,800	1,900	2,500	2,300	2,900
850	1,420	1,160	1,980	1,800	2,900
1,200	1,660	2,300	2,500	2,050	2,400
840	1,440	1,380	1,760	2,000	2,750
930	1,480	1,480	2,050	1,740	2,300
840	1,300	2,300	3,900	1,700	2,400
940	1,500	1,380	2,350	2,600	3,550
1,600	1,840	3,200	3,400	2,000	2,450

Construction Market Activity Cycle Model

The Cycle Model illustrates the different growth and decline zones in a theoretical construction industry business cycle. The tabulation in the following page provides an overview of the relative growth/decline of each development sector in various cities. Each city has its own industry business cycle in the context of its own economy, and as such the performance of each development sector is not strictly comparable between cities. Reflected data is as at Fourth Quarter 2022.



Sector Data

LOCATION	HOUSES	APARTMENTS	OFFICES	INDUSTRIAL	RETAIL	HOTEL	CIVIL
AMERICAS							
BOSTON	▲	▲	▲	▲	▲	▲	▲
CHICAGO	▲	▲	▲	▲	▲	▲	▲
DENVER	▲	▲	▲	▲	▲	▲	▲
HONOLULU	▲	▲	▲	▲	▲	▲	▲
LAS VEGAS	▲	▲	▲	▲	▲	▲	▲
LOS ANGELES	▲	▲	▲	▲	▲	▲	▲
NEW YORK	▲	▲	▲	▲	▲	▲	▲
PHOENIX	▲	▲	▲	▲	▲	▲	▲
PORTLAND	▲	▲	▲	▲	▲	▲	▲
SAN FRANCISCO	▲	▲	▲	▲	▲	▲	▲
SEATTLE	▲	▲	▲	▲	▲	▲	▲
WASHINGTON DC	▲	▲	▲	▲	▲	▲	▲
ASIA							
BEIJING	▲	▲	▲	▲	▲	▲	▲
CEBU	▲	▲	▲	▲	▲	▲	▲
GUANGZHOU	▲	▲	▲	▲	▲	▲	▲
HO CHI MINH CITY	▲	▲	▲	▲	▲	▲	▲
HONG KONG	▲	▲	▲	▲	▲	▲	▲
JAKARTA	▲	▲	▲	▲	▲	▲	▲
KUALA LUMPUR	▲	▲	▲	▲	▲	▲	▲
MACAU	▲	▲	▲	▲	▲	▲	▲
MANILA	▲	▲	▲	▲	▲	▲	▲
SEOUL	▲	▲	▲	▲	▲	▲	▲
SHANGHAI	▲	▲	▲	▲	▲	▲	▲
SHENZHEN	▲	▲	▲	▲	▲	▲	▲
SINGAPORE	▲	▲	▲	▲	▲	▲	▲

Sector Data

LOCATION	HOUSES	APARTMENTS	OFFICES	INDUSTRIAL	RETAIL	HOTEL	CIVIL
EUROPE							
BIRMINGHAM	▲	▲	▲	▲	▲	▲	▲
LONDON	▲	▲	▲	▲	▲	▲	▲
MANCHESTER	▲	▲	▲	▲	▲	▲	▲
MIDDLE EAST							
ABU DHABI	▲	▲	▲	▲	▲	▲	▲
DUBAI	▲	▲	▲	▲	▲	▲	▲
RIYADH	▲	▲	▲	▲	▲	▲	▲
OCEANIA							
ADELAIDE	▲	▲	▲	▲	▲	▲	▲
AUCKLAND	▲	▲	▲	▲	▲	▲	▲
BRISBANE	▲	▲	▲	▲	▲	▲	▲
CANBERRA	▲	▲	▲	▲	▲	▲	▲
CHRISTCHURCH	▲	▲	▲	▲	▲	▲	▲
DARWIN	▲	▲	▲	▲	▲	▲	▲
GOLD COAST	▲	▲	▲	▲	▲	▲	▲
MELBOURNE	▲	▲	▲	▲	▲	▲	▲
PERTH	▲	▲	▲	▲	▲	▲	▲
SYDNEY	▲	▲	▲	▲	▲	▲	▲
WELLINGTON	▲	▲	▲	▲	▲	▲	▲

Philippine Construction Information

Building for Ecologically Responsive Design Excellence (B.E.R.D.E.)

LEED® Green Building Rating System

WELL Building Standard (International WELL Building Institute)

Excellence in Design for Greater Efficiencies (EDGE)

Development Data Measurement of Building Areas

Government System Implemented for Private and Public Construction

Construction Industry-Related Agencies

Building for Ecologically Responsive
Design Excellence (BERDE)

BERDE is the National Voluntary Green Building Rating System in the Philippines. It is developed by the Philippine Green Building Council (PHILGBC), and is used to measure, verify, and monitor the environmental performance of buildings that exceeds existing mandatory regulations and standards. It is consensus-driven, and achieved through a multi-stakeholder consultation and collaboration process.

Version Development Process and Rating Scheme

In 2007, the PHILGBC formed the BERDE Program to develop a nationally accepted and recognized rating system. The BERDE Program is administered and implemented by the BERDE Committee, a multi-sectoral committee with members appointed by the PHILGBC Board of Trustees from its members and partners. This committee also serves as the program's Technical Management Board to ensure a technically balanced green building rating system.

A BERDE green building rating scheme undergoes a series of workshops and consultations with industry stakeholders before its final release and adoption.



BERDE Assessment and Certification for Buildings

1. Project Registration

The building owner submits the project information and commits to the certification process, and with compliance to all relevant building and environment laws, regulations and mandatory standards.

2. Design Assessment

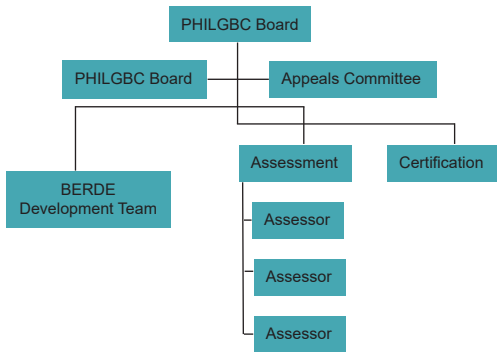
The project proponent submit design plans, specifications, calculations and other documented and verifiable proof

of compliance to the intent of BERDE. The certification body shall form a team of BERDE Assessors to review and assess the submittal. A project is deemed BERDE Design Certified once found compliant to BERDE and meets at least a cumulative score of 51.

3. Construction Assessment and BERDE Certification

Once the building is completely constructed and ready for occupancy and/or operational, the project proponents submit as-built plans and other robust documentation as evidence of compliance to the intent of BERDE. Once the project is found compliant with the requirements of BERDE and meets at least a cumulative point of 51, the project is certified BERDE and is presented with a rating equivalent to the points achieved.

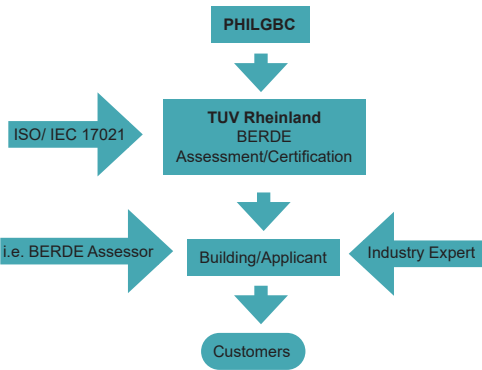
Developing the BERDE Certification Functional Chart



The PHILGBC Board of Trustees is the highest policy making body in the BERDE Rating System structure and owns the BERDE Certification Mark.

The BERDE Development Team drafts, finalizes, and approves the BERDE Rating Program. They conduct periodic review of the Rating Program and provide technical assistance, where necessary, in its interpretation. TÜV Rheinland Philippines undertakes the BERDE assessment activities, to include documentation review, assessment, and assessment reporting. They appoint a technical review or certification person/panel to independently review the Assessment Report and be responsible for the award of the BERDE Certification.

BERDE Rating Certification Structure



Technical Assessors and Experts Pool

TÜV Rheinland Philippines supports the PHILGBC in the development of the criteria for the Technical Assessors and Experts. TÜV Rheinland Philippines maintains a list of its technical assessors and experts pool for the BERDE Rating Program.

TÜV Rheinland Philippines in collaboration with PHILGBC undertakes capacity building programs, such as trainings or workshops in order to qualify the technical assessors and experts and ensure that they have common understanding on the interpretation of the BERDE Rating system, thus ensure the consistent implementation and assessment of the BERDE Rating program. A regular Experience Exchange program shall be required to all qualified technical assessors and experts in order to maintain their appointment status.

As part of TÜV Rheinland Philippines’ compliance with ISO/IEC 17021, it ensures that the designated assessment team, including the technical assessors and experts, are not in any way involved in the consulting for the applicant or project.

Proposed Timeline for BERDE Rating Program

Man-day Table and Fee Structure

TÜV Rheinland Philippines charges on a man-day rate basis for its assessment and certification and/or registration activities. TÜV Rheinland Philippines in collaboration with

PHILGBC, develops a man-day table or matrix to determine how much time (man-days) is needed, considering the size and complexity of the project, such as location, size of lot, number of floors of the building, for the Assessment Team to spend for its assessment and certification activities, such as but not limited to documentation review, assessment and documentation/report preparation. TÜV Rheinland Philippines shall charge the current man-day rate and registration fees duly approved by PHILGBC and published accordingly.

Minimum Program Requirements

Each project must meet minimum requirements in order to quality for BERDE certification. All projects must comply with applicable environmental laws, be a complete permanent building or space, have a site boundary (distinct property lines), comply with minimum occupancy rates, commit to sharing whole building energy and water usage data, and comply with a minimum building area to site-area ratio.

Scoring and Rating

The BERDE Rating System provides a cross-cutting measure of building performance. Weighting is a central concern when combining performance across credits and credit categories. This work is an effort for the BERDE weighting system to address the social, economic and environmental impact priorities of the Philippines.

Objectives

The BERDE 1.0 Credit Weighting Tool was developed to provide a transparent and reproducible system for understanding building impacts and using this information to assign weights to individual BERDE credits. The workbook is a decision support tool that is intended to provide a framework for credit weighting – and not definitive answers.

Weighting Approach

The BERDE weighting system is based on the concept that the value of credits or CRITERIA will be determined by a basic weighting equation (see following page). This equation brings together information on indicators addressed, impact categories (i.e. social, economic, environmental), and the relative importance of CRITERIA indicators. This approach is implemented in a Microsoft Excel based workbook called the BERDE 1.0 Credit Weighting Tool. The tool ultimately provides a set of credit weightings such as those illustrated in the succeeding pages.

Basic Weighing Equation

UN Sustainable Development Indicators Addressed

X

Social, Economic and Environmental Impacts

X

Relative Importance of Each Impact

=

Credit or Criteria Weight

Definitions:

Indicators Addressed:

Each BERDE requirement or criteria addresses different U.N. Sustainable Development Indicators (SDIs).

Environmental Impacts:

Each U.N. Sustainable Development Indicator belongs to different impact categories (Social, Economic and Environmental).

Relative Importance:

Each relevant Database Indicator, that belongs to different UN SDIs, compares the Philippines' standing against the rest of the world. The data puts the Philippines better or worse than the World average. A "worse than the world average" standing gives the indicator a relative importance.

Data source: www.berdeonline.org

BERDE for New Construction - Commercial Buildings

SUMMARY OF POINTS

Management	Points
MN-PT-1 : BERDE Consultant	2
MN-PT-2 : Stakeholder Consultation	6
MN-PT-3 : Design Charrette	1
MN-PT-4 : Security	1
MN-PT-5 : Sustainability Commitment	1 - 4

Land Use and Ecology	Points
LE-PT-1 : Land Re-use	2 - 6
LE-PT-2 : Protection and Improvement of Ecological Features	2 - 6
LE-PT-3 : Pro-Local Biodiversity Open Space	2 - 3
LE-PT-4 : Heat Island Effect : Non-Roof	1 - 2
LE-PT-5 : Heat Island Effect : Building Roof	1
LE-PT-6 : Flood Risk Minimization	2

Water	Points
WT-PT-1 : Water Sub-Metering	1
WT-PT-2 : Potable Water Consumption Reduction	1 - 4
WT-PT-3 : Efficient Landscape Irrigation	1 - 2

Energy	Points
EN-PT-1 : Energy Sub-Metering	1
EN-PT-2 : Energy Efficient Lighting	1
EN-PT-3 : Natural Ventilation	1
EN-PT-4 : On-Site Renewable Energy Generation	1
EN-PT-5 : Energy Efficiency Improvement	1
EN-PT-6 : Energy Efficient Building Envelope	1
EN-PT-7 : Energy Efficient Equipment	1
EN-PT-8 : Building Automation Systems	1 - 2

Transportation	Points
TR-PT-1 : Bicycle Rider Amenities	1
TR-PT-2 : Fuel Efficient and Low Emitting Vehicles	1

Transportation	Points
TR-PT-3 : Parking	3
TR-PT-4 : Proximity To Key Establishments	3
TR-PT-5 : Public Access	1
TR-PT-6 : Contribution To Public Transport Amenities	1 - 3
TR-PT-7 : Public Transportation Access	1 - 4
TR-PT-8 : Transportation Impact Assessment	2
Indoor Environment Quality	Points
EQ-PT-1 : External View and Daylighting	1
EQ-PT-2 : Illumination Control	1
EQ-PT-3 : Glare Control	1
EQ-PT-4 : Thermal Control	1
EQ-PT-5 : Indoor Air Quality	1
EQ-PT-6 : Microbial Contamination Prevention	1
EQ-PT-7 : Low VOC Environment	1
Materials	Points
MT-PT-1 : Civil Works	2
MT-PT-2 : Electrical Works	2
MT-PT-3 : Architectural Works and Finishes	2
Emissions	Points
EM-PT-1 : Pollutant and Greenhouse Gas Inventory	2
EM-PT-2 : Ozone Protection	1
EM-PT-3 : Emission Control	1
Waste	Points
WS-PT-1 : Construction Waste Diversion	2 - 6
WS-PT-2 : Materials Recovery Facility	5
Heritage Conservation	Points
HC-PT-1 : Heritage Feature Protection	3
HC-PT-2 : Heritage Features Promotion	1
Innovation	Points
IN-PT-1 : Innovation In Design Or Process	1 - 10
IN-PT-2 : Innovation In Performance	

Under MN:	Points
- Conduct a design phase commissionability review	1
- Conduct of extended commissioning after one year	1
Under LE:	Points
- Flood risk assessment report data based on 50-year, 24-hour rainfall	1
- Flood risk assessment report data based on 100-year, 24-hour rainfall	1
Under WT:	Points
- Installation of water submeters for major water usages accounting for 40% of total water consumption	1
- Integration of water metering system with BAS	1
Under EN:	Points
- BAS in place for monitoring MVAC	1
- Conduct of CFD studies of naturally ventilated spaces	1
- Annual energy reduction cost greater than 15%	1
- 25% energy reduction OR 150 kWh/m ² per year (12-hour operation) OR 300 kWh/m ² per year (24-hour operation)	1
- Energy modelling reports representing building performance	1
- 10% improvement above minimum EER for unitary A/Cs OR 10% improvement in efficiency baseline for chillers	1
- 20% improvement above minimum EER for unitary A/Cs OR 20% improvement in efficiency baseline for chillers	2
- 30% improvement above minimum EER for unitary A/Cs OR 30% improvement in efficiency baseline for chillers	3
- Inclusion of lifts, lighting, RE systems, and external loads in BAS	1
Under EQ:	Points
- Use of automatic lighting controls	1
- 100% compliance with required VOC levels for materials	1
Under MT:	Points
- Any three of the criteria identified in MT-PT-1 are met	1
- All criteria identified in MT-PT-1 are met	2
- All criteria identified in MT-PT-2 are met	1

TOTAL POINTS
100
maximum
points

Data Source: BERDE-NC-COM v1.1.0 (2013)

LEED® Green Building Rating System

LEED, or **Leadership in Energy & Environmental Design**, is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for their project.

I. BACKGROUND OF LEED®

Following the formation of the U.S. Green building council (USGBC) in 1993, the organization's members quickly realized that the sustainable building industry needed a system to define and measure "green buildings." USGBC began to research existing green building metrics and rating systems. Less than a year after formation, the members acted on the initial findings by establishing a committee to focus solely on this topic. The composition of the Committee was diverse; it included architects, real estate agents, a building owner, a lawyer, an environmentalist, and Industry representatives. This cross section of people and professions added richness and depth both to the process and to the ultimate product.

Features of LEED®

The LEED Green Building Rating Systems are voluntary, consensus-based, and market-driven. Based on existing and proven technology, they evaluate environmental performance from a whole building perspective over a building's life cycle, providing a definitive standard for what constitutes a green building in design, construction, and operation.

The LEED Credit Weightings

In LEED 2009, the allocation of points between credits is based on the potential environmental impacts and human benefits of each credit with respect to a set of impact categories. The impacts are defined as the environmental or human effect of the design, construction, operation, and maintenance of the building, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, indoor environmental conditions. A combination of approaches, including energy modelling, life-cycle assessment, and transportation analysis, is used to quantify each type of impact. The resulting allocation of points among credits is called credit weighting.

