RLB Rider Levett Bucknall

RIDERS DIGEST 2018

USA
EDITION

This document serves as a summary of cost information and related data on the construction industry.

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RIDERS DIGEST

While the information in this publication is believed to be correct, no responsibility is accepted for its accuracy. Persons desiring to utilize any information appearing in this publication should verify its applicability to their specific circumstances.

Cost information in this publication is indicative and for general guidance only and is based on rates ruling at January 2018.

ACKNOWLEDGEMENTS

WHERE INFORMATION IS REQUIRED ON A SPECIFIC PROJECT, IT IS ESSENTIAL THAT PROFESSIONAL ADVICE IS OBTAINED.

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FOREWORD

Welcome to the 2018 edition of the Riders Digest;

a compendium of USA cost data and related information as well as international cost data.

Rider Levett Bucknall is an international property and construction consultancy firm with over 120 offices worldwide. By integrating local knowledge and expertise with global understanding, we provide our clients with professional advice that is second to none.

Our corporate culture and vision are focused on integrity, innovation, teamwork and client satisfaction. Our combined experience enables us to provide intelligent and responsible business and project solutions that optimize resources, maximize performance and enhance value throughout a project's life. Our goal is to make sure our clients and their projects succeed.

Rider Levett Bucknall is well known for its cost research through a variety of publications, such as our Quarterly Cost Reports, International Cost Reports,

White Papers and area-specific market studies. This commitment to research and innovation has given us an edge on the most up-to-date construction industry market knowledge.

I hope that you find our cost data and related information both informative and useful in your business.

Julian Anderson
President, North America
Chairman of the Global Board
Rider Levett Bucknall

RYERSON UNIVERSITY, CENTRE FOR URBAN INNOVATION

TORONTO, ONTARIO

The new Centre for Urban Innovation at Ryerson University will be a research, incubation and commercialization hub focusing on urban infrastructure issues and solutions. The new centre will provide 5,970 square metres (GFA) to the University faculty and students for conducting research on alternative energy, water management, food production and data analytics.

The new facility will be located within an existing three-storey historic building (originally the Ontario College of Pharmacy) on the Ryerson University campus, downtown Toronto. There will be two additions with green roofs to the building. Some key spaces within the building will be preserved, including an old pharmacy lecture hall. The new additions will be used for research, joining to the heritage building with a sky-lit open atrium. The project is targeting LEED Silver certification, in part by adaptively reusing the existing building and reducing the construction footprint.

Rider Levett Bucknall was retained to provide Cost Management services during the planning, design and construction stages of this project.

INTERNATIONAL CONSTRUCTION

CONSTRUCTION COSTS

The costs stated in this section represent hard construction costs and reflect the standards and specifications normal to that country or region. Variation in costs may be experienced for factors such as site conditions, climatic conditions, standards of specification, market conditions, etc. Costs for associated site development work such as site formation, utilities, paving, parking and landscaping are excluded.

Figures also exclude furniture, fittings and equipment (FF&E) with the exception of figures for Hong Kong, China and Singapore, which do include FF&E in hotel costs.

All project soft costs such as land acquisition, design and engineering fees, entitlements, permitting and financing are excluded. No allowance has been included to cover possible changes in construction costs between the date of this publication and any future date.

Figures on the following pages are stated in construction costs per gross square foot in local currency. For your convenience, local currency exchange rates to USD($) at 1 December 2017 are provided in the table below.

CURRENCY	EXCHANGE RATE TO USD	
Australian Dollar	AUD	0.8067
British Pound	GBP	1.4214
Chinese Yuan	CNY	0.1569
Hong Kong Dollar	HKD	0.1279
Indonesian Rupiah	IDR	0.0001
South-Korean Won	KRW	0.0009
Malaysian Ringgit	MYR	0.2565
New Zealand Dollar	NZD	0.7423
Philippine Peso	PHP	0.2747
Qatari Rial	QAR	0.2747
Saudi Riyal	SAR	0.2667
Singapore Dollar	SGD	0.7646
United Arab Emirates Dirham	AED	0.2723
Vietnamese Dong	VND	0.0000