The LEED 2009 credit weightings process is based on the following parameters, which maintain consistency and usability across rating systems:

- All LEED credits are worth a minimum of 1 point.
- All LEED credits are positive, whole numbers; there are no fractions or negative values.
- All LEED credits receive a single, static weight in each rating system; there are no individualized scorecards based on project location.
- All LEED rating systems have 100 base points; Innovation in Design (or Operations) and Regional Priority credits provide opportunities for up to 10 bonus points.

Given the above criteria, the LEED 2009 credit weightings process involves 3 steps:

1. A reference building is used to estimate the environmental impacts in 13 categories associated with a typical building pursuing LEED certification.
2. The relative importance of building impacts in each category are set to reflect values based on the NIST weightings.
3. Data that quantify building impacts on environmental and human health are used to assign points to individual credits.

Each credit is allocated points based on the relative importance of the building-related impacts that it addresses. The result is a weighted average that combines building impacts and the relative value of the impact categories.

II. OVERVIEW AND PROCESS

The LEED 2009 green building rating system for new construction and major renovations is a set of performance Standards for certifying the design and construction of commercial or institutional buildings and high-rise Residential buildings of all sizes, both public and private. The intent is to promote healthful, durable, affordable, and environmentally-sound practices in building design and construction.

Prerequisites and credits in the LEED 2009 for new construction and major renovations addresses 7 topics:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR)

- Indoor Environmental Quality (IEQ)
- Innovation In Design (ID)
- Regional Priority (RP)

LEED 2009 for new construction and major renovations certifications are awarded according to the following scale:

- | | |
|-------------|---------------------|
| • Certified | 40-49 points |
| • Silver | 50-59 points |
| • Gold | 60-79 points |
| • Platinum | 80 points and above |

The Green Building Certification Institute (GBCI), which administers the LEED certification program, will recognize buildings that achieve 1 of these rating levels with a formal letter of certification.

When to Use LEED 2009 for New Construction

LEED for new construction was designed primarily for new commercial office buildings, but it has been applied to many other building types by LEED practitioners. All commercial buildings, as defined by standard building codes are eligible for certification as LEED for new construction buildings. Examples of commercial occupancies include offices, institutional buildings (libraries, museums, churches, etc.), hotels, and residential buildings of 4 or more habitable stories.

Registration

Project teams interested in earning LEED certification for their buildings must first register the project with GBCI. Projects can be registered on the GBCI website (www.gbci.org). The website also has information on registration costs for USGBC national members as well as non-members. Registration is an important step that establishes contact with GBCI and provides access to software tools, errata, critical communications, and other essential information.

Certification

To earn LEED certification, the applicant project must satisfy all the prerequisites and qualify for a minimum number of points to attain the established project ratings. Having satisfied the basic prerequisites of the program, applicant projects are then rated according to their degree of compliance within the rating system.

III. MINIMUM PROGRAM REQUIREMENTS

The LEED 2009 minimum program requirements (MPRS) define the minimum characteristics that a project must possess in order to be eligible for certification under LEED 2009. These requirements define the categories of buildings that the LEED rating systems were designed to evaluate, and taken together serve three goals: to give clear guidance to customers, to protect the integrity of the LEED program, and to reduce challenges that occur during the LEED certification process. It is expected that MPRS will evolve over time along with LEED rating system improvements. The requirements will apply only to those projects registering under LEED 2009.

To view the MPRS and the MPR supplemental guidance, visit the LEED resources and tools section at www.usgbc.org.

IV. Exemplary Performance Strategies

Exemplary performance strategies result in performance that greatly exceeds the performance level or expands the scope required by an existing LEED 2009 for new construction credit. To earn exemplary performance credits, teams must meet the performance level defined by the next step in the threshold progression. For credits with more than 1 compliance path, an innovation in design point can be earned by satisfying more than 1 compliance path if their benefits are additive.

The credits for which exemplary performance points are available through expanded performance or scope are noted in the LEED reference guide for green design & construction, 2009 edition and in LEED-Online.

Data Source: www.usgbc.org

LEED 2009 for New Construction and Major Renovations Project Checklist

Sustainable Site	26 possible points	
Prerequisite 1	Construction Activity Pollution Prevention	Required
Credit 1	Site Selection	1
Credit 2	Development Density and Community Connectivity	5
Credit 3	Brownfield Redevelopment	1
Credit 4.1	Alternative transportation: Public transportation access	6
Credit 4.2	Alternative transportation: Bicycle storage and Changing rooms	1
Credit 4.3	Alternative transportation: Low-Emitting and fuel-Efficient vehicles	3
Credit 4.4	Alternative transportation: Parking Capacity	2
Credit 5.1	Site Development: Protect or Restore Habitat	1
Credit 5.2	Site Development: Maximize open space	1
Credit 6.1	Stormwater Design: Quantity Control	1
Credit 6.2	Stormwater Design: Quality Control	1
Credit 7.1	Heat island Effect: Non-roof	1
Credit 7.2	Heat island Effect: Roof	1
Credit 8	Light Pollution Reduction	1

Water Efficiency	10 possible points	
Prerequisite 1	Water Use Reduction	Required
Credit 1	Water Efficient Landscaping	2-4
Credit 2	Innovative Wastewater Technologies	2
Credit 3	Water Use Reduction	2-4

Energy and Atmosphere	10 possible points	
Prerequisite 1	Water Use Reduction	Required
Prerequisite 2	Water Efficient Landscaping	Required
Prerequisite 3	Innovative Wastewater Technologies	Required
Credit 1	Optimize Energy performance	1-19
Credit 2	On-site Renewable Energy	1-7
Credit 3	Enhanced Commissioning	2
Credit 4	Enhanced refrigerant Management	2
Credit 5	Measurement and Verification	3
Credit 6	Green Power	2

Materials and resources	14 possible points	
Prerequisite 1	Storage and Collection of recyclables	Required
Credit 1.1	Building reuse: Maintain Existing walls, floors and roof	1-3
Credit 1.2	Building reuse: Maintain Existing interior Non-structural Elements	1
Credit 2	Construction Waste Management	1-2
Credit 3	Materials Reuse	1-2
Credit 4	Recycled Content	1-2
Credit 5	Regional Materials	1-2
Credit 6	Rapidly Renewable Materials	1
Credit 7	Certified Wood	1

Indoor Environmental Quality	15 possible points	
Prerequisite 1	Minimum Indoor Air Quality Performance	Required
Prerequisite 2	Environmental Tobacco Smoke (ETS) Control	Required
Credit 1	Outdoor Air Delivery Monitoring	1
Credit 2	Increased Ventilation	1
Credit 3.1	Construction Indoor Air Quality Management Plan: During Construction	1

Indoor Environmental Quality	15 possible points	
Credit 3.2	Construction Indoor Air Quality Management Plan: Before Occupancy	1
Credit 4.1	Low-Emitting Materials: Adhesives and Sealants	1
Credit 4.2	Low-Emitting Materials: Paints and Coatings	1
Credit 4.3	Low-Emitting Materials: Flooring systems	1
Credit 4.4	Low-Emitting Materials: Composite Wood And Agrifiber Products	1
Credit 5	Indoor Chemical And Pollutant Source Control	1
Credit 6.1	Controllability Of Systems: Lighting	1
Credit 6.2	Controllability Of Systems: Thermal Comfort	1
Credit 7.1	Thermal Comfort: Design	1
Credit 7.2	Thermal Comfort: Verification	1
Credit 8.1	Daylight And Views: Daylight	1
Credit 8.2	Daylight And Views: Views	1

Innovation in Design	6 possible points	
Credit 1	Innovation in Design	1-5
Credit 2	LEED accredited professional	1

Regional Priority	4 possible points	
Credit 1	Regional Priority	1-4

LEED 2009 for New Construction and Major Renovations
100 base points; 6 possible Innovations in Design and 4 Regional Priority points

- Certified** 40-49 points
- Silver** 50-59 points
- Gold** 60-79 points
- Platinum** 80 points and above

Data Source: LEED 2009 for New Construction and Major Renovations Rating System. USGBC Member Approved November 2008 (Updated July 2016).

WELL Building Standard
(International WELL Building Institute)

The WELL Building Standard is the world’s first building standard that was developed to fuse design with human health and wellness as its centrepiece. WELL is about the effect of the environment on the individual, both physiologically and psychologically. It is a whole new dimension and a holistic take of what it means to live well and healthy within the bounds of the built-in environment.

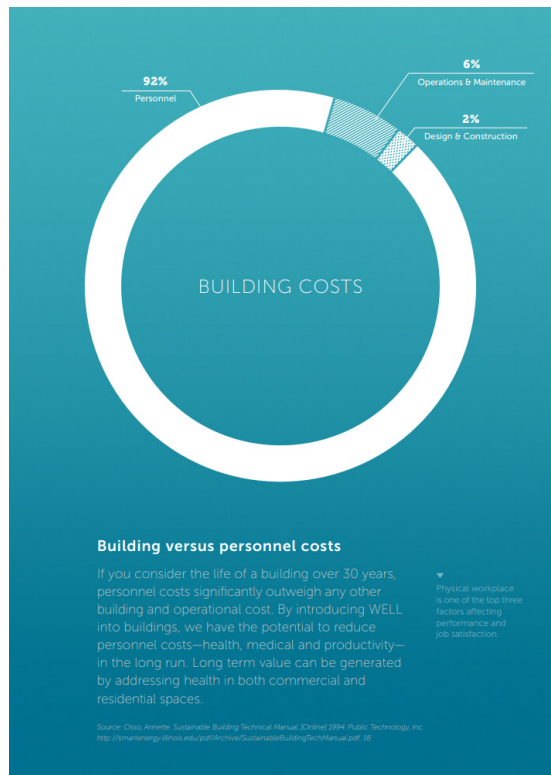
The WELL Building Standard was launched by design agency Delos Group, a New York-based developer whose founder, Paul Scialla introduced a new concept to improve the way people live by developing spaces that enhance occupant health and quality of life by sharing WELL principles globally. WELL version 1 was first introduced in October 2014 and through further research and studies, was developed and expanded into WELL version 2 that was launched in 2018. It is managed and administered by the International WELL Building Institute (IWBI), an American public benefit corporation and third-party certified by Green Business Certification, Inc. (GBCI), the same group that administers LEED certification.

WELL is an independently verifiable, performance-based system for measuring, certifying and monitoring features of the built environment that have impact on human health and well-being. It combines the best practices in design and construction grounded in a body of evidence-based medical and scientific research. It is designed to complement and work seamlessly with green building rating systems, such as LEED, living building challenge, three star, green star and bream.

WELL harnesses buildings as vehicles to support human health and well-being. WELL is composed of over 100 features that can be applied to each building project for a customized approach. Each WELL feature is designed to address issues that impact health and wellness through design, operations and behaviour.

WELL certified spaces and WELL compliant core and shell developments can help create a built environment that improves nutrition, fitness, mood, sleep patterns, productivity and performance of the people working, living, shopping, or playing inside of them. It is an investment in the world’s most valuable asset - people.

WELL provides a framework for project teams to incorporate a variety of strategies to integrate human health and well-being at the heart of building design, construction and operations. It can add value to real estate assets, generate savings in personnel costs and enhance human health, well-being, and experience.



The WELL Building Standard™ version 2 (WELL v2™) is a vehicle that aspires to transform buildings and organizations in ways that deliver more thoughtful and intentional spaces to advance human health and well-being and help people thrive. WELL v2 includes a set of strategies backed by the latest scientific research

that aim to foster a culture of health and well being through design interventions and operational protocols and policies. This has been the mission since WELL was launched in 2014.

Built upon the pioneering foundation of the first version (WELL v1); WELL v2 draws expertise from a diverse community of WELL users, practitioners, public health professionals and building scientists around the world. It can be applied across many real estate sectors. WELL is also organized into project types which take into account the specific set of considerations that are unique to a particular building type or phase of construction.

WELL v2: Equitable, Local, Dynamic

WELL v2 is a global tool being utilized in more than 50 countries. In order to tailor-fit it for people and spaces around the world, it approached the goal of globalization through a strategy of localization; taking into consideration regional health concerns, cultural norms and market realities. The latest version of WELL is designed to be regularly and proactively adapted to varying contexts and constructs, making it relevant and readily applicable to spaces and places across the globe.

WELL v2 is a dynamic tool since it is built in a system that can continuously learn, evolve and improve. With every WELL project comes a powerful opportunity to catalyze built spaces as mechanisms to deliver health and wellness benefits to all people within them.

In 2020, the International WELL Building Institute (IWBI) formed a Governance Council composed of key global thought leaders, doctors, public health professionals and business executives. The IWBI Governance Council is tasked with a dual purpose of upholding the integrity of the WELL Building Standard development process and accelerating market transformation at a global scale. The first task of the Governance Council was to vote confirm that WELL v2 meets the defined best practices for standard development and that each WELL feature meets four tenets:

1. Evidence-based

Each WELL feature is underscored by available evidence that links design, policy and built environment strategies to health and well-being outcomes. Features are substantiated by diverse and rigorous evidence-based studies, including peer-reviewed

literature; academic research; and leading design standards, laws, codes and best practices.

2. Verifiable

All WELL features are third-party verified by GBCI through documentation and/or performance testing.

3. Implementable

All WELL v2 features have been tested through WELL v1 and/or WELL v2 pilot demonstrating adoption and uptake by projects across the world.

4. Presented for outside input

At every step of the way, IWBI gathered feedback from a diverse community of practitioners, subject matter experts, users and other third parties to inform the development and evolution of WELL.

Principles of WELL v2

WELL v2 is founded on the following principles:

- **Equitable:** Aims to benefit a variety of people, including and especially disadvantaged or vulnerable populations.
- **Global:** Proposes interventions that are feasible, achievable and relevant across many applications throughout the world.
- **Evidence-based:** Draws upon a diverse and rigorous body of research across varying disciplines, validated by a collaborative body of experts, including IWBI advisors.
- **Technically robust:** Defines industry best practices and validates strategies through performance verification and a rigorous third-party verification process.
- **Customer-focused:** Sponsors the success of WELL users through dedicated coaching services, dynamic resources and an intuitive platform for navigating the journey.
- **Resilient:** Keeps pace with advances in research, science, technology and society, continuously improving by integrating new findings.

Project Types

WELL v2 projects fall into one of two main groups, determined primarily by ownership type:

- **Owner-occupied**
The project is mainly occupied by the project owner.
- **WELL Core**
The project owner occupies a small portion of the project area and rents/leases most of the space to one or more tenants.

Owner-Occupied Projects: Interiors represent a particular case of owner-occupied projects, where the project owner rents/leases space within a larger building that is less than half the size of the base building.

WELL Core Projects: Is a distinct pathway for core and base buildings seeking to implement fundamental features to benefit tenants. In these projects, the majority of regular occupants are not affiliated with the project owner. Any building type can register for WELL Core, provided that at least 75% of the project area is occupied by one or more tenants and/or serves as common space in the building accessible to all tenants.

Concepts of WELL

The original WELL v1 promotes 7 concepts which were later expanded into WELL v2 that now comprise 10 concepts. Each WELL concept consists of features with distinct health intents. Features are either preconditions or optimizations.

WELL v1	WELL v2
1. Air 2. Water 3. Nourishment 4. Light 5. Fitness 6. Comfort 7. Mind	1. Air 2. Water 3. Nourishment 4. Light 5. Movement 6. Thermal Comfort 7. Sound 8. Materials 9. Mind 10. Community

Each concept is broken down into features intended to optimize the health and well-being of the people inside a building through dedicated strategies and tactics, while minimizing harmful side effects associated with spending time indoors. Features are categorized as either preconditions which are necessary to achieve all levels of WELL Certification or optimizations which create flexible pathways towards each certification level, Bronze, Silver, Gold, and Platinum.

The list that follows includes features and strategies that WELL Core projects often pursue to meet their certification goals.

1. **Air:** Indoor environments are one of the only places where we have control of air quality. However, indoor air can be even more polluted than outdoor air if toxic materials or cleaning agents, which emit volatile organic compounds or semi-volatile organic compounds (VOCs and SVOCs) are present.

Informed selection of building materials, thoughtful building maintenance and an effective ventilation system can help mitigate poor indoor air quality.

- Provide robust and responsive ventilation and filtration systems
- Mitigate exposure to mold and toxicants such as VOCs, lead and asbestos
- Utilize safer cleaning products and pesticides
- Prohibit smoking onsite
- Prevent outdoor contaminants from traveling indoors at entrances
- Consider additional air sanitization and purification methods

2. **Water:** Clean water is critical for maintaining health and preventing disease, but quality of water is affected by municipal treatment and can also be contaminated by biological, chemical and radioactive pollutants.

Base building water monitoring and quality control is the most effective way to ensure high quality water is delivered to tenants.

- Provide access to high quality water
- Mitigate any water quality concerns
- Consider quarterly testing and advanced strategies such as carbon filters, reverse osmosis, and UV sanitization

3. **Nourishment:** Food plays a vital role in chronic disease prevention and weight management, helping to control against the risk of diabetes, heart disease and cancer, all of which are linked to poor diet.

Building location and operation, including availability of healthy foods and beverages, appealing presentation of healthier food options, and marketing of healthy foods can profoundly influence the choices that people make when it comes to selecting snacks and meals.

- Provide hygienic hand washing stations and suitable supplies
- Create a supportive environment for healthy food consumption
- Consider availability of healthy food options in or near the building

4. **Light:** Daylight is necessary for human growth and development, and also controls our circadian rhythm. Exposure to artificial light during the evening and nighttime can negatively affect a range of physiological functions, including cognition and sleep quality.