CONSTRUCTION COSTS

LOCATION /CITY	LOCAL CURRENCY	COST PER SF			
		OFFICE BUILDING			
		PREMIUM		GRADE A	
		LOW	HIGH	LOW	HIGH
AMERICAS @ Q4 2017					
BOSTON	USD	300	475	200	300
CALGARY	CAD	235	295	190	285
CHICAGO	USD	280	450	175	280
DENVER	USD	165	255	120	185
HONOLULU	USD	285	525	245	400
LAS VEGAS	USD	140	295	105	190
LOS ANGELES	USD	225	340	165	250
NEW YORK	USD	375	575	300	400
PHOENIX	USD	160	275	120	175
PORTLAND	USD	180	250	130	180
SAN FRANCISCO	USD	210	325	190	300
SEATTLE	USD	205	250	150	205
TORONTO	CAD	195	260	174	250
WASHINGTON DC	USD	275	425	200	300
ASIA @ Q3 2017					
BEIJING	RMB	825	1,215	770	1,165
GUANGZHOU	RMB	775	1,175	715	1,080
HO CHI MINH CITY	VND ('000)	2,680	3,855	2,295	2,865
HONG KONG	$HKD	2,540	3,790	2,165	2,940
JAKARTA	RP ('000)	1,090	1,420	740	1,185
KUALA LUMPUR	RINGGIT	300	430	235	325
MACAU	MOP	2,000	2,790	1,765	2,475
SEOUL	KRW ('000)	250	325	190	235
SHANGHAI	RMB	805	1,195	725	1,110
SINGAPORE	SGD	310	435	220	350
EUROPE @ Q3 2017					
BELFAST	GBP	145	200	125	200
BIRMINGHAM	GBP	200	290	160	290
BRISTOL	GBP	210	300	170	300
CARDIFF	GBP	180	250	155	250
EDINBURGH	GBP	190	265	165	265
LONDON	GBP	280	365	230	360
MANCHESTER	GBP	220	290	190	285
MIDDLE EAST @ Q3 2017					
ABU DHABI	AED	595	715	480	675
DUBAI	AED	625	755	505	710
DOHA	QAR	700	915	655	885
OCEANIA @ Q4 2017					
ADELAIDE	AUD	280	410	225	340
AUCKLAND	NZD	390	510	300	485
BRISBANE	AUD	280	420	235	375
CANBERRA	AUD	365	580	295	450
CHRISTCHURCH	NZD	390	485	295	455
DARWIN	AUD	335	445	260	410
GOLD COAST	AUD	265	430	205	325
MELBOURNE	AUD	340	455	265	360
PERTH	AUD	325	475	260	405
SYDNEY	AUD	380	510	285	415
WELLINGTON	NZD	335	485	290	480

COST PER SF					
RETAIL				RESIDENTIAL MULTI STORY	
MALL		STRIP SHOPPING			
LOW	HIGH	LOW	HIGH	LOW	HIGH
175	275	125	200	175	300
220	310	110	160	140	215
185	280	135	220	160	340
90	145	75	140	90	200
210	490	175	430	195	440
115	480	65	145	70	405
150	330	120	185	185	295
275	425	175	300	200	375
120	200	80	140	90	185
140	240	120	180	150	240
225	350	225	325	320	430
135	305	110	155	165	260
200	250	105	160	130	205
150	275	125	175	175	300
905	1,385	795	1,245	435	640
885	1,255	765	1,145	410	585
2,165	2,885	-	-	1,660	2,510
2,550	3,240	2,175	2,830	2,410	4,025
700	915	-	-	740	1,085
225	375	-	-	205	485
2,195	2,700	1,860	2,380	1,525	2,400
170	245	140	215	170	235
845	1,340	755	1,225	400	585
230	355	-	-	210	335
220	305	70	130	130	185
295	420	95	180	170	240
295	420	95	180	185	265
275	385	85	165	165	230
290	405	90	170	175	245
375	525	120	225	265	440
310	435	100	185	190	265
420	665	-	-	460	625
440	700	-	-	485	700
570	700	-	-	700	840
170	325	140	195	255	370
295	335	170	215	355	450
215	375	130	195	250	430
255	425	135	270	305	535
270	300	150	195	325	430
190	280	135	225	220	285
230	335	115	170	200	325
230	340	130	175	255	450
205	310	110	270	215	430
210	445	165	215	280	580
280	300	150	195	340	430

CONSTRUCTION COSTS

LOCATION /CITY	LOCAL CURRENCY	COST PER SF			
		HOTELS			
		3 STAR		5 STAR	
		LOW	HIGH	LOW	HIGH
AMERICAS @ Q4 2017					
BOSTON	USD	250	375	375	550
CALGARY	CAD	190	245	300	450
CHICAGO	USD	270	390	390	650
DENVER	USD	155	190	215	325
HONOLULU	USD	325	545	515	740
LAS VEGAS	USD	300	150	350	500
LOS ANGELES	USD	225	330	355	520
NEW YORK	USD	300	400	400	600
PHOENIX	USD	150	250	300	500
PORTLAND	USD	150	190	190	275
SAN FRANCISCO	USD	350	500	400	600
SEATTLE	USD	225	240	245	340
TORONTO	USD	195	260	300	355
WASHINGTON DC	USD	250	350	350	525
ASIA @ Q3 2017					
BEIJING	RMB	1,045	1,345	1,400	1,850
GUANGZHOU	RMB	1,035	1,260	1,400	1,800
HO CHI MINH CITY	VND ('000)	2,625	3,390	3,490	4,275
HONG KONG	$HKD	3,260	3,780	3,960	4,845
JAKARTA	RP ('000)	1,200	1,340	1,470	1,875
KUALA LUMPUR	RINGGIT	270	375	540	755
MACAU	MOP	2,715	3,120	3,370	4,145
SEOUL	KRW ('000)	220	280	340	505
SHANGHAI	RMB	1,025	1,325	1,390	1,830
SINGAPORE	SGD	345	390	445	585
EUROPE @ Q3 2017					
BELFAST	GBP	105	155	165	230
BIRMINGHAM	GBP	140	210	225	325
BRISTOL	GBP	145	195	250	335
CARDIFF	GBP	130	195	210	285
EDINBURGH	GBP	140	205	220	300
LONDON	GBP	200	255	295	395
MANCHESTER	GBP	150	200	235	325
MIDDLE EAST @ Q3 2016					
ABU DHABI	AED	615	870	920	1,225
DUBAI	AED	645	970	970	1,505
DOHA	QAR	805	915	1,240	1,560
OCEANIA @ Q4 2017					
ADELAIDE	AUD	280	375	390	485
AUCKLAND	NZD	440	495	565	645
BRISBANE	AUD	300	430	430	590
CANBERRA	AUD	330	560	445	680
CHRISTCHURCH	NZD	410	465	485	590
DARWIN	AUD	305	380	390	480
GOLD COAST	AUD	280	430	365	590
MELBOURNE	AUD	305	400	435	570
PERTH	AUD	280	390	390	515
SYDNEY	AUD	340	430	480	645
WELLINGTON	NZD	410	465	485	590

COST PER SF					
CAR PARKING				INDUSTRIAL WAREHOUSE	
MULTI STORY		BASEMENT			
LOW	HIGH	LOW	HIGH	LOW	HIGH
75	125	90	150	100	175
75	90	75	120	85	145
80	125	120	155	110	185
50	75	90	120	90	150
100	145	140	265	145	225
50	85	60	150	50	100
105	125	130	175	110	175
95	175	125	200	115	200
45	70	60	110	55	100
85	105	110	150	90	150
110	145	175	215	140	190
95	120	140	165	100	125
70	90	70	90	115	150
70	125	80	125	90	150
240	330	405	705	470	590
225	325	400	690	445	555
980	1,465	2,015	2,745	670	1,010
995	1,180	2,045	2,800	1,680	2,110
375	485	485	665	515	655
85	130	150	345	110	195
-	-	1,170	1,475	-	-
70	90	90	115	125	155
225	330	430	715	435	560
75	145	155	235	120	155
25	55	65	115	30	55
40	75	85	150	45	60
45	85	100	160	45	70
35	65	85	140	35	65
35	70	85	150	40	70
50	95	130	205	50	95
35	75	100	160	40	75
185	370	290	460	155	275
250	390	335	485	200	310
295	485	270	455	-	-
70	100	145	210	70	120
95	130	235	290	80	110
95	140	185	235	75	120
85	140	110	195	80	145
90	145	190	235	80	120
80	135	125	165	85	155
75	120	160	220	65	120
75	120	125	165	60	125
70	110	195	335	60	115
85	125	120	195	80	125
85	120	215	270	80	110

RLB CONSTRUCTION BID PRICE INDEX

(Annual % Change)

LOCATION	2015	2016	2017 (F)	2018 (F)	2019 (F)	2020 (F)
AFRICA @ Q3 2017						
CAPE TOWN	6.0	7.3	NP	NP	NP	NP
JOHANNESBURG	7.2	6.4	7.9	7.0	7.6	10.9
MAPUTO	4.0	4.0	4.0	4.0	NP	NP
PORT LOUIS	5..5	6.0	6.0	6.0	6.0	6.0
PRETORIA	7.2	7.5	8.0	4.8	4.8	NP
AMERICAS @ Q3 2017						
BOSTON	4.0	4.0	3.5	4.0	4.0	4.0
CALGARY	NP	NP	1.5	2.0	2.0	2.0
CHICAGO	4.1	4.3	5.0	4.0	4.0	4.0
DENVER	4.9	5.0	3.0	3..0	3.0	3.0
HONOLULU	8.2	0.7	1.0	2.0	2.0	2.0
LAS VEGAS	4.4	3.3	3.0	5.0	5.0	5.0
LOS ANGELES	5.2	8.4	5.0	4.0	4.0	4.0
NEW YORK	3.9	3.9	3.5	4.0	4.0	4.0
PHOENIX	3.7	3.7	3.0	3.5	3.5	3.5
PORTLAND	4.6	4.6	5.0	4.0	4.0	4.0
SAN FRANCISCO	9.4	14.7	5.0	4.5	4.5	4.5
SEATTLE	4.9	4.7	5.0	4.0	4.0	4.0
TORONTO	NP	NP	1.5	3.0	3.0	3.0
WASHINGTON DC	4.4	4.3	4.0	4.0	4.0	4.0
ASIA @ Q3 2017						
BEIJING	-1.0	0.0	2.0	2.0	2.0	2.0
CHENGDU	0.3	-0.8	2.0	2.0	2.0	2.0
GUANGZHOU	-3.0	1.0	2.5	3.5	2.0	2.0
HONG KONG	1.2	0.4	0.0	2.0	2.0	2.0
MACAU	3.5	0.0	2.0	2.8	3.0	3.0
SEOUL	-0.5	3.9	2.5	2.1	1.9	1.8
SHANGHAI	-4.4	6.0	3.0	3.0	3.0	2.0
SHENZHEN	-0.7	1.0	2.0	3.5	4.1	4.1
SINGAPORE	1.5	-5.8	-1.5	NP	NP	NP
EUROPE @ Q3 2017						
BERLIN	2.2	2.0	2.0	2.0	2.0	NP
BIRMINGHAM	4.0	3.0	2.8	2.5	3.0	3.0
BRISTOL	4.5	5.0	5.0	5.5	5.2	NP
BUDAPEST	1.0	5.5	9.5	8.0	8.0	5.0
DUBLIN	7.0	4.0	8.0	8.0	NP	NP
LONDON	5.9	3.5	2.0	1.5	2.0	3.5
SHEFFIELD	9.0	2.5	-1.0	-3.0	0.5	NP
MADRID	0.0	0.1	0.8	0.1	0.1	NP
MANCHESTER	4.0	4.0	2.5	2.0	3.0	3.5
MOSCOW	-5.0	0.0	1.0	1.5	1.5	2.0
WARSAW	0.7	3.2	3.2	1.2	NP	NP
MIDDLE EAST @ Q3 2017						
ABU DHABI	4.7	-5.0	-3.0	2.0	7.0	8.0
DOHA	5.0	5.5	6.0	7.0	NP	NP
DUBAI	4.6	3.0	3.5	3.5	3.5	3.5
RIYADH	4.8	5.0	5.0	5.0	5.0	NP