Building design and fit out can positively influence both the quantity and quality of light provided to tenants.

- Provide access to daylight and close proximity to windows
- Prevent unwanted glare through window shading and shielding of lights
- Consider ambient lighting systems that provide circadian benefits

5. **Movement:** Frequent movement and regular exercise are key to achieving and maintaining optimal fitness, and promoting overall health and well-being. However, modern transportation, labor-saving conveniences and office-based jobs have created an environment in which millions of people not only fail to get the minimum amount of recommended daily physical activity, but also spend too much time being sedentary.

Thoughtful building location and design allow employees and other building visitors and staff to integrate short bouts of physical activity into their day.

- Use engaging design and placement for staircases
- Consider onsite amenities such as outdoor benches, fountains, bike storage, showers and/or gym facilities

6. **Thermal Comfort:** The indoor thermal environment not only impacts our buildings' energy use, as cooling and heating in developed and many developing countries account for approximately half of a building's energy consumption, but also plays a large role in the way we experience the places where we live and work.

Thermal comfort is linked to our health, well-being and productivity and is ranked as one of the highest contributing factors influencing overall human satisfaction in buildings. Your building's interior and exterior design, as well as informed decisions about materials and base building systems, influence occupant comfort.

- Maximize productivity through improved HVAC system design
- Provide optimal thermal comfort for building occupants

7. **Sound:** Feeling comfortable and relaxed can improve productivity and focus. However, many employees report that they are uncomfortable and distracted during the day as a result of a lack of control over their indoor environmental conditions.

While noise is ubiquitous, we can adopt technologies, practices and policies designed to create quieter environments and minimize our exposure to harmful and unnecessary noise.

- Create high quality acoustic environments and minimize intrusion of internally generated noises
- Consider enhanced acoustic treatments and thermal comfort methods

8. **Materials:** Building materials and products are not only an integral part of our lives but, unlike most consumer goods, have a much longer use phase, making their chemical composition, and potential impact on indoor air quality, significant.

WELL promotes the identification, evaluation and management of hazardous ingredients across building materials, cleaning products, waste, outdoor spaces and landscaping.

- Reduce human exposure to hazardous building materials
- Enable informed decision-making
- Support innovation in green chemistry

9. **Mind:** Mental health plays a vital role in an individual's overall health and well-being: Depression alone is the leading cause of disability worldwide, and mental, neurological and substance use disorders account for 14 percent of the global burden of disease.

Thoughtful and flexible base building design can have an impact on tenant mental health and well-being, and can also help support the implementation of supportive company policies.

- Engage tenants in the process of incorporating healthy elements
- Provide health education and awareness for occupants
- Consider using biophilic design principles and celebrating local art and culture

10. **Community:** Designing built spaces in a way that enables all individuals to access, participate and thrive within the systems and structures of each community is essential to shaping individual and collective health outcomes.

Supportive base building design provides a foundation for supportive company policies.

- Support access to essential healthcare, workplace health promotion and accommodations for new parents
- Establish an inclusive, integrated community through social equity, civic engagement and accessible design

Universal Preconditions

Preconditions define the fundamental components of a WELL space and serve as the foundation of a healthy building. WELL v2 offers a universal set of preconditions for all projects. All preconditions are mandatory for certification. All parts in preconditions are likewise mandatory.

Flexible Optimizations

Optimizations are optional pathways for projects to demonstrate achievement in WELL.

Project teams may choose the optimizations they want to pursue. Further, projects may choose which parts to pursue within optimizations up to the maximum point established for the optimization.

Meaningful Weightings

WELL v2 operates on a points-based system, with 110 points available in each project. All optimizations have maximum point-values. The point-value of a feature is determined by its potential for impact. This is defined as the extent to which a feature addresses a specific health and wellness concern or opportunity for health promotion, and the potential impact of effective intervention.

Space Types

All parts of WELL v2 are designated for specific space types. Space types refer to spaces within a project and not the project as a whole. Identifying space types within a project can help clarify how WELL features apply to that particular project.

Space Type Occupancy

In addition to the classification of space types within a project, WELL v2 also distinguishes spaces based on their level of occupancy:

- **Regularly occupied space:** areas inside the project where a particular individual normally spends at least one continuous hour or, cumulatively, at least two hours per day such as offices, conference rooms, bedrooms and classrooms.

- **Occupiable space:** spaces that can be occupied for any task or activity, including transition areas or balconies, but excluding spaces that are rarely accessed such as storage spaces or equipment rooms.

Rooms larger than 930 m2 (10,000 ft2 ft) may be divided into separate zones (at least 325 m2 (3,500 ft2 each), which may be evaluated for occupancy independently.

Occupant Types

WELL uses specific terminology to refer to groups of individuals that share characteristics. Project teams must employ a single, consistent definition of these terms across relevant features:

- Occupant: any individual within the project boundary.
- Regular occupant: an individual who spends at least 30 hours per month across at least five days within the project boundary (e.g., employee, resident, student).
- Visitor: any occupant who is not a regular occupant (e.g., shopper, museum-goer, hotel guest).
- Employee: an individual who works for the project owner within the project boundary.
- Eligible employee: an employee identified as qualifying for benefits. At a minimum, this includes all full-time employees but may also include part-time employees, interns, contracted workers and other non-full-time employees as appropriate.

Feature Applicability and Scoring

Features have varying scopes of applicability for WELL Core projects, depending on the relevant population and project area.

Applicability designations are defined as follows:

- **Whole Building** includes all areas within the project boundary. To use this pathway, project teams need to submit as part of documentation review, design assumptions and sample cut-sheets (as applicable) that justify the budget and can be used by the tenant during their design and construction process.
- **Extent of Developer Build-out** includes all non-leased space and all construction within the leased space for which the project team is responsible.
- **Leased Spaces** Includes all areas within the project boundary that are leased to or owned by tenants, including areas for lease or for sale that are not currently occupied.
- **Non-leased Spaces** are areas within the project boundary that are not considered leased space.

- **Building Management Staff** are individuals responsible for maintaining and operating the building, including contractors and sub-contractors. Workers who spend less than 30 hours per month in the building are not considered building management staff.
- **Direct Staff** are building staff under direct employment by the project owner. Projects must use a single consistent population across all features, including preconditions

Dynamic WELL Scorecard

WELL Online guides project teams through the development of a unique scorecard. The digital platform recommends a selection of features based on project-specific parameters that can be further defined and refined by the project team.

Scoring and Certification Levels

Projects must achieve all preconditions, as well as a certain number of points towards different levels of WELL Certification:

WELL v2

Total Points Achieved	WELL v1		WELL v2	
	Minimum points per concept	Level of Certification	Minimum points per concept	Level of Certification
40 pts	0	WELL Bronze	0	WELL Core Bronze
50 pts	1	WELL Silver	0	WELL Core Silver
60 pts	2	WELL Gold	0	WELL Core Gold
80 pts	3	WELL Platinum	0	WELL Core Platinum

Projects may earn no more than 12 points per concept and no more than 100 points total across the ten concepts.

Projects can also pursue an additional ten points in the Innovation concept. A project may seek additional points in concepts where the project has already reached the 12-point maximum by submitting features or parts not already pursued within those concepts as innovations for consideration. These submissions are worth one point per part, regardless of the listed point value of that part.

WELL v2 pilot

Total Points Achieved	WELL Certification		WELL Core Certification	
	Minimum points per concept	Level of Certification	Minimum points per concept	Level of Certification
40 pts	-	-	1	WELL Core Bronze
50 pts	2	WELL Silver	1	WELL Core Silver
60 pts	2	WELL Gold	1	WELL Core Gold
80 pts	2	WELL Platinum	1	WELL Core Platinum

For WELL Core Certification, projects must earn a minimum of one point per concept. Projects may earn no more than 12 points per concept.

WELL Core projects have different point-values for parts and features than owner-occupied projects, based on the extent to which the requirements benefit all occupants within the project. Features that must be met for the whole building are generally worth more for WELL Core, while features with no or limited effect on tenants are generally reduced in value.

Some features allow WELL Core projects to earn points for applying the feature outside of the leased space and earn an additional point for achieving the requirements for their tenants. In addition, some features allow projects where non-leased spaces makes up 40% or more of the project area to earn an additional point without extending requirements to other populations or spaces. Projects are only eligible for one additional point per feature. To earn additional points, WELL Core projects should first meet the baseline requirements of the feature established in WELL Core guidance. The exception is projects that do not include the baseline occupant population or relevant project area within their scope; these projects may pursue the additional points in their scorecard without meeting the baseline feature requirement first.

WELL Core

WELL Core Certification is a distinct pathway of achievement for core and shell buildings seeking to implement fundamental features in the base building for the benefit of tenants/residents. All building types can register for WELL Core provided that at least 75% of the project area is occupied by one or more tenants/residents and/or serves as common space in the building accessible to all tenants/residents. Note that offices affiliated with the project owner but unrelated to the management of the project property may be considered a tenant so long as additional tenants unaffiliated with the project owner occupy at least 60% of the gross floor area.

Scope

For WELL Core projects, at least 2.5% of the total building floor area must be available for performance testing. The available testing area must include all common areas and spaces directly under the control of the building management team. If common areas and spaces under owner control comprise less than 2.5% of total building floor area, the project must supplement with tenant spaces to reach this threshold. Testing in leased spaces in these cases can take place before or after tenant occupancy.

Some performance-based optimizations explicitly state that they require testing in tenant spaces to be awarded. The project is responsible for identifying and communicating with Green Business Certification, Inc. (GBCI) and the WELL Performance Testing Agent the particular spaces which are available for testing.

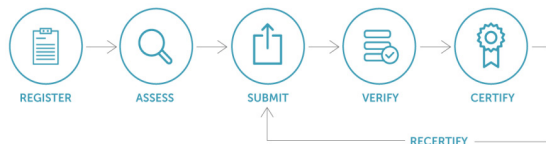
WELL Process for Certification

The certification depends on the features you choose to pursue – any of one of three levels: Silver, Gold, or Platinum.

At the point of registration, projects may elect to either:

- 1. Register for single-cycle certification
- 2. Register and activate a three-year or five-year subscription (WELL v2 only)

For projects that sign-up for subscription, recertification and mid-cycle reviews are included.



1. Register your project to get started, and meet your coaching contact to talk process and review your certification goals.
2. Submit documentation to demonstrate that you've met the mandatory elements of the WELL Building Standard (preconditions), as well as optional strategies (optimization features) that meet your goals.
3. Complete performance verification with your WELL Performance Testing Agent, who will visit your project and complete visual inspections as well as performance tests.
4. Certify: Depending on the features you choose to pursue, you can earn certification at one of four levels: Bronze, Silver, Gold or Platinum.
5. Recertify: Demonstrate your commitment to top performance by renewing your certification every three years, including additional onsite testing and documentation review.

WELL Reviewer and Performance Testing Agent Roles and Responsibilities

- **WELL Reviewer:** it is the third party individual responsible for reviewing the project for certification. After submission for certification the WELL Reviewer is responsible for reviewing both documentation and performance test results for compliance with WELL requirements.
- **WELL Performance Testing Agent:** conducts performance tests on-site, send samples to labs for testing and submit results for Performance Review by the WELL Reviewer.
- **Project Team:**
 - **Project Administrator:** He acts as project manager and oversees the WELL process. He is the primary point of contact on the project and must be

copied on all correspondence with IWBI and the WELL Reviewer. This individual will also be the recipient of a comprehensive WELL report following documentation review and performance verification, as well as the WELL award package. He can be a WELL Accredited Professional (WELL AP), the owner, or another designated representative of the project team. Project administrator is ultimately responsible for the overall quality of the documents submitted and is expected to complete a thorough quality control check of all documentation and forms prior to submission for review.

- **Owner:** He is responsible for authorizing registration of the project and will be required to validate various documents used to demonstrate that WELL features are satisfied.

An owner can be an individual property owner or a representative who is given a delegated responsibility by an entity that owns the property. Owners have the authority to hold and control project-relevant property and to authorize decisions pertaining to that property.

- **Additional Signatories:** These are appropriate professionals such as architects, contractors, and mechanical, electrical and plumbing (MEP) engineers that are required to provide specific declarations and/or calculations pertaining to the project. Further, an owner's representative may also play a role in affirming that design and operational requirements are met in place by the owner.

- **WELL Accredited Professional (WELL AP):** The WELL AP recognizes building industry professionals who are knowledgeable of the conceptual and applied frameworks of WELL and are experienced in its application. WELL APs can help guide projects to successful certification awards.
- **WELL Coaching Support:** Upon official registration to WELL, all projects gain access to WELL coaching support, which includes a suite of educational resources and tools to guide projects through the certification process, along with the ability to communicate with the coaching team via the support tab of the WELL digital platform.

Data Sources: <https://v2.wellcertified.com/en/wellv2/overview>
<https://v2.wellcertified.com/en/wellv2/concepts>

Excellence in Design for Greater Efficiencies
(EDGE)

EDGE is a recent addition to the several green building certification systems in existence. It stands for Excellence in Design for Greater Efficiencies and is administered by **Green Business Certification Inc. (GBCI)** in over 170 countries around the world; where its presence and practice are highly recognized in the design and construction of buildings.

Launched in July 2014 and currently funded by the UK government, EDGE is a global network of certifiers and accredited EDGE Experts who support the collective ambition to mainstream green buildings and help fight climate change. EDGE was created to respond to the need for a measurable and credible solution to prove the business case for building green and unlock financial investment. It was established to make buildings more resource and cost efficient. It makes possible for various project stakeholders to devise meaningful ways to incorporate energy, water and other resource saving generation into the design and ultimately translated into the built-environment.

An innovation of IFC, a member of the World Bank Group, EDGE is a cutting-edge, intelligent software tool that promotes reduction in carbon footprint by encouraging and adopting resource-efficient innovations that allows buildings to be cost efficient. The strategies integrated into the project design are verified by an EDGE Auditor and certified by GBCI.

EDGE is comprised of a web-based software application, a universal standard and a certification system. The software application can quickly predict the savings generated by applying a sampling of potential energy or water-saving design options to reveal the most viable path. The state-of-the-art engine has a sophisticated set of city-based climate and cost data, consumption patterns and algorithms for predicting the most accurate performance results.

EDGE creates a new global standard by requiring that a green building achieve a projected minimum reduction of 20% in energy and water usage, and embodied energy in materials as benchmarked against a standard building.

EDGE certification applies to new construction, existing buildings and major renovations of homes, offices, hotels, retail and hospitals.

EDGE Certification

The EDGE certification processes commence at the early design stage, when all project information and data are entered into the EDGE software and green options are selected. The project must meet the EDGE standard of 20% improvement in energy, water, and materials as measured against local construction practice. Once this is achieved, the project is registered for certification.

The EDGE Certification Process



Data Sources: edgebuildings.com
edge.gbci.org

Development Data

Measurement of Building Areas

Prior to 1989, the development intensity for residential development was measured in terms of density i.e. persons per hectare. For non-residential developments such as industrial, warehousing, institutional, commercial buildings etc., the intensity was measured in terms of plot ratio.

Following the introduction of the new development charge system from 1 September 1989, the Gross Floor Area concept was adopted to determine the development intensity of a building, thereby standardizing the previous methods of calculating development intensity for different types of developments.

The definition of Gross Floor Area (GFA) based on Rider Levett Bucknall Philippines, Inc. Operating Procedure No.2 (OP-02) is as follows:

All covered spaces fulfilling the functional requirements of the building measured to the outside face of the external walls or the external perimeter. Areas occupied by partitions, columns, internal structural or party walls, stairwells, lift shafts, plant rooms, water tanks and the like are included. Sloping surfaces such as staircases and car park ramps have been measured flat on plan.

Note that the rooms passing through two or more storey (e.g. foyer, atrium, lobby etc.) - the area is measured once only at floor level. The rooms passing through two or more storey with a gallery or mezzanine - the area is measured once only at ground floor level and the area of the mezzanine or gallery added.

Extreme care must therefore be taken to ensure that any areas quoted by the Architect or Client are understood by all parties.

Gross Floor Area (G.F.A.)

The sum of the "Fully Enclosed Covered Area" and "Unenclosed Covered Area" as defined.

Fully Enclosed Covered Area (F.E.C.A)

The sum of all areas at all building floor levels, including basements (except unexcavated portions), floored roof spaces and attics, garages, penthouses, enclosed porches and attached enclosed covered ways alongside buildings, equipment rooms, lift shafts, vertical ducts, staircases and any other fully enclosed spaces and usable areas of the building, computed by measuring from normal outside face

of the exterior walls but ignoring any projections such as plinths, columns, piers and the like which project from the normal inside face of the exterior walls.

It shall not include open courts, light wells, connecting or isolated covered ways and net open areas of upper portions of rooms, lobbies, halls, interstitial spaces and the like which extend through the storey being computed.

Unenclosed Covered Area (U.C.A)

The sum of all areas at all building floor levels, including roof balconies, open verandahs, porches and porticos, attached open covered ways alongside buildings, under-crofts and usable space under buildings, unenclosed access galleries (including ground floor) and any other trafficable covered areas of the building which are not totally enclosed by full height walls, computed by measuring the area between the enclosed walls or balustrade (i.e. from the inside face of the U.C.A. excluding the wall or balustrade thickness).