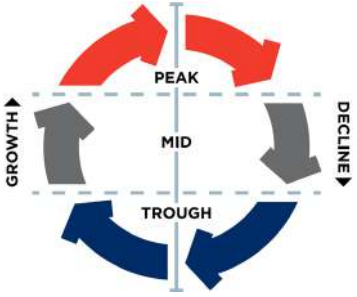
(F) Forecast
(NP) Not Published

LOCATION	2015	2016	2017 (F)	2018 (F)	2019 (F)	2020 (F)
OCEANIA @ Q4 2017						
ADELAIDE	0.8	1.8	3.1	3.5	4.0	4.0
AUCKLAND	5.1	5.5	8.0	6.0	3.5	3.0
BRISBANE	5.9	7.2	4.1	4.0	4.1	3.1
CANBERRA	2.0	2.5	2.8	3.5	3.2	3.0
CHRISTCHURCH	6.0	3.0	3.0	3.0	2.0	2.0
DARWIN	1.0	1.0	1.0	1.5	2.0	2.5
GOLD COAST	4.0	6.5	3.0	2.5	3.0	3.0
MELBOURNE	2.0	2.0	3.0	3.0	3.0	3.0
PERTH	0.8	0.0	0.0	1.5	2.5	3.0
SYDNEY	4.5	4.8	4.2	4.9	3.9	3.9
TOWNSVILLE	3.0	3.0	4.0	4.0	4.0	3.1
WELLINGTON	3.0	4.5	4.5	4.0	3.0	3.0

CONSTRUCTION MARKET ACTIVITY

The construction market activity model, located to the right, illustrates the different growth and decline zones in a theoretical construction industry business cycle. The tabulation in the preceding and following pages provides an overview of the relative growth/decline of each development sector in various cities. Each city has its own business cycle in the context of its own economy and as such the performance of each development sector is not strictly comparable between cities. Information is current as of December 2017.

LOCATION	HOUSES	APARTMENTS	OFFICES
AMERICAS			
Anguilla	▼	▼	▼
Antigua & Barbuda	▼	▼	▼
Bahamas	▲	▲	▲
Barbados	▲	▲	▲
Bermuda	▲	▲	▼
Boston	▼	▼	▲
British Virgin Islands	▼	▼	▼
Cayman Islands	▲	▼	▼
Chicago	▲	▲	▲
Cuba	▼	▼	▼
Denver	▲	▲	▲
Dominica	▼	▼	▼
Dominican Reppublic	▼	▼	▼
Grenada	▼	▼	▼
Guadaloupe	▲	▲	▼
Haiti	▲	▲	▲



INDUSTRIAL	RETAIL	HOTEL	CIVIL
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CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
AMERICAS			
Honolulu	▲	▲	▲
Jamaica	▲	▲	▲
Las Vegas	▲	▲	▼
Los Angeles	▼	▲	▼
Martinique	▲	▲	▼
Montserrat	▼	▼	▼
Netherlands Antilles	▲	▲	▼
New York	▼	▼	▲
Phoenix	▲	▲	▲
Portland	▲	▲	▲
Puerto Rico	▲	▲	▼
San Francisco	▲	▲	▲
Seattle	▲	▲	▲
St. Kitts and Nevis	▲	▼	▼
St. Lucia	▲	▼	▲
St. Vincent and the Grenadines	▲	▲	▼
Trinidad and Tobago	▲	▼	▼
Turks and Caicos Islands	▲	▼	▼
U.S. Virgin Islands	▲	▼	▼
Washington, DC	▲	▲	▲

INDUSTRIAL	RETAIL	HOTEL	CIVIL
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CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
AFRICA			
Cape Town	▲	▲	▲
Johannesburg	▲	▲	▲
Maputo	▲	▲	▲
Port Louis	▲	▲	▲
Pretoria	▲	▲	▼
ASIA			
Beijing	▼	▼	▼
Chengdu	▲	▲	▼
Guangzhou	▼	▲	▼
Ho Chi Minh City	▲	▲	▲
Hong Kong	▼	▼	▼
Jakarta	▲	▲	▲
Kuala Lumpur	▲	▲	▼
Macau	▼	▼	▼
Manila	▲	▲	▲
Seoul	▲	▲	▲
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Shenzhen	▼	▲	▲
Singapore	▼	▼	▼