When the covering element (i.e. roof or upper floor) is supported by columns, is cantilevered or is suspended, or any combination of these, the measurements shall be taken to the edge of the paving or to edge of the cover, whichever is lesser. U.C.A. shall not include eaves overhangs, sun shading, awnings and the like where these do not relate to clearly defined trafficable covered areas, nor shall it include connecting or isolated covered ways.

Net Rentable Area (N.R.A.)

The sum of rentable areas within a commercial type building, measured from the inside face of exterior walls and windows at a height of 1.5m above floor level and including the area occupied by structural columns.

Deductions from NRA:

- All stairs, toilets, cleaner's cupboards, lift shafts, escalators and tea rooms where provided as standard facilities in the buildings.
- Lobbies between lifts facing other lifts serving the same floor.
- Areas set aside as public space or thoroughfares and not used exclusively by occupants of the building. (Note: excludes any additional common areas resulting from the sub-division of a whole floor to accommodate more than one tenant.)
- Areas set aside as plant and lift motor rooms or for the provision of facilities or services to the building and not for the exclusive use of the occupants of the building.

- Areas set aside for use by service vehicles and for delivery of goods and access ways thereto.
- Areas set aside for car parking and access ways thereto.

Usable Floor Area (U.F.A.)

The sum of the floor areas at floor level from the general inside face of walls of all interior spaces related to the primary function of the building. This will normally be computed by calculating the "Fully Enclosed Covered Area" (F.E.C.A.) and deducting all of the areas supplementary to the primary function of the building.

Deductions from UFA:

- **Common Use Areas.** All floored areas in the building for circulation and standard facilities provided for the common use of the occupants, tenants and/or the public such as lobbies and foyers to entrances, stairways and lifts, stairways, landings and fire escapes, verandahs and balconies, corridors and passages, toilets and rest room areas, cloak and locker rooms, cleaner's rooms, including stores and cupboards, tea making and similar amenity areas.
- **Service Areas.** All areas set aside for building plant supplying services and facilities common to the building for the use of occupants, tenants and/or public such as mechanical plant and equipment rooms, electrical equipment and switch rooms, tank rooms, lift motor rooms, meter cupboards, telecommunications switch rooms, refuse collection areas, loading bays and all car parks including access ways thereto.
- **Non-habitable Areas.** All non-habitable building spaces such as that occupied by internal columns and other structural supports, internal walls and permanent partitions, lift shafts, service ducts and the like.

Government System Implemented for Private and Public Construction

In the Philippines, there are two distinct systems that govern the tendering and implementation of public and private construction contracts.

Private Construction

Contractors are usually selected on the basis of their reputations as competent builders or in consideration of their personal relationships with the project owner. Private contracts are also generally negotiated or tendered through sealed canvass bidding and some through electronic bidding (e-bidding). The contract is awarded at the price agreed upon through the negotiation process. The terms and conditions of the contract constitute the law or agreement between the contracting parties.

Public Construction

Presidential Decree No. 1594 and its Implementing Rules and Regulations (much like the AB 92 of Sweden) primarily governs government infrastructure contracts, particularly those funded from local appropriations, by the contract terms and conditions. However, for projects funded partly or wholly from foreign financing, the International Conditions of Contract or "FIDIC" and the bank guidelines apply.

The Implementing Rules and Regulations of Presidential Decree No. 1594 and Its Objectives

Presidential Decree No. 1594 has been formulated and approved by the Government of The Philippines to adopt a comprehensive, uniform and updated set of policies and guidelines, rules and regulations covering government contracts for government infrastructure and other construction projects in order to achieve a more efficient and effective implementation of these projects. It is intended to:

- Bring about maximum efficiency in project implantation and minimize project cost and contract variations through sound practices in construction management.
- Promote healthy partnership between the government and the private sector in furthering national development, and
- Enhance the growth of the local construction industry and optimize the use of indigenous manpower, materials and other resources.

Generally, government construction projects are undertaken by contract after competitive public bidding. Projects may be undertaken by administration or “force account” or by negotiated contract only in exceptional cases where time is of the essence, or where there is lack of qualified bidders or contractors, or where there is conclusive evidence that greater economy and efficiency would be achieved through this arrangement.

Life Cycle Economy

Under Philippine government projects, a Warranty Period of one (1) year is provided and calculated from the date of final completion of the contract works as certified by the Executing Agency. Within the above prescribed period, the Contractor should maintain the facility at his own expense and is liable for any failure or defect noted which is traceable to poor workmanship, use of poor quality materials or non-compliance to plans and specifications.

The Contractor, at his own expense, should correct the defects and failure or refusal to do so will warrant the Executing Agency to carry out the corrective work with all the consequential expenses chargeable from any monies due to the Contractor. However, defects and failures due to ordinary wear and tear and for causes other than the fault of the Contractor shall not be taken against the Contractor.

After one year, a Certificate of Acceptance is issued by Executing Agency and the facility is now turned over to the Government for property management and maintenance. However, the contractor, after the date of issuance of a Certificate of Final Acceptance for the project, remains criminally and administratively liable for any damages or defects discovered on the works due to faulty construction and or use of materials of inferior quality as provided under Article 1723 of the Civil Code of the Philippines.

References :

- 1.) Implementing Rules and Regulations of Presidential Decree No. 1594 - Guidelines for Government Infrastructure Contracts
- 2.) Managing the Construction Process for Government Projects in the Philippines Department of Public Works and Highways (DPWH)

Construction Industry-Related Agencies

The Construction Industry Authority of the Philippines (CIAP)

The CIAP was created to promote, accelerate and regulate the growth and development of the construction industry in conformity with national goals.

Implementing Agencies:

1. Philippine Contractors Accreditation Board (PCAB)

PCAB assumes the functions of the abolished Philippine Licensing Board for Contractors under RA 4566 (Contractors License Law). It mainly issues, suspends and revokes licenses of contractors.

2. Philippine Overseas Construction Board (POCB)

POCB formulates policies, plans, programs and strategies for developing the Philippine overseas construction industry; regulates and control the participation of construction contractors in overseas construction projects; and administers the grant of incentives for Filipino overseas contractors.

3. Philippine Domestic Construction Board (PDCB)

PDCB formulates, recommends, and implements policies, rules, regulations and guidelines and adjudicates disputes arising from public construction projects.

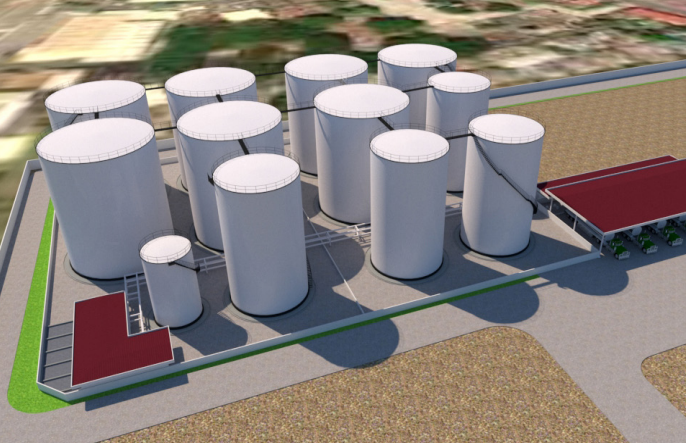
4. Construction Industry Arbitration Commission (CIAC)

CIAC Formulates and adopts an arbitration program for the construction industry. It also enunciates policies and prescribes rules and procedures for construction arbitration.

5. Construction Manpower Dev't Foundation (CMDF)

CMDF formulates an overall construction manpower development plan and strategies, and develops and implements manpower training programs for the construction industry; among others.

Reference: ciap.dti.gov.ph/legal-mandate



Project Epic

Infrastructure

Definition of Terminologies

Construction Cost Data

Average Infrastructure Construction
Payment Drawdown

Philippine Infrastructure
Information

Public-Private Partnership

Variants of PPP Project Agreements

'Build, Build, Build' Program

Construction Regulations

Definition of Terminologies

Infrastructure

The basic physical and organizational structure needed for the operation of a society or enterprise or the services and facilities necessary for an economy to function. It can be generally defined as the set of interconnected structural elements that provide a framework supporting an entire structure of development. It is an important term for judging a country or region's development.

Types of Infrastructure:

- Roads
- Rails
- Transport Intermodal
- Mining
- Bridges and Tunnels
- Water and Waste Water
- Energy
- Marine
- Aviation
- Land Development
- Process Engineering

These networks deliver essential services and support social interactions and economic development. They are society's lifelines.

Rapid Transit

A type of high-capacity public transport generally found in urban areas. Rapid transit systems are electric railways that operate on an exclusive right-of-way, which cannot be accessed by pedestrians or other vehicles of any sort and which is often grade separated in tunnels or on elevated railways.

Transport Intermodal

Involves the use of more than one mode of transport for a journey. There are two types:

- **Intermodal passenger transport** - the major goal is to reduce dependence on automobiles as the major mode of ground transportation and increase use of public transport.
- **Intermodal freight transport** - reduces cargo handling, improves security, reduces damage and loss and allows freight to be transported faster. Reduced costs over road trucking is the key benefit for intra-continental use.

Surface Mining

Is a method of mining used to extract minerals and metals which are near the surface of the earth. Techniques of surface mining include:

- **Open-pit mining** is the recovery of materials from an open pit in the ground, quarrying or gathering building materials from an open-pit mine.
- **Strip mining** consists of stripping surface layers off to reveal ore/seams underneath.
- **Mountaintop removal** is commonly associated with coal mining, which involves taking the top of a mountain off to reach ore deposits at depth.
- **Landfill mining** involves sites where landfills are excavated and processed.

Wastewater Treatment Plant

Is a physical plant where various physical, biological or chemical processes are used to change the properties of the wastewater (e.g. by removing harmful substances) in order to turn it into a type of water (also called effluent) that can be safely discharged into the environment or that is usable for a certain reuse purpose.

Dam

Is a barrier that impounds water or underground streams. Dams generally serve the primary purpose of retaining water, while other structures such as floodgates or levees (also known as dikes) are used to manage or prevent water flow into specific land regions.

Purposes of dams are: 48% for irrigation, 17% for hydropower (production of electricity), 13% for water supply, 10% for flood control, 5% for recreation and less than 1% for navigation and fish farming.

Renewable Energy

Is generally defined as energy that comes from resources which are naturally replenished on a human timescale such as sunlight, wind, rain, tides, waves and geothermal heat.

Port

A sheltered harbor where marine terminal facilities are provided, consisting of piers or wharves at which ships berth/dock while loading or unloading cargo, transit sheds and other storage areas where ships may discharge incoming cargo, and warehouses where goods may be stored for longer periods while waiting distribution or sailing.

Process Engineering

Focuses on the design, operation, control, and optimization of chemical, physical, and biological processes. Process engineering encompasses a vast range of industries, such as chemical, petrochemical, mineral processing, advanced material, food, pharmaceutical, software development and biotechnological industries.

Project Capital Costs

Are normally the initial cost of the project, also referred to as the initial investment for the project. It is within this phase that the project is designed and built.

The capital cost for a construction project includes the expenses related to the initial establishment of the facility:

- Land acquisition, including assembly, holding and improvement
- Planning and feasibility studies
- Architectural and Engineering design
- Construction, including materials, equipment and labor
- Field Supervision of construction
- Construction financing
- Insurance and taxes during construction
- Owner's general office overhead
- Equipment and furnishings not included in construction
- Inspection and Testing

Operations and Maintenance Costs

In addition to building and owning infrastructure facilities, the concessionaire (developer) is normally required to operate and maintain the facility over an extended period of time. The concession period can extend for 20 to 30 years. At the end of the period the facility is transferred back to the municipality or government agency.

The staff involved with operating infrastructure facilities can include Management, Supervisors, System Controllers, Fare Collectors and Vehicle Operators. Energy Consumption can include electric power consumption for transit vehicles and fuel for buses. Consumables include tickets.

Maintenance can include such things as the cost of maintaining and cleaning buildings, repairing highway pavements, cutting and watering grass, replacing bridge bearings and maintaining ticket vending machines. Maintenance can also include the labor and parts required to operate transit vehicles over the concession period.

Transferring the facility back to the government includes demobilization costs such as clean-up costs, staff severance as well as audit fees required to transfer the assets. The operation and maintenance cost in subsequent years over the project life cycle includes the following expenses:

- Land rent, if applicable
- Operating staff
- Periodic renovations
- Insurance and taxes
- Financing costs
- Utilities
- Owner's other expenses
- Labor and material for maintenance and repairs

Concession

A concession gives an operator the long term right to use all utility assets conferred on the operator, including responsibility for all operation and investment. Asset ownership remains with the authority. Assets revert to the authority at the end of the concession period, including assets purchased by the operator. In a concession, the operator typically obtains its revenues directly from the consumer who has a direct relationship with the latter. A concession covers an entire infrastructure system (so may include the operator taking over existing assets as well as building and operating new assets).

Construction Cost Data

The following rates are indicative only and based on normal site condition. It includes an allowance for profit and overhead but excludes preliminaries. The rates are not valid for tendering or pricing of variations.

Land Development

Comprised of survey works, earthworks (cut & fill, block dev't), RROW (base preparation, concrete pavement, asphalt overlay, sidewalk, curb & gutter), wet utilities (water, drainage, sewer system), dry utilities (electrical & auxiliary system, streetlighting system).

LAND DEVELOPMENT	Php / m² GLA	
	Low	High
Flat Terrain	1,310	1,870
Flat Terrain (UPDS*)	1,860	2,430
Rolling Terrain	2,430	3,750
Rolling Terrain (UPDS*)	2,970	3,860
EARTHWORKS	Php / m³	
	Low	High
Cut (common soil)	97	250
Cut (hard rock materials)	620	1,570
Fill (engineered materials)	860,	1,460

* UPDS - Underground Power Distribution System

Slope Protection

SLOPE PROTECTION	Php / m³	
	Low	High
Shotcrete with Soil Nail, per m²	6,000	8,000
Diaphragm Wall, per m³	41,000	47,000
Grouted Riprap	5,520	6,620
RC Retaining Wall	22,500	29,940
Gabions & Mattress (including boulders)	5,830	7,000

Bridge

BRIDGE	Php / m² GLA	
	Low	High
Reinforced Concrete Deck Girder Bridge	472,000	961,000
Prestressed Concrete Girder (6000 psi)	485,000	981,000
ROAD RIGHT-OF-WAY	Php	
	Low	High
Subgrade (sq.m)	22	522
Sub-base Materials (cu.m)	2,321	3,463
Base Course Materials (cu.m)	2,321	3,541
Cement Treated Base, 230mm thick (sqm)	1,990	4,170
Portland Cement Concrete Pavement, 180mm thick (sq.m)	1,470	3,140
Asphalt Pavement, 75mm (sq.m)	1,160	2,970
Concrete Sidewalk 100mm thick (sq.m)	1,180	1,600
Curb and Gutter Plain (m)	780	1,180
Curb and Gutter M-Type (m)	2,529	5,390
Curb and Gutter L-Type (m)	2,286	4,219
ROADWORK CONSTRUCTION	Php/m	
	Low	High
PCCP with 1.20 Shoulder	24,800	52,700
PCCP with Curb & Gutter and 1.20m Concrete Sidewalk	29,000	60,200
PCCP with Curb & Gutter and 3.5m Concrete Sidewalk	23,900	53,500
PCCP with Asphalt Overlay and 1.20 Shoulder	22,900	50,800
PCCP with Asphalt Overlay, Curb & Gutter and 1.20m Concrete Sidewalk	27,100	58,300
PCCP with Asphalt Overlay, Curb & Gutter and 3.5m Concrete Sidewalk	22,000	51,600
ROADS (Premix finish including curbs, channels and drainage)	Php/m²	
	Low	High
Residential estate, 6.80 meters wide excluding foot-paths and nature strips	13,700	14,900
Industrial estate 10.40 meters wide including minimal to extensive formation	10,600	15,200

Wet Utilities

Includes pipelaying, excavation and backfilling works, manholes, lot connections, testing and commissioning.

WET UTILITIES	Php / m	
	Low	High
Blue Water System, PVC Pipes	1,740	2,300
Blue Water System, HDPE Pipes	2,170	2,430
Gray Water System, PVC Pipes	1,040	1,430
Gray Water System, HDPE Pipes	1,730	1,930
Drainage System, RC Pipes	2,980	8,730
Sewer System	3,720	7,020

Dry Utilities

Includes primary & secondary ductline, excavation and backfilling works, T-Pad, manhole & cover, service box, terminal cabinet, guide wire, and mandrelling test.

DRY UTILITIES	Php / m	
	Low	High
Electrical System	8,120	15,500
Auxiliary System	4,780	10,500

Water and Waste Water

Sewage Treatment Plant

Does not include site dev't, power and water supply during construction in excess of 5m, power and water supply during start-up and testing, power connection of main feeder line to STP MCC, dewatering equipment, tertiary treatment system, ventilation and ducting system, and unforeseen site condition.

SEWAGE TREATMENT PLANT	Php / m³ GLA	
	Low	High
1000 m³ / day capacity - MEP	10,400	12,600
1000 m³ / day capacity - Civil (Above Ground)	13,700	17,000
1000 m³ / day capacity - Civil (Below Ground)	10,200	13,100

Deepwell Drilling

Includes drilling of pilot hole, S&I of casing, pumping test, disinfection and water analysis, S&I of submersible deepwell pump, VFD, pumphouse and all necessary fittings to complete the system.

DEEPWELL DRILLING	Php / m	
	Low	High
250 mm diameter stainless steel casing	23,600	28,800

Water Reservoir/Cistern Tank

Includes earthworks, structural, plumbing (equipments, valves, pipes & fittings), electromechanical works, waterproofing, instrumentation and automation, testing and commissioning.

DESCRIPTION	Php / m³ capacity	
	Low	High
Construction of Water Reservoir	40,200	49,200
Construction of Cistern Tank	47,600	58,200
Construction of Overhead Water Tank (per gallon capacity)	184	204

Culverts

CULVERTS	Php / m² GLA	
	Low	High
RC Box Culvert, Double Barrel (5.0 x 5.0m)	299,700	390,200
RC Box Culvert, Double Barrel (2.4 x 1.8m)	110,300	144,600
RC Box Culvert, Single Barrel (2.1 x 1.8m)	87,400	114,400
RC Pipe Culvert (1050mm in diameter)	5,940	6,830
RC Pipe Culvert (900mm in diameter)	5,180	5,960
RC Pipe Culvert (750mm in diameter)	3,610	4,150
RC Pipe Culvert (600mm in diameter)	2,420	2,770
RC Pipe Culvert (450mm in diameter)	1,730	2,000
RC Pipe Culvert (375mm in diameter)	1,520	1,740
RC Pipe Culvert (300mm in diameter)	949	1,090

Aqueduct Construction

Includes 2 shafts and 3.05 m diameter tunnel with 300mm thickness pre-stressed concrete lining. Method of excavation is by using Tunnel Boring Machine.

AQUEDUCT CONSTRUCTION	Php / m	
	Low	High
3.05 m diameter Aqueduct	672,180	844,560

Manholes

Includes earthworks, manhole frame and cover.

SUPPLY AND INSTALLATION OF MAN-HOLE	Php / unit	
	Low	High
Sewer Drop Manhole, 900mmØ	113,920	139,250
Drainage Manhole (Curb Inlet Manhole, 450mmØ)	16,270	18,710
Drainage Manhole (Curb Inlet Manhole, 600mmØ)	20,810	23,930
Drainage Manhole (Curb Inlet Manhole, 750mmØ)	20,910	24,050
Drainage Manhole (Curb Inlet Manhole, 900mmØ)	26,110	30,030
UPDS 2-Way Manhole	237,960	290,850
UPDS 3-Way Manhole	278,850	340,820
UPDS 4-Way Manhole	297,150	363,200
UPDS Switch Gear Manhole	460,610	562,970
UPDS Switch Gear Pump Manhole	192,300	235,050

UPDS - Underground Power Distribution System

PIPE LAYING OF WATERLINES Includes excavation and disposal, sand cushion, pipe laying, metallic warning tape and backfilling works. Fittings are excluded.	Php / m		
	uPVC	HDPE	
		100mmØ	FRP
		600mmØ	1500mmØ
Pipe Laying on Hard Rock Bedding	100mmØ	2,030	100mmØ
		2,490	6,500
Pipe Laying on Common Mat Bedding	100mmØ	1,320	6,500
		1,630	7,960
REMOVAL AND RESTORATION OF PAVEMENT (after pipelaying) Consist of breaking and disposal of existing pavement, and restoration of new pavement from base preparation.	uPVC	500mmØ	6,710
		100mmØ	6,940
Concrete (100mm) and Asphalt Pavement (50mm)	HDPE	600mmØ	6,940
		100mmØ	8,270
Concrete Pavement only, (150mm thick)	HDPE	600mmØ	15,500
		100mmØ	19,040
Asphalt Pavement only, (150mm thick)	HDPE	600mmØ	6,350
		100mmØ	7,800

uPVC - Unplasticised Poly Vinyl Chloride
HDPE - High-density polyethylene
FRP - Fibre-reinforced plastic

PIPE LAYING OF DRAINAGE / ELECTRICAL / SEWER LINES Includes excavation and disposal, sand cushion, pipe laying, pipe collar (for RC pipes), concrete encasement (for electrical conduits), metallic warning tape and backfilling works. Fittings and manholes are excluded.	Php / m					
	RCP (Drainage)		uPVC (Electrical)		uPVC (Sewer)	
	300mmØ		50mmØ		200mmØ	
	1500mmØ		110mmØ		300mmØ	
Pipe Laying on Hard Rock Bedding	Low	3,660	25,120	3,330	6,960	7,450
	High	4,490	30,700	4,080	8,510	9,110
Pipe Laying on Common Material Bedding	Low	2,530	19,940	2,590	6,130	6,460
	High	3,100	24,390	3,180	7,490	7,920
REMOVAL AND RESTORATION OF PAVEMENT (after pipelaying) Consist of breaking and disposal of existing pavement, and restoration of new pavement from base preparation.						
Concrete (100mm) and Asphalt Pavement (50mm)	Low	5,080	17,270	50mmØ	110mmØ	200mmØ
	High	7,830	21,220	6,450	6,780	7,280
Concrete Pavement only, (150mm thick)	Low	5,130	15,500	3,760	4,090	4,580
	High	8,550	19,040	7,160	7,490	8,000
Asphalt Pavement only, (150mm thick)	Low	4,800	6,350	3,460	3,7800	4,260
	High	6,190	7,800	4,840	5,160	5,650

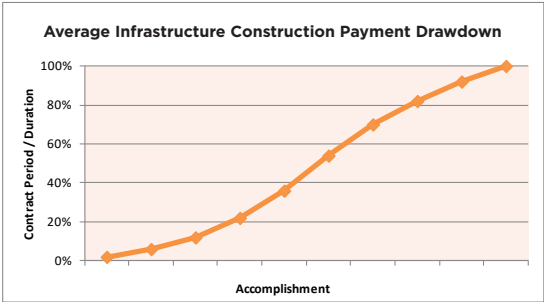
RCP - Reinforced Concrete Pipe
uPVC - Unplasticised Poly Vinyl Chloride

Parametric Construction Cost

DESCRIPTION		Unit	Php	
			12m median divider/swale	3m median divider/barrier
1.	Main Road	Im	75,000	67,500
2.	Service Road	Im	37,500	37,500
3.	Interchanges	Im	75,000	67,500
4.	Overpass	Im	653,800	653,800
5.	Intersection	Im	37,500	37,500
6.	Bridge along Interchange & Overpasses	Im	653,800	653,800
7.	Bridge	Im	1,200,400	1,211,200
8.	Bridge extension along Main Road	Im	568,100	568,100
9.	Bridge along Service Road	Im	396,600	396,600
10.	Underpass	Im	214,400	214,400
11.	Toll Plaza	ea	203,645,800	203,645,800
12.	Laybay	sq. m	6,400	6,400
13.	Fence (chain link fence 2mH)	Im	3,300	3,300
14.	Streetlighting (interval = 20m)	Im	8,600	8,600

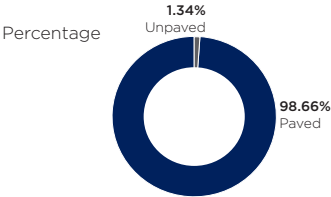
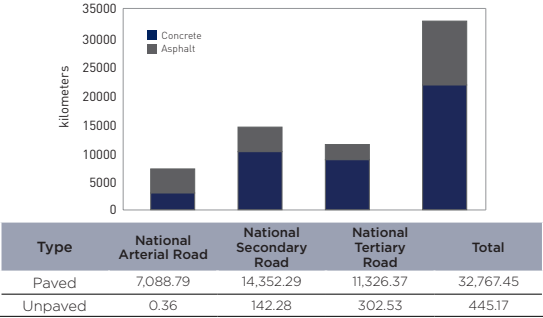
Average Infrastructure Construction
Payment Drawdown

DURATION	ACCOMPLISHMENT	CASHFLOW
0%	0%	0%
10%	2%	2%
20%	4%	6%
30%	6%	12%
40%	10%	22%
50%	14%	36%
60%	18%	54%
70%	16%	70%
80%	12%	82%
90%	10%	92%
100%	8%	100%



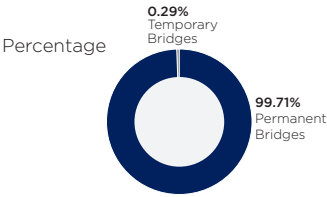
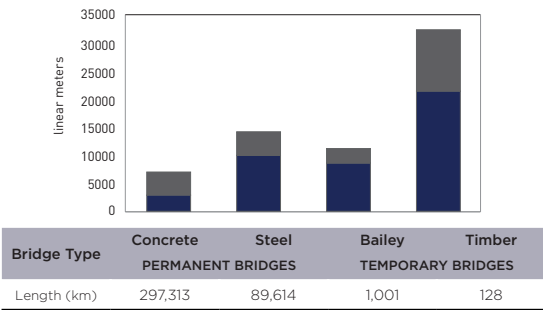
Philippine Infrastructure Information
ROADS AND BRIDGES

Total Paved National Road (As at October 2021)



Note: Latest data from the Department of Public Works and Highways (DPWH). Retrieved October 2021.

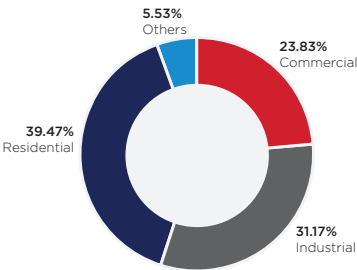
Existing National Bridges by Type (As of November 2021)



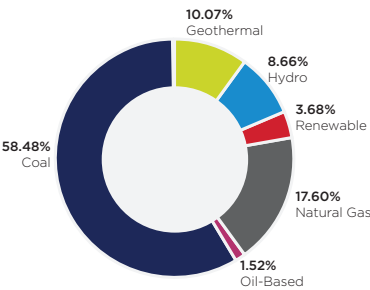
Note: Latest data from the Department of Public Works and Highways (DPWH). Retrieved November 2021.

ENERGY

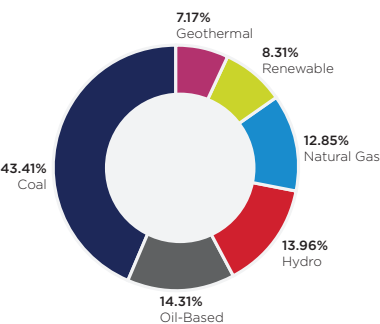
Power Generation by Sector in GWh (December 2021)



Power Generation by Source in GWh (December 2021)



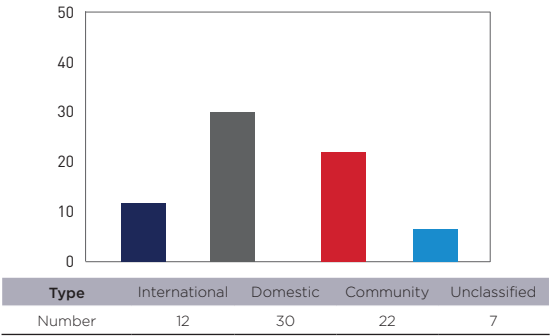
Installed Generating Capacity in MWh (December 2021)



Note: Latest data from the Department of Energy (DOE). Retrieved December 2021.

AVIATION (AIRPORTS)

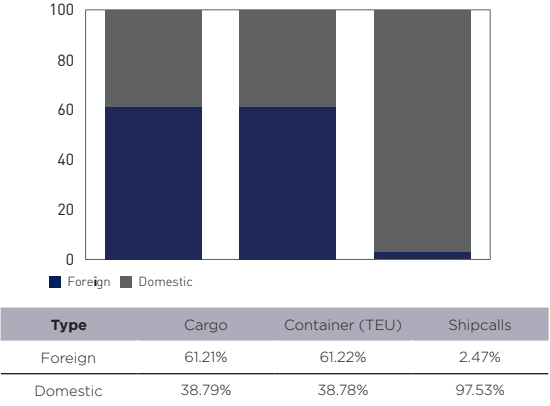
Number of Philippine Airports (January 2022)



Note: Latest data from Discovery of the Philippines (<https://www.discoverthephilippines.com/philippine-airports/>). Retrieved January 2022.

MARINE (PORTS AND HARBORS)

Cargo Throughput, Container & Shipcalls (Q3 2022)

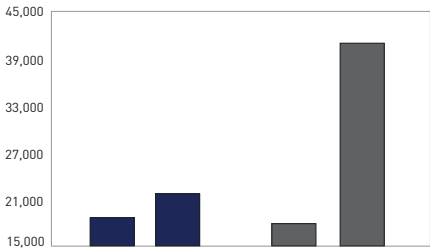


DEFINITION	
Throughput	Total volume of cargo discharged and loaded at the port at any given time.
Twenty-Foot-Equivalent Unit	The unit of measurement equivalent to a container's length of 20 feet.
Shipcalls	The number of vessels which call or arrive at a particular port.

Note: Latest data from the Philippine Ports Authority. Retrieved December 2021.

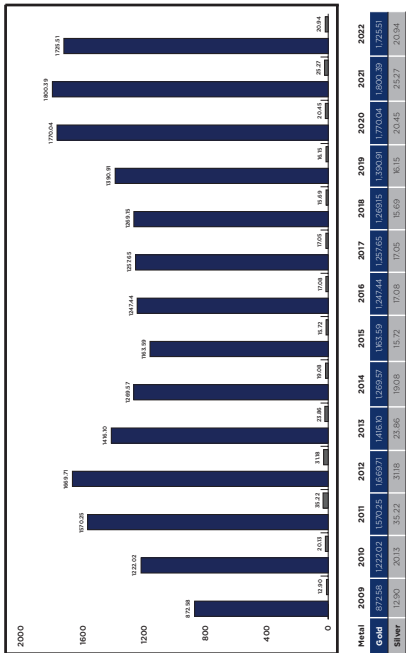
MINING

Philippine Metallic Mineral Production
(Jan-Sep 2021 vs Jan-Sep 2022)



Type	Gold		Silver	
Year	2021	2022	2021	2022
Number	18,715	21,836	18,045	41,710

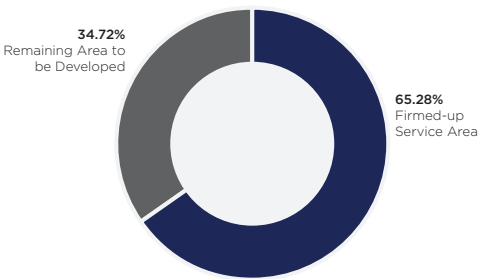
Historical Metal Prices (2009-2022)



Note: Latest data from Mines and Geosciences Bureau. Retrieved November 2022.

IRRIGATION

Status of Irrigation Development (As at December 2021)

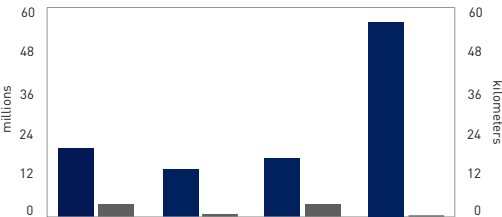


Estimated Total Irrigable Area (in hectares)	3,128,631.00
Firm-up Service Area	2,042,392.66
Remaining Area to be Developed	1,086,238.34

Note: Latest data from the National Irrigation Authority. Retrieved December 2021.

RAILWAYS

Types of Rapid Transit

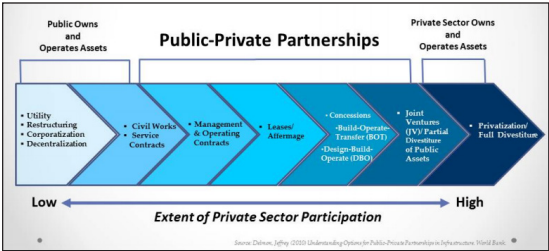


Type	LRT - 1 (Line 1)	LRT - 2 (Line 2)	MRT - 1 (Line 3)	PNR
Route	Baclaran - Roosevelt	Santolan - Recto	North Ave. - Taft Ave.	Tutuban - Calamba, Laguna
Length (km)	19.65	13.80	16.90	56.14
No. of Daily Commuters	3,700,000	987,500	3,667,500	316,667

Source: Statista. Retrieved December 2021.

Public-Private Partnership (PPP)

Refers to arrangements typically from medium to long term between the public and private sectors, whereby some of the services that fall under the responsibilities of the public sector are provided by the private sector, with clear agreement on shared objectives for delivery of public infrastructure and/or public services.



Source: ppp.gov.ph

List and Status of Philippine PPP Projects
As at December 2022

A. AWARDED PROJECTS (SOLICITED & UNSOLICITED)

Notice of Award (NOA) has been issued to the winning private proponent(s).