INDUSTRIAL	RETAIL	HOTEL	CIVIL
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CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
EUROPE			
Amsterdam	▲	▲	▼
Belfast	▼	▼	▲
Berlin	▲	▲	▼
Birmingham	▲	▲	▲
Bristol	▼	▼	▲
Dublin	▲	▲	▼
Edinburgh	▲	▲	▲
London	▼	▼	▼
Madrid	▲	▲	▲
Manchester	▲	▲	▲
Milan	▼	▼	▼
Moscow	▲	▲	▼
Oslo	▲	▲	▲
Paris	▲	▲	▲
Sheffield	▲	▲	▲
MIDDLE EAST			
Abu Dhabi	▲	▲	▼
Doha	▲	▲	▼
Dubai	▼	▼	▼
Riyadh	▲	▲	▲

INDUSTRIAL	RETAIL	HOTEL	CIVIL
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CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
OCEANIA			
Adelaide	▲	▲	▲
Auckland	▼	▲	▲
Brisbane	▼	▼	▼
Canberra	▲	▲	▲
Christchurch	▼	▲	▼
Darwin	▲	▼	▲
Gold Coast	▼	▼	▼
Melbourne	▲	▲	▲
Perth	▼	▼	▼
Sydney	▲	▲	▲
Wellington	▲	▲	▲

INDUSTRIAL	RETAIL	HOTEL	CIVIL
▲	▲	▲	▲
▲	▲	▲	▲
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▲	▲	▲	▲

BURGESS ELEMENTARY SCHOOL

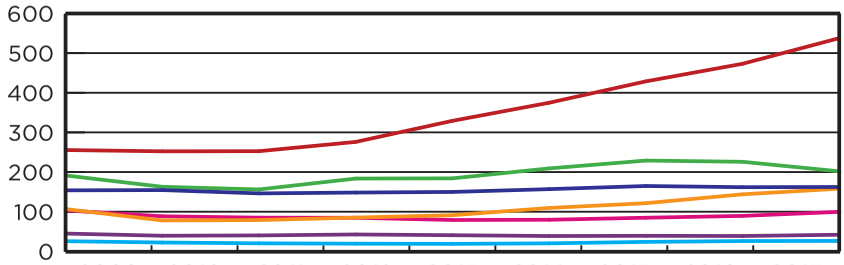
STURBRIDGE, MASSACHUSETTS

First opening in 1950 with additions in 1958, 1963, 1968 and 1972, Burgess Elementary School underwent its most thorough renovation- a three-phase project ending in 2012. The school is one of the largest preschool to Grade 6 schools in Massachusetts, and now features state-of-the-art technology with smartboards in each classroom. Sustainable elements such as low flow fixtures and a solar array to help teach students environmental awareness while lowering operating costs and keeping expenses down in the future.

DRA was selected to perform design and construction services for the addition / renovation, which included the addition of a new building, renovation and updating the existing classroom section of the building, brand new playground, walking trail, renovated gymnasium and a new gymnasium.

Rider Levett Bucknall provided cost consulting for this project to Drummey Rosane Anderson, Inc.

USA CONSTRUCTION



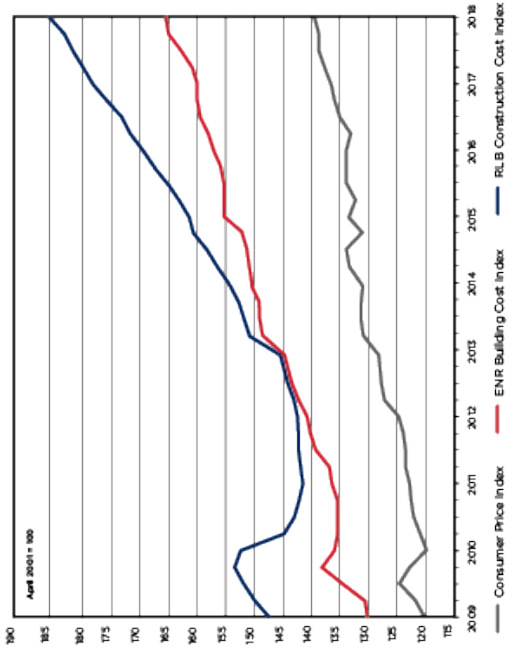
	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residential	255.54	252.33	252.65	276.06	329.22	374.86	428.76	473.16	537.77
Public Works	153.88	154.52	146.17	148.29	149.89	156.91	164.83	161.82	162.32
Commercial	106.65	77.95	78.83	85.14	91.14	109.42	121.42	143.84	158.08
Industrial	191.34	162.84	156.14	183.60	184.07	209.21	228.98	225.89	201.86
Educational	103.20	88.41	84.99	84.67	79.06	79.68	84.77	89.39	99.58
Hospitality/Leisure	25.60	22.23	20.23	19.33	18.80	20.16	23.84	25.96	26.23
Healthcare	44.85	39.34	40.20	42.54	40.69	38.65	39.15	38.70	41.83
	1,077.35	**906.54**	**809.25**	**788.33**	**850.46**	**906.35**	**1,005.63**	**1,185.68**	**1,256.99**

Sources: U.S. Census Bureau

*Forecast based on seasonally adjusted annual figures as of December 2017.

INFLATION INDEX COMPARISON

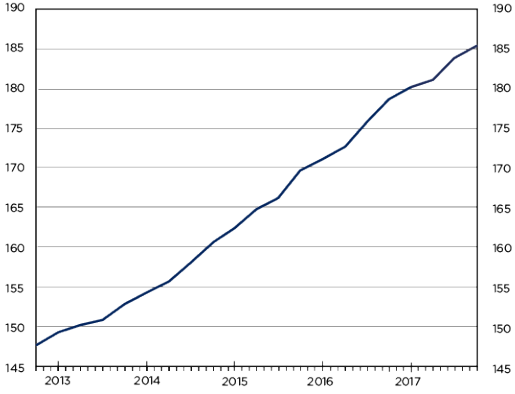
The chart below shows the relative differences in inflation between the cost of general goods and services (represented by the U.S. Bureau of Labor Statistics' Consumer Price Index), the cost of construction materials and labor (represented by Engineering News-Record's Building Cost Index) and the bid cost of construction (represented by Rider Levett Bucknall's National Construction Cost Index).



Sources: U.S. Bureau of Labor Statistics, Engineering News-Record.

NATIONAL CONSTRUCTION COST INDEX

The National Construction Cost Index shows how construction costs have changed each quarter since October 2013..

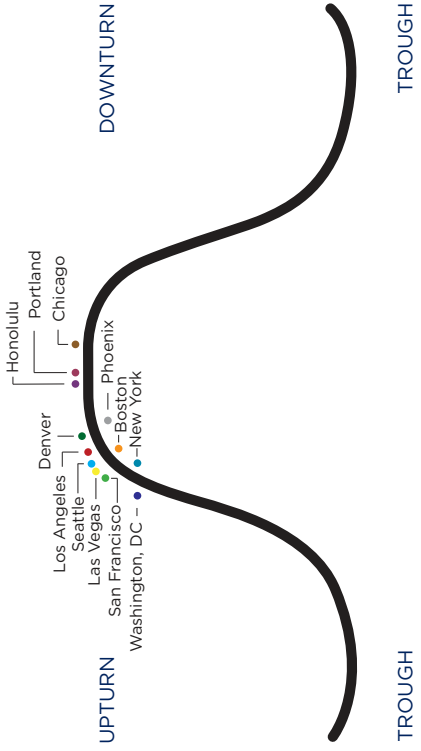


QUARTER	COST INDEX
October 2013	153.09
January 2014	154.56
April 2014	156.33
July 2014	158.48
October 2014	161.11
January 2015	162.98
April 2015	164.96
July 2015	166.85
October 2015	169.05
January 2016	171.38
April 2016	173.84
July 2016	176.48
October 2016	178.34
January 2017	180.11
April 2017	182.16
July 2017	183.99
October 2017	185.87

CONSTRUCTION ACTIVITY CYCLE

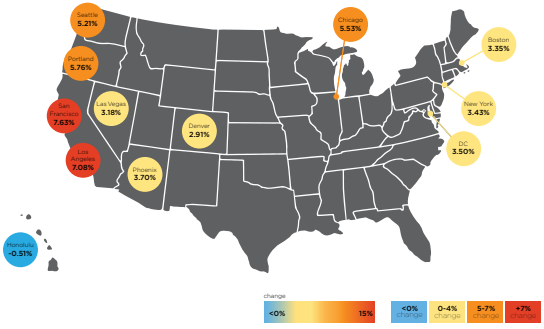
The chart below depicts the position of each city in a theoretical construction industry business cycle. The aim of the chart is to provide an overview of the relative performance of each city in the context of its own economy.

Each city has its own industry business cycle, and as such, the city cycles are not directly comparable with each other. As the amplitude and frequency of the cycle(s) are not expressed in this chart, there is no direct parameter of extent of the cycle or of its time period.



COMPARATIVE COST INDEX

The Comparative Cost Index tracks the bid cost of construction in each city, which includes, in addition to costs of labor and materials, general contractor and subcontractor overhead costs and fees (profit). The index also includes sales and use taxes that standard construction contracts attract.



City	October 2016	October 2017	Annual % Change
Boston	20,489	21,176	3.35%
Chicago	19,809	20,905	5.53%
Denver	13,932	14,337	2.91%
Honolulu	24,181	24,058	-0.51%
Las Vegas	13,342	13,766	3.18%
Los Angeles	19,225	20,586	7.08%
New York	24,101	24,927	3.43%
Phoenix	13,578	14,080	3.70%
Portland	14,469	15,302	5.76%
San Francisco	23,005	24,760	7.63%
Seattle	15,972	16,804	5.21%
Washington, DC	19,376	20,054	3.50%

INPUTS TO CONSTRUCTION COSTS

LABOR

Labor used in direct construction activities.

MATERIALS

Materials which are incorporated into the completed project as well as temporary materials (such as plywood used in formwork).

EQUIPMENT

Equipment used in the construction process such as pumps, generators, material hoists, cranes and the like.

SUBCONTRACTORS

Construction work undertaken for the general contractor by sub-contractors (including tiered subcontractors).

BONDS

Guarantees extended by a third party to the owner of a building under construction that the building will be satisfactorily completed (performance bonds) and/or that payment to subcontractors and suppliers will be made (payment bonds).