1. New Manila International Airport (Bulacan International Airport)
2. South Integrated Transport System (ITS) Project (Taguig Integrated Terminal Exchange)
3. Caticlan Airport Development Project
4. Cavite-Laguna Expressway (CALAX)
5. Metro Manila Expressway C6
6. Metro Manila Skyway Stage 3 (MMSS3) Project
7. MRT Line 7
8. New Clark City – Mixed Use Industrial Real Estate Development
9. NLEx-SLEx Connector Road Project
10. Cagayan North International Airport Project (Lal-lo Airport Project)
11. Caliraya-Botocan-Kalayaan (CBK) Power Plant
12. Daang Hari-SLEX Link Road (Muntinlupa-Cavite Expressway) Project
13. Light Rail Transit Line No. 3 (MRT 3)
14. Mactan-Cebu International Airport Project
15. Manila-Cavite Toll Expressway (including C5 South Link Expressway Project)

16. Manila-North Expressway (NLEX) Project including NLEX North Harbor Link (Segments 8.1, 8.2, 9, and 10)
17. Metro Manila Skyway Stage 1 & 2 Project
18. Mindanao Coal-Fired Thermal Power Plant
19. NAIA Expressway Project
20. Pagbilao Coal-Fired Power Plant Project
21. South-Luzon Expressway (SLEX) Project – Toll Roads 1, 2, 3, and 4 (TRs 1-4)
22. Southern Tagalog Arterial Road (STAR) Project
23. Southwest Integrated Transport System (ITS) Project (Parañaque Integrated Terminal Exchange)
24. Sual Coal-Fired Thermal Power Plant Project
25. Tarlac-Pangasinan-La Union Expressway (TPLEX) Project

B. PPP PIPELINE
Projects Under Review by Implementing Agencies (UNSOLICITED)

NEDA-Board approved projects undergoing review by Implementing Agencies

1. New Bohol International Airport Project
2. PhilHealth IT Transformation Project
3. Upgrade, Expansion, Operations & Maintenance of Laguindingan Airport
4. Boracay Bridge Project
5. Cavite-Tagaytay-Batangas Expressway (CTBex) Project
6. Cebu Monorail Transit System Project
7. East-West Rail Project
8. Fort-Bonifacio - Makati Sky Train Project
9. Laguna Lake Rehabilitation and Development Project
10. MRT 7 Airport Access-North Line Project
11. MRT 7 Katipunan Spur Line Project
12. MRT-11 Project
13. New Metro Manila Food and Transport Hub Project
14. North Luzon Express Terminal (NLET) Project
15. Tarlac-Pangasinan - La Union Expressway (TPLEX) Extension Project

For Approval of Relevant Government Bodies

Project is currently undergoing evaluation by the appropriate government body (i.e. ICC-Cabinet Committee, Board, and the different local development councils).

1. Cagayan Valley Medical Center (CVMC) Hemodialysis Center Project
2. Baguio General Hospital Medical Center (BGHMC) Renal Center Building Project
3. C5 MRT 10 Project

4. Metro Cebu Expressway
5. MRT 7 variation proposal
6. Operations and Maintenance of the North-South Commuter Rail
7. UP Philippine General Hospital (PGH) Manila Cancer Center Project
8. UP Philippine General Hospital (UP-PGH) Diliman Project

Projects Under Conceptualization and Development

This list includes other projects in the pipeline currently at the earlier stages of project conceptualization and development. Implementing agencies are currently assessing the project's level of priority, and whether it is to be undertaken using the PPP scheme.

1. Northern Mindanao Railway Project
2. Pacific Eastern Seaboard Expressway ("Luzon Eastern Seaboard"), Infanta - Atimonan Segment
3. San Mateo Railway Project
4. UP Citimall Development Project
5. Vaccine Self-Reliance Project (VSRP)
6. Central Luzon Link Expressway (CLLEX) Phase 1 O&M and Phase 2 Project
7. Dingalan-Capas-Botolan Expressway
8. Iloilo-Capiz-Aklan Expressway
9. Manila Bay-Pasig River-Laguna Lake Ferry Project
10. Mariveles Wellness Center (MWC)
11. Mindoro-Batangas Super Bridge ("Floating Bridge")
12. Mt. Data Hotel Project
13. Naawan-Opol-Cagayan de Oro City-Villanueva Expressway
14. NCR EDSA Busway Project
15. North Long Haul (NCR-Ilocos Norte and Cagayan) Inter-Regional Railway Project
16. North Luzon Expressway East, Phase II
17. Pangasinan-Nueva Ecija Expressway

Retrieved from: ppp.gov.ph

Variants of PPP Project Agreements

Build-and-Transfer (BT)

A contractual arrangement whereby the Project Proponent undertakes the financing and Construction of a given infrastructure or development facility and after its completion turns it over to the Agency or LGU concerned, which shall pay the Project Proponent on an agreed schedule its total investment expended on the project, plus a Reasonable Rate of Return (ROR) thereon. This arrangement may be employed in the Construction of any Infrastructure or Development Projects, including critical facilities which, for security or strategic reasons, must be operated directly by the Government.

Build-Lease-and-Transfer (BLT)

A contractual arrangement whereby a Project Proponent is authorized to finance and construct an infrastructure or development facility and upon its completion turns it over to the Agency/LGU concerned on a lease arrangement for a fixed period, after which ownership of the facility is automatically transferred to the Agency/LGU concerned.

Build-Operate-Transfer (BOT)

A contractual arrangement whereby the Project Proponent undertakes the Construction, including financing, of a given infrastructure facility, and the operation and maintenance thereof. The Project Proponent operates the facility over a fixed term during which it is allowed to charge facility users appropriate tolls, fees, rentals, and charges not exceeding those proposed in its bid or as negotiated and incorporated in the contract to enable the Project Proponent to recover its investment, and operating and maintenance expenses in the project.

The Project Proponent transfers the facility to the Agency/LGU concerned at the end of the fixed term that shall not exceed fifty (50) years: Provided, that in the case of an Infrastructure or Development Facility whose operation requires a public utility franchise, the proponent must be Filipino or, if a corporation, must be duly registered with the Securities and Exchange Commission (SEC) and owned up to at least sixty

percent (60%) by Filipinos. This build-operate and-transfer contractual arrangement shall include a supply-and-operate scheme which is a contractual arrangement whereby the supplier of equipment and machinery for a given infrastructure facility, if the interest of the Government so requires, operates the facility providing in the process technology transfer and training to Filipino nationals.

Build-Own-and-Operate (BOO)

A contractual arrangement whereby a Project Proponent is authorized to finance, construct, own, operate and maintain an infrastructure or development facility from which the Project Proponent is allowed to recover its total investment, operating and maintenance costs plus a reasonable return thereon by collecting tolls, fees, rentals or other charges from facility users; provided, That all such projects upon recommendation of the Investment Coordination Committee (ICC) of the National Economic and Development Authority (NEDA), shall be approved by the President of the Philippines. Under this project, the proponent who owns the assets of the facility may assign its operation and maintenance to a Facility operator.

Build-Transfer-and-Operate (BTO)

A contractual arrangement whereby the Agency/LGU contracts out the Construction of an infrastructure facility to a private entity such that the Contractor builds the facility on a turn key basis, assuming cost overruns, delays, and specified performance risks. Once the facility is commissioned satisfactorily, title is transferred to the implementing Agency/LGU. The private entity however operates the facility on behalf of the implementing Agency/LGU under an agreement.

Contract-Add-and-Operate (CAO)

A contractual arrangement whereby the Project Proponent adds to an existing infrastructure facility which it is renting from the Government and operates the expanded project over an agreed Franchise period. There may or may not be a transfer arrangement with regard to the added facility provided by the Project Proponent.

Develop-Operate-and-Transfer (DOT)

A contractual arrangement whereby favorable conditions external to a new infrastructure project which is to be built by a Project Proponent are integrated into the arrangement by giving that entity the right to develop adjoining property, and thus, enjoy some of the benefits the investment creates such as higher property or rent values.

Rehabilitate-Operate-and-Transfer (ROT)

A contractual arrangement whereby an existing facility is turned over to the Project Proponent to refurbish, operate and maintain for a Franchise period, at the expiry of which the legal title to the facility is turned over to the Government. The term is also used to describe the purchase of an existing facility from abroad, importing, refurbishing, erecting and consuming it within the host country.

Rehabilitate-Own-and-Operate (ROO)

A contractual arrangement whereby an existing facility is turned over to the Project Proponent to refurbish and operate with no time limitation imposed on ownership. As long as the operator is not in violation of its Franchise, it can continue to operate the facility in perpetuity.

Swiss Challenge

Is a form of public procurement in some (usually lesser developed) jurisdictions which requires a public authority (usually an agency of government) which has received an unsolicited bid for a public project (such as a port, road or railway) or services to be provided to government, to publish the bid and invite third parties to match or exceed it. The bids and awards committee shall compare and evaluate all the bids by the third party bidders and the original proponent. The original proponent can match or exceed the best proposal.

Source: www.worldbank.org/pppic
Revised BOT Law Implementing Rules and Regulations of R.A. No. 6957

‘Build, Build, Build’ (BBB) Program

In his 10-point Socio-economic Agenda, President Rodrigo Duterte envisioned the reduction of poverty from 21.6% in 2015 to 13%-15% by 2022.

Among the reforms that will drive this Agenda is the acceleration of infrastructure and the development of industries that will yield robust growth across the archipelago, create jobs and uplift the lives of Filipinos.

Infrastructure is among the top priorities of his Administration with public spending on infrastructure projects targeted to reach 8-9 trillion pesos from 2017-2022.

The ‘Build, Build, Build’ Program, also known as the thrust of the “Dutertenomics” policy, is a coordination between the National Economic Development Authority (NEDA), the Department of Public Works and Highways (DPWH), the Department of Transportation (DOTr), and the Bases Conversion and Development Authority (BCDA). These major infrastructure agencies aim at developing high impact projects that are envisioned to increase the productive capacity of the economy, create jobs, increase incomes, and strengthen the investment climate leading to sustained inclusive growth.

List and Status of Big-Ticket Infrastructure Projects As at August 2022

A. ROADS AND BRIDGES

Completed

1. Luzon Bypass Infrastructure Project
2. Metro Manila Skyway Stage 3
3. NAIA Expressway Phase II
4. Urdaneta City Bypass Road
5. BGC-Ortigas Center Link
6. Binondo-Intramuros Bridge
7. Estrella-Panteleon Bridge
8. Surallah-T’boli-San Jose Road South Cotabato
9. Boracay Circumferential Road
10. NLEX Harbor Link Segment 10
11. Laguna-Lake Highway
12. TPLEX Expressway

Projects under Procurement

1. Cavite-Tagaytay-Batangas Expressway Project
2. Quezon-Bicol Expressway

For Budgeting

1. North and South Harbor, Palanca-Villegas, and East-West Bank Bridges
2. LRT 2 West Extension
3. EDSA Greenways
4. Panglao-Tagbilaran City Offshore Connector Bridge
5. Pasig River and Manggahan Floodway Bridges Construction

Ongoing Construction

1. Panguil Bay Bridge
2. Apayao-Ilocos Norte Road
3. J.P. Rizal-Lopez Jaena, J.P. Rizal-St. Mary Bridge, and Marikina-Vista Real Bridges
4. Samar Pacific Coastal Road Project
5. Sindangan-Bayog-Lakewood Road
6. NLEX-SLEX Connector Road
7. Zamboanga City Bypass Road
8. Cagayan de Oro Coastal Road
9. C5 Southlink Expressway Project
10. Southeast Metro Manila Expressway Project
11. Plaridel Bypass
12. Davao City Bypass Road
13. Bacolod-Negros Occidental Economic Highway
14. Camarines Sur High-Speed Highway Project
15. Davao City Coastal Road
16. Southern Luzon Expressway Toll Road 4

17. Samal Island Davao City Connector Bridge
18. Bataan-Cavite Interlink Bridge
19. Metro Cebu Expressway Project
20. Central Luzon Link Expressway
21. Pasacao-Balatan Tourism Coastal Highway
22. Panay-Guimaras Negros Bridge Phase I
23. Matnog – Sta. Magdalena – Bulusan Road
24. East-West Lateral Road
25. Marawi Transcentral Road Phase I
26. Cavite-Laguna Expressway
27. Agusan del Sur-Surigao del Sur Connector
28. Sampaguita-Makilos Road

For NEDA Board Approval

1. Cebu-Mactan Bridge and Coastal Road Construction

B. FLOOD CONTROL**Completed**

1. Angat Water Transmission Improvement Project
2. Chico River Pump Irrigation
3. Pulangi 4 Dredging Project
4. Mandaluyong Main Drainage Project

Ongoing Construction

1. Cavite Industrial Area Flood Management Program
2. Ambal Simuay River and Rio Grande de Mindanao River Flood Control
3. New Centennial Water Source-Kaliwa Dam Project
4. Malitubog-Maridagao Irrigation Project
5. Balog-Balog Multipurpose Project Phase II
6. National Irrigation Sector Rehabilitation and Improvement
7. Leyte Tide Embankment
8. Lower Agno River Irrigation System Improvement
9. Pasig Marikina River Channel Improvement Project
10. Wawa Bulk Water Sector Project
11. Jaluar River Multipurpose Project – Stage II

C. TRANSPORT**Completed**

1. Sangley International Airport
2. Clark International Airport Expansion Project Phase 1
3. LRT 2 East Extension
4. General Santos Airport
5. Mactan-Cebu International Airport (New Terminal)
6. Parañaque Integrated Terminal Exchange
7. New Bohol (Panglao) International Airport

8. Tacloban Airport (New Terminal)
9. Bicol International Airport Development Project
10. MRT 3 Rehabilitation Project
11. Puerto Princesa International Airport (New Terminal)
12. Kalibo International Airport
13. San Vicente Airport
14. Calbayog Airport New Terminal
15. Maasin Airport New Terminal

Projects under Procurement

1. Davao Public Transport Modernization Project
2. Fort Bonifacio-Makati Sky Train

For Budgeting

1. Cebu Monorail System
2. Ninoy Aquino International Airport
3. LRT-2 West Extension

Ongoing Construction

1. PNR North 1 (Tutuban – Malolos Railway)
2. PNR North 2 (Malolos – Clark Railway)
3. PNR Calamba (Solis – Calamba Railway)
4. Taguig Integrated Terminal Exchange
5. Cebu Bus Rapid Transit
6. M'lang Central Mindanao Airport
7. LRT 1 Cavite Extension Project
8. Metro Manila Subway Project Phase 1
9. MRT 7
10. New Manila International Airport
11. MRT 4

For NEDA Approval

1. Subic Clark Railway
2. PNR South Long Haul
3. Mindanao Rail Project Phase 1
4. Iloilo International Airport Expansion
5. Laguindingan Airport
6. Modified LRT 6 Project Phases 1 (Niog-Dasma City) and 2 (Dasma City-Tagaytay)

D. BUILDINGS AND PORTS**Completed**

1. Cavite Barge Gateway Terminal
2. Palawan Ports

Projects under Procurement

1. New Cebu International Container Port
2. Virology Science and Technology Institute of the Philippines

Ongoing Construction

1. New Clark City Mixed-Use Industrial Real Estate Developments
2. Unified Grand Central Station
3. National Government Administrative Center

For NEDA Approval

1. New Clark City Food Processing Terminal and International Food Market

E. ENERGY

Ongoing Construction

1. Agus 3 Hydroelectric Power Project (225 MW)

Ongoing Construction

1. Integrated Disaster Risk Reduction and Climate Change Adaptation Measures in the Low-Lying Areas of Pampanga Bay

Retrieved from: Lamudi Journal (<https://www.lamudi.com.ph/journal/build-build-build-projects/>)

Construction Regulations

International Federation of Consulting Engineers (FIDIC)

Founded in 1913, FIDIC is charged with promoting and implementing the consulting engineering industry's strategic goals on behalf of its Member Associations and to disseminate information and resources of interest to its members. Today, FIDIC membership covers 97 countries of the world.

Construction Industry Authority of the Philippines (CIAP)

An organization created to promote, accelerate, and regulate the growth and development of the construction industry. It exercises

jurisdiction and supervision over the following implementing boards;

- **Philippine Contractors Accreditation Board (PCAB)**, which issues, suspends, and revokes licenses of contractors;
- **Philippine Domestic Construction Board (PDCB)**, which is assigned to formulate, recommend and implement policies, guidelines, plans and programs for the efficient implementation of public and private construction in the country;
- **Philippine Overseas Construction Board (POCB)** which is assigned to formulate strategies and programs for developing the country's overseas construction industry;
- **Construction Industry Arbitration Commission (CIAC)** which takes charge of disputes arising from, or connected with government and private contract.

DPWH Standard Specifications for Public Works and Highways 2004 Edition: Volume II - Highways, Bridges and Airports

PRESIDENTIAL DECREE NO. 1096

National Building Code of the Philippines (NBCP)

States that it is the policy of the State to safeguard life, health, property, and public welfare, consistent with the principles of sound environmental management and control; and to this end, make it the purpose of this Code to provide for all buildings and structures, a framework of minimum standards and requirements to regulate and control their location, site, design, quality of materials, construction use, occupancy, and maintenance.

PRESIDENTIAL DECREE NO. 1594

and its Implementing Rules and Regulations

Prescribes Policies, Guidelines, Rules and Regulations for Government Infrastructure Contracts.

IMPLEMENTING RULES AND REGULATION OF R.A. 9184

The Government Procurement Reform Act

An act providing for the modernization, standardization and regulation of the procurement activities of the government and for other purposes.

REPUBLIC ACT 7718

(Revised Implementing Rules and Regulations of R.A. 6957)

REVISED BOT LAW

An act authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector and for other purposes.

REPUBLIC ACT 8974

An act to facilitate the acquisition of Right-of-way, Site or Location for National Government Infrastructure Projects and for other purposes.

REPUBLIC ACT 7227

An act accelerating the Conversion of Military Reservations into other productive uses, creating the Bases Conversion and Development Authority for this purpose, providing funds therefore and for other purposes.