INSURANCE

Insurances including builder's risk insurance, general liability insurance, automobile liability insurance, professional liability insurance (for any work performed on a design/build basis), subcontractor default insurance (sub-guard) and the like.

TAXES

Taxes levied on the whole of construction or on construction labor and/or materials.

GENERAL CONTRACTOR OVERHEAD & PROFIT

There are two types of overhead costs; on-site (often referred to as General Conditions or General Requirements) and off-site (often referred to as Home Office Overhead). Profit is the fee charged by the general contractor for undertaking the project and is sometimes referred to as 'profit and risk'.

SUPPLY & DEMAND (WHAT THE MARKET WILL BEAR)

The sum of the above costs are not always what the project will cost the owner (or the entity for whom the project is being constructed). In a weak market the contact sum may be significantly less than the figured costs (such as zero figuring for home office overhead and profit) but in a booming market may be well above the figured costs (when prices are increased to take advantage of the buoyant market).

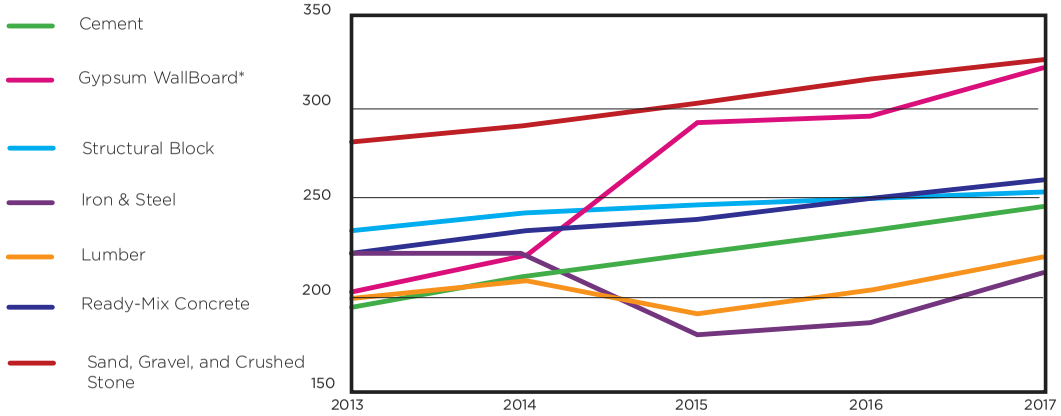
MECHANICAL COMPARATIVE LABOR INDEX

The Comparative Labor Index shows the relative cost of construction labor among the markets listed as of December 2017, using labor wage costs in Phoenix, Arizona as a baseline.

COMPARATIVE LABOR INDEX	
147	Boston, MA
90	Calgary, AB
151	Chicago, IL
96	Cincinnati, OH
88	Columbus, OH
98	Denver, CO
125	Honolulu, HI
63	Houston, TX
126	Las Vegas, NV
136	Los Angeles, CA
82	Miami, FL
129	Minneapolis, MN
79	Nashville, TN
189	New York, NY
100	Phoenix, AZ
130	Portland, OR
124	San Francisco, CA
147	Seattle, WA
116	Washington, DC

Source: Davis-Bacon Wage Determinations at December 2017

MATERIALS PRICE INDEX



*For Gypsum Wall Board only, Base = 100 at 1994

Average year-to-date as of December 2017

Source: Bureau of Labor Statistics

DESIGN & CONSTRUCTION REGULATIONS

This section contains information of use and interest to those practicing in the architecture, engineering and construction disciplines in the United States.

INTERNATIONAL BUILDING CODE®

Adopted by most of the United States, the International Building Code® (IBC) is a model building code to address the design and installation of building systems through minimum requirements that safeguard public health and safety and emphasize building performance. When originally released in 2000, the IBC consolidated regional codes for energy conservation, fuel gas, mechanical, plumbing, private sewage disposal, property maintenance, zoning, and fire protection.

INTERNATIONAL RESIDENTIAL CODE®

The International Residential Code® (IRC) is a comprehensive, stand-alone residential code that creates minimum regulations for one- and two-family dwellings of three stories or less. It brings together all building, plumbing, mechanical, fuel gas, energy and electrical provisions for one- and two-family residences. The IRC also provides a prescriptive approach (i.e. a set of measures) and a performance approach (i.e. energy modeling) for determining compliance.

NATIONAL ELECTRIC CODE®

The National Electrical Code® (NEC), or NFPA 70, is a United States standard for the safe installation of electrical wiring and equipment. It is part of the National Fire Codes series published by the National

Fire Protection Association, Inc. (NFPA). While the NEC is not itself a U.S. law, NEC use is commonly mandated by state or local law.

DAVIS–BACON ACT OF 1931

Requires all contractors and subcontractors performing work on federal or District of Columbia construction contracts or federally assisted contracts in excess of $2,000 to pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits for corresponding classes of laborers and mechanics employed on similar projects in the area.

COPELAND ACT (COPELAND ANTI-KICKBACK ACT)

Prohibits contractors from coercing or otherwise requiring their employees to return any part of the compensation they earned under Federal contracts.