REPUBLIC ACT 7942

An act instituting a new system of Mineral Resources Exploration, Development, Utilization and Conservation.

REPUBLIC ACT 9136

Electric Power Supply Reform Act of 2001

An act ordaining reforms in the Electric Power Industry amended for the purpose of certain laws and other purposes.

REPUBLIC ACT 9513

The Philippine Renewable Energy Act of 2008

An act promoting the development, utilization and commercialization of Renewable Energy Resources and for other purposes.

PROCEDURAL GUIDELINES

(Department Order No. 13 Series of 1998)

Guidelines refer to Governing Occupational Safety and Health in the Construction Industry.

Professional Services

Cost Consultancy

Project Management

Special Services

WHO WE ARE

Rider Levett Bucknall Philippines, Inc. is the biggest consultancy practice of Quantity Surveying in the Philippines. It provides a wide range of Project / Construction Cost Consultancy Services within the construction industry, commencing from the conceptualization of a project, construction administration, through to hand over upon completion, until final account closeout.

OUR GLOBAL ALLIANCE

RLB Philippines is a member of **Rider Levett Bucknall**, an independent global property and construction practice with over 4,000 people in 120 offices in 80 different countries, covering six different continents, namely Asia, Europe, the Middle East, Africa, the Americas and Oceania.

We serve major local and international clientele in the Philippines and regionally. Our global expertise in Quantity Surveying and our significant project experience provide comprehensive services and solutions to the development and construction of the built environment, extending to building and civil infrastructure, commercial, residential and hospitality buildings, healthcare, industrial and civil engineering projects.

WHAT WE DO

We offer Cost Consultancy, Quantity Surveying, Project Management, and Advisory Services from project conception to completion to ensure maximum value for money in respect of capital and asset values, whole life costs, and project delivery. Our philosophy is to provide a participative and interactive approach with the view of achieving clients' budgets, construction quality, and timely completion.

The extensive range of professional consultancy provided by Rider Levett Bucknall Philippines covers the following core services:

Cost Consultancy

- Cost Planning
- Cost Management
- Contract Procurement
- Tender & Contract Documentation
- Progress Valuations



- Financial Reporting
- Change Order Management
- Auditing Services
- Post-Contract Services
- Final Accounts

Project Management

- Project Management Service
- Contract Administration
- Client Representation
- Development Management
- Construction Management
- Value Management

Special Services

- Financial Audit of Construction
- Physical Audit of Construction
- Quality Audit of Construction
- Verification of Loan Amounts
- Verification of Monies Spent
- Contractual Advice
- Contractual Claims Preparation and Adjudication
- Builders Quantities Preparation
- Replacement Cost Estimates after Disasters; i.e. Fire; Typhoon; etc.
- Expert Witness in Arbitration, and/or Litigation
- Secondment of Staff

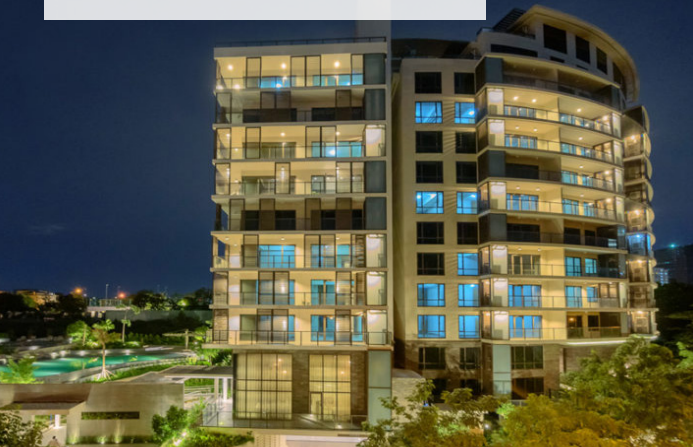
OUR COMMITMENT

Rider Levett Bucknall Philippines, Inc. is committed towards creating and nurturing lasting relationships. We are cognizant of our organization's core values, bringing them to each and every project we carry out.





Botanika Nature Residences



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Miscellaneous

Conversion Factors

Calculation Formulae

Foreign Exchange Rates

IDD Country Codes and Time Differences

Philippine Regular Holidays and Special (Non-Working) Days

Abridged Business Terms

2023 and 2024 Calendars

Conversion Factors

To convert	Multiply by
AREA	
Square inches into square millimeters	645.16
Square inches into square centimeters	6.4516
Square feet into square centimeters	929.0304
Square feet into meters	0.092903
Square yards into square feet	9.00
Square yards into square meters	0.8356127
Square meters into square feet	10.764
Square meters into square yards	1.196
Square yards into acres	0.0083613
Acres into square meters	4046.8564
Acres into square yards	4.840
Acres into hectares	0.4046856
Hectares into acres	2.471
Hectares into square meters	10,000
Square kilometers into hectares	100
Square miles into square kilometers	2.589988
Square miles into acres	638.0
Square kilometers into square miles	0.386
VOLUME AND CAPACITY	
Cubic inches into cubic centimeters	16387064
Cubic inches into liters	0.016387
Cubic feet into cubic meters	0.0283168
Cubic feet into liters	28.316847
UK pints into liters	0.5682613
US pints into liters	0.473
UK liters into pints	1.760
UK liters into gallons	0.220
US liters into gallons	0.264
US liters into pints	2.113
UK quarts into liters	1.1365225
Cubic yards into cubic meters	0.7645549
UK gallons into liters	4.54609
US gallons into liters	3.785
UK gallons into cubic meters	0.0045461
UK fluid ounces into cubic centimeters	28.413063
POWER	
Foot pounds-force per second into watts	1.35582
Horsepower into watts	745.7
Foot pounds-force per second into kilowatts	0.001356
Horsepower into kilowatts	0.7457
Kilowatts into horsepower	1.340
Horsepower into metric horsepower	1.01387
MASS	
Grains into milligrams	64.79891

To convert	Multiply by
Grains into metric carats	0.323995
Grains into grams	0.064799
Pennyweights into grams	1.555174
Grams into ounces	0.035
Ounces into grams	28.349523
Ounces troy into grams	31.103477
Ounces into kilograms	0.0283495
Pounds into kilograms	0.4535924
Kilograms into pounds	2.205
Stones into kilograms	6.3502932
Hundredweight into kilograms	50.802345
Tons into kilograms	1,016.0469
Tons into metric tones	1.01605
Tons into pounds	2.240
Tons into tones	1.016
Tones into tons	0.984
Tahills into grams	37.799
Kati into kilograms	0.6
LENGTH	
Milli-inches into micrometers	25.4
Inches into millimeters	25.4
Inches into centimeters	2.54
Inches into meters	0.0254
Centimeters into inches	0.394
Feet into millimeters	304.8
Feet into centimeters	30.48
Feet into meters	0.3048
Yards into meters	0.9144
Fathoms into meters	1.8288
Chains into meters	20.1168
Furlongs into meters	201.168
Miles, statute into kilometers	1.609344
Miles, nautical into kilometers	1.852
VELOCITY	
Centimeters per second into feet per second	0.03281
Meters per second into feet per minute	196.9
Meters per second into feet per second	3.281
Kilometers per hour into miles per hour	0.6214
TEMPERATURE	
Degree Celsius to Degree Fahrenheit	$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32$
Degree Fahrenheit to Degree Celsius	$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9$
FORCE	
Newtons into pounds force	0.2248
Newtons into pounds	7.2330

Calculation Formulae

To calculate	Multiply
Area of Triangle	Base by 1/2 height
Area of Circle	(radius) ² by 3.1416
Area of sector of circle	Length of arc by 1/2 radius
Area of square, rhombus	Base x height
Area of equilateral triangle	(Side) ² x 0.433
Area of trapezium	Height x 1/2 x (sum of parallel sides)
Area of ellipse	Major axis by minor axis x 0.7854
Area of parabola	2/3 x base x height
Circumference of circle	Diameter x 3.1416
Surface area of cone	4 x (radius) ² x 3.1416
Volume of cylinder	(radius by slant side by 3.1416) + area of base
Volume of cube or prism	Area of base by height
Volume of cone	Length by breadth by depth
Volume of hexagonal prism	(Side) ² by height by 2.598
Volume of Sphere	4/3 x (radius) ³ x 3.1416

Foreign Exchange Rates

CURRENCY		UNITS PER USD												
		UNIT	JAN 22	FEB 22	MAR 22	APR 22	MAY 22	JUN 22	JUL 22	AUG 22	SEP 22	OCT 22	NOV 22	DEC 22
Philippine Peso	PHP	1	51.273	51.291	51.96	52.158	52.243	55.021	55.635	56.243	58.910	58.288	56.796	55.13
Singapore Dollar	SGD	1	1.3557	1.3597	1.3534	1.3848	1.3697	1.3918	1.3785	1.395	1.434	1.4112	1.3722	1.3522
U.K. Pound Sterling	GBP	1	1.3404	1.3395	1.3126	1.257	1.2589	1.2109	1.2182	1.162	1.107	1.1538	1.2011	1.2068
Australian Dollar	AUD	1	0.7011	0.7182	0.7482	0.7148	0.7187	0.6889	0.7007	0.690	0.650	0.642	0.6698	0.668
Chinese Yuan	CNY	1	6.3642	6.3109	6.3427	6.5866	6.6612	6.6948	6.7286	6.893	7.096	7.2929	7.1418	6.986
Japanese Yen	JPY	1	115.43	115.55	122.4	129.9	128.2	136.63	133.0	138.610	144.740	148.24	138.8	132.65
Malaysian Ringgit	MYR	1	4.189	4.201	4.204	4.359	4.3755	4.406	4.4485	4.485	4.641	4.7265	4.475	4.4285

Reference: IMF

IDD Country Codes and Time Differences

DESTINATION	IDD Country (Area) Code	Time Difference from Philippines (hours)
Adelaide	61 (8)	1.5
Bahrain	973	-5
Brisbane	61 (7)	2
Brunei	673	0
Cambodia	855	-1
Canberra	61 (2)	2
China (Coastal Cities)	86	0
Darwin	61 (8)	1.5
France	33	-7
Germany	49	-7
Hobart	61 (3)	2
Hong Kong	853	0
India	91	-2.5
Indonesia (Jakarta)	62	-1
Italy	39	-7
Japan	81	1
Korea (North)	850	1
Korea (South)	82	1
Los Angeles	1	-16
Macau	853	0
Malaysia	60	0
Melbourne	61 (3)	2
Moscow	810 (7) (095)	-5
Myanmar	95	-1.5
Netherlands	31	-7
New Zealand	64	4
New York	1	-13
Pakistan	92	-3
Perth	61	0
Philippines	63	0
Qatar	974	-5
Saudi Arabia	966	-5
Singapore	65	0
Spain	34	-7
Sweden	46	-7
Switzerland	41	-7
St Petersburg	810 (7) (812, 813)	-5
Sydney	61	2
Taiwan	886	0
Thailand	66	-1
United Arab Emirates	971	-4
United Kingdom	44	-8
Vietnam	84	-1

Philippine Regular Holidays and Special (Non-Working) Days, Year 2023

DATE	HOLIDAYS
JANUARY 1 Sunday	New Year's Day (Regular Holiday)
JANUARY 2 Monday	Special Non-Working Holiday
FEBRUARY 25 Saturday	EDSA People Power Revolution Anniversary (Special Non-Working Holiday)
APRIL 6 Thursday	Maundy Thursday (Regular Holiday)
APRIL 7 Friday	Good Friday (Regular Holiday)
APRIL 8 Saturday	Black Saturday (Special Non-Working Holiday)
APRIL 10 Monday	Day of Valor (Regular Holiday)
MAY 1 Monday	Labor Day (Regular Holiday)
JUNE 12 Monday	Independence Day (Regular Holiday)
AUGUST 21 Monday	Ninoy Aquino Day (Special Non-Working Holiday)
AUGUST 28 Monday	National Heroes' Day (Regular Holiday)
NOVEMBER 1 Wednesday	All Saints' Day (Special Non-Working Holiday)
NOVEMBER 2 Thursday	Special Non-Working Holiday
NOVEMBER 27 Monday	Bonifacio Day (Regular Holiday)
DECEMBER 8 Friday	Feast of the Immaculate Conception of Mary (Special Non-Working Holiday)
DECEMBER 25 Monday	Christmas Day (Regular Holiday)
DECEMBER 30 Saturday	Rizal Day (Regular Holiday)
DECEMBER 31 Sunday	Last Day of the Year (Special Non-Working Holiday)

Abridged Business Terms

A	
A.a.r. , A.r.	Against all risks
a/c	Account
A/C	Account Current
Acc	Acceptance; accepted
Ad ref	Ad referendum - matter subject to reference before being final.
Ad val	Ad valorem - according to value
Afloat	Vessel at sea.
A.g.b.	A good brand
A.I.s.	About like sample
Anglo-form Chamber of Shipping	Cotton, etc., Charter (freight paid on streamer's Net reg. ton).
A/or	And, or
A/o	Account of.
A.P.	(1) A protester (to be Protested bills). (2) Additional premium (insurance).
A/R.	All risks.
A/s	Account sales
A/T.	American Terms (grain trade)
Aus. T	Association Terms
Av.	Average
@	at
@p.lb.	at per pound

B	
Bags/Bulk Part in bags, part bulk.	"Baltcon" New Baltic Coal Charter.
"Baltcon"	"Baltcon" New Baltic Coal Charter.
"Balttime"	Uniform Time Charter.
Bar.	Barrel
B.B.	Bill Book.
B. Ch.	Bristol Channel
B/D.	Bank Draft.
Bgs.	Bags.
Bd.	Bond
Bds.	Boards
B/E.	Bill of Exchange
B.G.	Birmingham Gauge
B/H.	Bill of Health.
B.H.P.	Brake horse-power.
Bk.	Bank; book; Backwardation
Bkg.	Banking.
Bkge.	Brokerage.
Bkt.	Basket
Bl.	Bale; barrel.
B/L.	Bill of lading, Receipt Given on behalf of Shipowner for goods Shipped or received for Shipment.
B.o.	Branch office; buyer's Option

B	
B.O.D.	Buyer's Option to Double
B.O.T.	Board of Trade
B/P	Bill Payable
B.P.B.	Bank Post Bill.
b. rec.	Bill Receivable
B/R	Bordeaux or Rouen (grain trade)

C	
C/-	Case; Currency; coupon.
C/A.	Capital Account; close Annealed; commercial Agent.
C.A.D.	Cash against Documents.
Cancig.	Cancelling.
Capt.	Captain.
Cat.	Catalogue
C.B.	Cash Book.
C.C.	Continuation Clause.
C/D	Customs Declaration
C.d.	Cum dividendo (with Dividend).
C and D	Collection and Delivery.
C.E.	Civil Engineer
Cert.	Certificate
C&F.	Cost and Freight
C/f.	Carried forward.
Cert. Inv.	Certified Invoice
c.f.	Carried forward
C.f.o.	Coast for orders (chartering).
C.G.A	Cargo's proportion of G.A.
Cge.	Carriage.
C.H.	Customs House.
C.H. & H.	Continent between Havre And Hamburg.
Charter	Form of contract engaging A vessel on specified Terms.
Ch. Fwd.	Charges forward.
Ch. Ppd.	Charges Prepaid.
c/i.	certificate of insurance.
Cie	Campagnie (French Company).
C.I.F.	Cost, insurance and freight
C&I.	Cost and insurance.
C.i.f.&c.	Cost, insurance, freight and commission
C.i.f.&e.	Cost, insurance, freight And exchange
C.i.f.&i.	Cost, insurance, freight And interest.
C.i.f.c.&i.	Cost, insurance, freight Commission and interest.
Cld.	Cleared (goods, shipping).
Cm.	Centimetre

C	
C/N	Credit Note; Consignment Note.
C.O.	Compte Ouvvert (open a/c).
C/O	Cash Order (banking)
c/o	care of; carried over.
C.O.D.	Cash on Delivery
Collr.	Collector
Com.	Commercial; Commission.
Con.	Contra (against)
Con. Cr.	Contra credit
Consigne	The party to whom goods Or vessels are consigned
Cont.	Contract
Coy.	Company
C/P.	Charter party; Custom of ports
c.p.d.	Charters Pay Dues.
C.R.	Company's Risks
Cr.	Credit; creditor.
C/S.	Colliery Screened (coal Trade).
C/s.	Cases
Csk.	Cask
C/T.	Californian Terms (grain Trade).
Ct.	cent; current
Cts.	Crates
Ctge.	Cartage.
C.T.L.	Constructive Total Loss.
Cub.	Cubic
Cum.d/	With dividend
Cum. Pref.	Cumulative Preference.
Curt.	Current
C.w.o.	Cash with order
Cwt.	Hundredweight.
Cy.	Currency.

D	
D/A.	Days after acceptance; Documents against Acceptance; Discharge Afloat (chartering); Deposit Account.
D.B.B.	Deals, battens and boards (lightwood goods).
Dbk.	Drawback.
D/C.	Deviation Clause.
D/D.	Demad Draft
D/d.	Days after date.
Dd.	Delivered
Dd/s.	Delivered sound (grain Trade).
D.D. and Shpg.	Dock Dues and Shipping.
Deb.	Debenture
Dec.	Decrease
Def.	Deferred

D	
Deg.	Degree
Dept.	Department
D.f.	Dead freight
Dft.	Draft.
Diam	Diameter
Dis	Discount
Dist.	District
Div.	Dividend; Division.
Dk.	Dock.
d.l.o.	Dispatch loading only.
D/N	Debit Note.
D/O	Delivery Order
Do.	Ditto
Dols.	Dollars
Doz.	Dozen
D/P.	Document against Payment
d.p.	Direct Port.
D/R	Deposit Receipt
Dr.	Debtor; drawer. "dredging" Option General Cargo.
D/s.	Day's sight
D/W.	Dock Warrant

E	
Ea.	Each.
E&O.E.	Errors and omissions excepted
E.C.Ireland	East Coast Ireland
E.D.	Ex dividen
E.E.	Errors excepted.
E.g.	Exempli gratia (for Example).
E.I.	East Indies
Enclo.	Enclosure.
Entd.	Enetered
E.o.	Ex officio (by virtue of. Office).
E.o.h.p.	Except otherwise herein Provided.
Eq.	Equivalent
Et.seq.	Et Sequentes (and the Following).
Ex.	Examined; exchange; Executed out of; without.
Exch.	Exchange; exchequer
Ex cp.	Ex coupon.
Exd.	Examined
Ex div.	Without dividend
Ex. in.	Without interest
Ex-Mill.	Buyer responsible for Charges after delivery at Mill.
Ex-parte.	One side only.
Ex-Quay	Buyer responsible for charges after delivery at Quay.

MISCELLANEOUS

E	
Ex-Ship.	Buyer responsible for Charges after delivery at Ship.
Ex-Store/warehouse	Buyer responsible for Charges after delivery at Store.
Exs.	Expenses.

F	
F.a.a.	Free of all average
Fac.	Facsimile.
F.a.q.	Fair average quality.
F.a.s.	Free alongside ship. In this form of contract the seller must deliver the goods so they can be handled by the ship.
Fco.	Franco aboard or Franco (free).
F.c.s.	Free of capture and Seizure.
FC&S. and R and C.C.	Warranted free from above and damage caused by Riots and civil commotions.
F.D.D.	Francs de droit.
F/D.	Free docks.
f.d.	Free dispatch.
FC&S. and R and C.C.	Warranted free from above and damage caused by Riots and civil commotions.
F.D.D.	Francs de droit.
F/D.	Free docks.
f.d.	Free dispatch.
F.f.a.	Free from alongside; (free foreign agency).
F.g.	Fully good.
F.g.a.	Foreign General average.
F.g.f.	Fully good, fair.
f.h.	First half
F.i.b.	Free into bunker (coal Trade).
Fig.	Figure.
f.i.a.	Full interest admitted.
F.i.o.	Free in and out
Fir.	Firkin.
F.i.t.	Free of income tax.
F.l.	Floating Landing.
F.m.	Fair Mercantable.
Fms.	Fathoms
F/o.	For orders; full out terms (grain trade).
F.O.	Firm Offer
F.o.b.	Free on board.
F.o.c.	Free of charge
f.o.d.	Free of damage
Flg.	Following
For.	Foreign
F.o.r.	Free on rail
F.o.s.	Free on streamer
F.o.t.	Free on trucks
F.o.w.	First open water.
F.p.	Fully paid

F	
F.p.a.	Free from particular Average.
Fr. & c.c.	Free of riot and civil Commotion.
Frt.	Freight
Frt. fwd.	Freight forward
Frt. Ppd.	Freight prepaid
f.t.	Full terms
Ft.	Foot, feet.
F.T.W.	Free Trade Wharf.
Fur.	Furlong.

G	
G/a.	General average.
Gall.	Gallon
G.B.	Great Britain.
G.b.o.	Goods in bad order.
G.gr.	Great gross (144 doz).
g.l.	Gill.
G.m.	Good merchantable
G.m.b.	Good merchantable brand
G.m.q.	Good merchantable Quality.
G.o.b.	Good ordinary brand.
Govt.	Government
Gr.	Gross.
Gr.Wt.	Gross weight
Grs.	Grains
Grs.t.	Gross tons
G.t.c.	Good till countermanded.
Grade	Classified Gaulty.

H	
Hewn	Hewn timber per load.
Hhd.	Hogshead.
H.M.C.	His Majesty's Customs
H.P.	Horse-power.
H.P.N.	Horse-power, Nominal.
Hrs.	Hours

I	
I.B.	Invoice Book.
lb.	ibidem-in the same place.
I.B.I.	Invoice book Inwards
I.B.O.	Invoice Book Outwards.
id.	Idem-the same.
i.e.	Idest-that is.
I/L	Import License.
Incldg.	Including
Inst.	Instant-of the present Month.
Instn.	Institution
Instns.	Institution
Int.	Interest.
In trans	In transitu (in transit)
Inv.	Invoice
I.O.U.	I owe you
I.S.W.G.	Imperial Standard Wire Gauge.

J	
J/A	Joint Account.
Jr.	Junior

K	
Kild.	Kilderkin
Kilo.	Kilogramme
Kincon.	United Kingdom or Continent

L	
L.A.T.	Linseed Association Terms
Lat.	Latitude
Lb.	pound in weight
L/C.	Letter of Credit.
Ldg. And dely.	Landing and Delivery
Led.	Ledger.
Leg. Wt.	Legal weight
lh.	Last half.
L.I.P.	Life Insurance Policy
Long.	Longitude
L.S.	Locus sigilli-place of seal.
L.T.	Liverpool Terms.

M	
m.	meter, mile, minute
M/a.	My account
Max.	Maximum
M/C.	Marginal credit (banking)
M/C.	Metalling Clause (marine Insurance)
M/D.	Memorandum of Deposit
M/d.	Month's date (i.e Months after date)
Mdise	Merchandise
Med.	Medium
Memo.	Memorandum
Michs	Michaelmas
Min.	Minimum, minute
Min. B/L.	Minimum Bill of Lading
Min. wt.	Minimum weight
M.I.P.	Marine Insurance Policy
Mks.	Marks
M/m.	Made merchantable
M.M.	Merchantile Marine
M.M.A.	Merchandise Marks Act.
M.O.	Money Order
M.O.P.	Mother-of-pearl
Mos.	Months
M/R	Mate's Receipt
Ms.	Manuscripts; mail streamer
M.S.	Motor ship
M/s.	Month's sight (i.e. month's After sight).
M.S.A.	Merchant Shipping Act.

M	
M.S.C.	Manchester Ship Canal.
M.V.	Motor vessel
Mx.	Mixed.

N	
N.A.	Not above-used in fixing Loading positions in River Plate.
N.A.	North America.
N/A.	No advice (banking)
N.B.	Take note-mark well.
N/C.	New Charter or New Crop.
N/C or any	New Charter or any direct Port.
N.E.	No effects.
Nem. con	No one contradicting
Net	Netto (lowest)
Net terms.	Free of Charterer's Commission.
N/f.	No funds.
N.G.	No Grade
N/m.	No mark
N/O.	No orders (banking)
Nom.	Nominal
No reduction Bristol	Channel.
'N.o.p.	Not otherwise provided.
N.p.	Notary Public
n/p.	Net proceeds
Nos.	Numbers
N.R.	No risk (insurance)
N/S.	No sufficient (banking)
N.S.	New Style; New Series
N.t.	New Terms (grain trade)
Net t.	Net tons
Nt. Wt.	Net weight.

O	
O/a.	On account of
O.C.	Open Charter
O.c.	Off coast
o/c.	Overcharge
oc. B/L.	Ocean Bill of Lading
O/d.	On demand Off Coast Vessel at port of call awaiting orders
%	Order of; percent
% o	Per Mile-per thousand
O.P.	Open Policy (insurance)
O.R.	Owner's Risk
O.R.B.	Owner's risk of breakage
O.R.C.	Owner's risk of Chafinge
O.R.D.	Owner's risk of damage
O.R.F.	Owner's Risk of fire
O.R.I.	Owner's risk leakage
Ord.	Ordinary

MISCELLANEOUS

O	
O/s.	Old style
O/t.	Old Term (grain trade)
O.T.	n track or railway
Oz.	Ounce.

P	
P/A.	Private Account (bookkeeping)
P.A.	Particular Average
Pcl.	Parcel, part of a cargo
P and L.	Profit and Loss
P/C	Price Current; Pretty Cash; Per Cent
Pc.	Prices
P.c.r.c.a.	Pickled cold rolled and Close annealed Pieces.
Pcs.	Pieces.
P.C.B.	Petty Cash Book
P.D.	Port Dues. "Pixpinus" Charter Party in use for Pitchpine Cargoes
Pk.	Peck
Pkg.	Package
P.L.	Partial Loss (Insurance)
P.m.	Premium
P/N.	Promissory Note.
P.O.	Postal Order.
P.O.B.	Post Office Box.
P.O.D.	Pay on Delivery
p.p..	Picked ports (chartering)
Per pro	Per procuracion (on Behalf of).
Ppd.	Prepaid
P.p.i.	Policy proof of interest (marine insurance)
Ppt.	Prompt loading
Pref.	Preference of preferred
Pres.	President
Pro.	For.
Pro. and con.	For and against
Pro forma	As a matter of form
Pro tem	Pro tempore for the time being
Prox.	Proximo of the next month
P.R.	Parcel Receipt
Pt.	Pint
P.T.	Parcel Ticket
P.T.O.	Please Turn Over
Pts.	Pints
P.X.	Please Exchange

Q	
Qlty.	Quality
Qrs.	Quarters
Qts.	Quarts.
q.v.	Quod vide - which see.
Quid pro quo.	One exchanged for an Other an equivalent
Qy	Query

R	
R.A.T.	Rapeseed Association Terms
R/D.	Refer to Drawer (banking)
R.D.C.	Running-down Clause (insurance)
Re.	with reference to.
Recd.	Received
Regd.	Registered
R.I.	Re-insurance
R.O.	Receiving Office
R.P.	Reply Paid
R.S.O.	Railway Sub-Office
R.S.V.P.	Reply please.

S	
Sawn	Sawn Timber per standard
s.c.	scilicet (i.e. to wit)
Scale	Freight paid for Customary Scale Ton.
s/d.	Sea damaged (grain trade).
s.d.	Sine die (indefinitely).
S.D.	Sea damaged. In Contracts on this basis Grain damaged by water Or consideration may be Rejected by buyers
Sec.	Section; secretary
S&F.A.	Shipping and Forwarding Agent
Seq.	The following
S.g.	Specific gravity
S.G.	Used in a lloyd's policy and signifying according to some "Ship and Goods" but probably more correctly Salutia Gratis - for the stake of safety
Sgd.	Signed
Shipt.	Shipment
S.H.P.	Shaft horse-power
Shr.	Share
S.I.	Short Interest (insurance)
Sks.	Sacks.
Sl.	Sailer
S.I.	Salvage Loss
S/N.	Shipping Note
S.o.	Seller's Option
S.O.D.	Seller's option to double
Soc.	Society.
S.p.d.	Steamer pays due
S.P.	Supra Protest
S.S. & C.	Same Sea and Country
St..	Stone (in weight)
St.	Stet (let in stand)
s.t.	Short ton (2,000 lb).
Std.	Standard.
Stk.	Stock

S	
Str.	Streamer
S. to S.	Station to Station
Sun/ exct.	Sunday excepted in Lay-days
S.w.	Shipper's Weight

T	
T.	Tons; tare
TB.	Trial Balance
Tcs.	Tierces
T.E.	Trade Expenses
Thro'B/L	Through Bill of Lading
T.L.O.	Total Loss only (marine insurance)

U	
U/a.	Underwriting account (Marine insurance)
U.K.f.o.	United Kingdom for Orders
Ult.	Ultimo - of the last month
U /p.	Under proof (spirits)
U/w.	Underwriter.

V	
V.	Versus - against
Var.	Various
Vid.	Vide - see.
V.S.	Visible Supply
Viz.	Videlicet - namely
vv	Vice versa

W	
W.A	Western Australia
W.B.	Warehouse Book;
Way Bill	
w.b.	Water Ballast
W.C.	West Coast England
W.d.	Warranted
W.G.	Wire Gauge
w.g.	Weight guaranteed
w.p.a.	with particular average
W.P.	Without prejudice (insurance)
w.r.	Warehouse receipts
W/W.	Warehouse Warrant

Y	
Y/A	York Antwerp Rules (marine insurance) 10s 6d. net 10s. 6d net charter 2,158n

2023 CALENDAR

JANUARY							FEBRUARY						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
1	2	3	4	5	6	7				1	2	3	4
8	9	10	11	12	13	14	5	6	7	8	9	10	11
15	16	17	18	19	20	21	12	13	14	15	16	17	18
22	23	24	25	26	27	28	19	20	21	22	23	24	25
29	30	31					26	27	28				
MARCH							APRIL						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
				1	2	3							1
5	6	7	8	9	10	11	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28	29
							30						
MAY							JUNE						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
	1	2	3	4	5	6					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28	29	30	
JULY							AUGUST						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
						1			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30	31		
30	31												
SEPTEMBER							OCTOBER						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
					1	2	1	2	3	4	5	6	7
3	4	5	6	7	8	9	8	9	10	11	12	13	14
10	11	12	13	14	15	16	15	16	17	18	19	20	21
17	18	19	20	21	22	23	22	23	24	25	26	27	28
24	25	26	27	28	29	30	29	30	31				
NOVEMBER							DECEMBER						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
			1	2	3	4					1	2	
5	6	7	8	9	10	11	3	4	5	6	7	8	9
12	13	14	15	16	17	18	10	11	12	13	14	15	16
19	20	21	22	23	24	25	17	18	19	20	21	22	23
26	27	28	29	30			24	25	26	27	28	29	30
							31						

2024 CALENDAR

JANUARY							FEBRUARY						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
	1	2	3	4	5	6							3
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28	29		
MARCH							APRIL						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
					1	2			1	2	3	4	5
3	4	5	6	7	8	9	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	29	30				
31													
MAY							JUNE						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
			1	2	3	4							1
5	6	7	8	9	10	11	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28	29
							30						
JULY							AUGUST						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
	1	2	3	4	5	6					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28	29	30	31
SEPTEMBER							OCTOBER						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
	1	2	3	4	5	6				1	2	3	4
8	9	10	11	12	13	14	6	7	8	9	10	11	12
15	16	17	18	19	20	21	13	14	15	16	17	18	19
22	23	24	25	26	27	28	20	21	22	23	24	25	26
29	30						27	28	29	30	31		
NOVEMBER							DECEMBER						
S	M	T	W	Th	F	S	S	M	T	W	Th	F	S
					1	2							
3	4	5	6	7	8	9	3	4	5	6	7	8	9
10	11	12	13	14	15	16	10	11	12	13	14	15	16
17	18	19	20	21	22	23	17	18	19	20	21	22	23
24	25	26	27	28	29	30	24	25	26	27	28	29	30
							31						

MISCELLANEOUS

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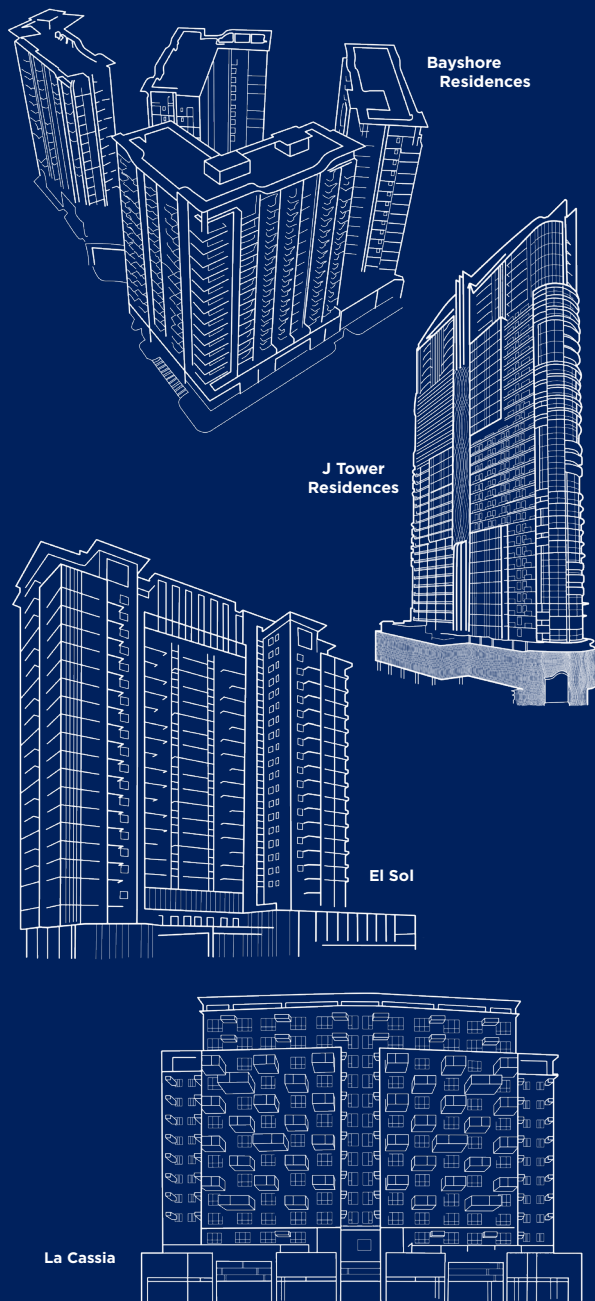
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