FAIR LABOR STANDARDS ACT OF 1938 (FLSA)

Establishes minimum wage, overtime pay, record-keeping, and child labor standards affecting full-time and part-time workers in the private sector and in Federal, State, and local governments.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Protects workers from safety and health hazards in the workplace. Also prohibits employers from retaliating against employees for exercising their rights under the Act. Enforcement and administration of the Act in states under federal jurisdiction is handled primarily by

U.S. Occupational Safety and Health Administration.

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Requires all contractors and subcontractors on federal service contracts and federal and federally assisted construction contracts over $100,000 to pay laborers and mechanics employed in the performance of the contracts 1.5 times their basic rate of pay for all hours worked over 40 in a work week. This Act also prohibits unsanitary, hazardous, or dangerous working conditions on Federal construction projects.

MILLER ACT

Requires all contractors and subcontractors on federal service contracts and federally assisted construction contracts over $100,000 to furnish a payment bond as security for the protection of those supplying labor and/or materials. Failure by a contractor to pay suppliers and subcontractors gives such suppliers and subcontractors the right to sue the contractor in U.S. District Court in the name of the United States. Other payment protections may be provided for contracts between $30,000 and $100,000.

AMERICANS WITH DISABILITIES ACT OF 1990 (ADA)

A wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability with provisions for employment, public entities and public transportation, public accommodations and commercial facilities, and telecommunications. Under Titles II and III of the Act,

all construction, modification or alterations must be fully compliant with the Americans With Disabilities Act Accessibility Guidelines (ADAAG), a document detailing scoping and technical requirements for accessibility to buildings and facilities by individuals with disabilities.

IMMIGRATION REFORM AND CONTROL ACT OF 1986

Amends and repeals sections of the Immigration and Nationality Act (INA) requires legalization of undocumented aliens who had been continuously unlawfully present since 1982, legalization of certain agricultural workers, penalizes employers who knowingly hire undocumented workers, and increased enforcement at U.S. borders in order to control and deter illegal immigration to the United States.

BROOKS ACT OF 1972

Requires the Federal government to select architecture and engineering firms based upon their competency, qualifications and experience rather than by price.

EXECUTIVE ORDER 13502

In 2009, President Obama issued an Executive Order entitled "Use of Project Labor Agreements for Federal Construction Projects" to encourage agencies to use Project Labor Agreements (PLAs) on federal construction projects with a total cost to the government of $25 million or more.

As defined by the Order, PLAs are pre-hire collective bargaining agreements that govern wages, benefits,

work rules, and other terms and conditions of employment for specific projects.

The Executive Order allows federal agencies to consider the use of PLAs where the agreements will "advance the federal government's interest in achieving economy and efficiency in federal procurement" and "be consistent with law."

The Order encourages the use of PLAs in large scale projects, but does not mandate them. Under the Order, the federal government cannot currently compel a contractor to enter into an agreement with any particular labor organization or owner. The Order does not explicitly exclude non-union contractors from competition.

Sources: International Code Council®, National Fire Protection Association, Inc., Ed.gov/open/plan/recovery-gov, U.S. General Services Administration, U.S. Government Printing Office, U.S. Department of Homeland Security, U.S. Department of Justice and U.S. Department of Labor.

LIST OF U.S. GOVERNMENT ENTITIES

ORGANIZATION	WEBSITE ADDRESS
Bureau of Economic Analysis	www.bea.gov
Bureau of Labor Statistics	www.bls.gov
Bureau of Land Management	www.blm.gov
Bureau of Overseas Building Operations	www.state.gov/obo
Congressional Budget Office	www.cbo.gov
Environmental Protection Agency	www.epa.gov
FedBizOpps	www.fbo.gov
FedConnect	www.fedconnect.net
Federal Acquisition Regulation (FAR)	www.acquisition.gov
Federal Highway Administration	www.fhwa.dot.gov
Federal Trade Commission	www.ftc.gov
FedWorld.gov	supcourt.ntis.gov
Indian Health Service	www.ihs.gov
National Park Service	www.nps.gov
National Resources Conservation Service	www.nrcs.usda.gov
Naval Facilities Engineering Command	www.navy.mil/local/navfachq/
Occupational Safety & Health Administration	www.osha.gov
Recovery.gov	www.ed.gov/open/plan/recovery-gov
System for Award Management	www.sam.gov

ORGANIZATION	WEBSITE ADDRESS
The White House	www.whitehouse.gov
USA.gov	www.usa.gov
U.S. Army Corps of Engineers	www.usace.army.mil
U.S. Bureau of Reclamation	www.usbr.gov
U.S. Census Bureau	www.census.gov
U.S. Department of Commerce	www.commerce.gov
U.S. Department of Defense	www.defense.gov
U.S. Department of Energy	www.energy.gov
U.S. Department of Housing & Urban Development	www.hud.gov
U.S. Department of Labor	www.dol.gov
U.S. Department of the Interior	www.doi.gov
U.S. Department of the Treasury	www.treasury.gov
U.S. Department of Transportation	www.dot.gov
U.S. Department of Veterans Affairs	www.va.gov
U.S. Fish & Wildlife Service	www.fws.gov
U.S. General Services Administration	www.gsa.gov
U.S. Geological Survey	www.usgs.gov
U.S. Securities & Exchange Commission	www.sec.gov
U.S. Small Business Administration	www.sba.gov

LIST OF INDUSTRY ASSOCIATIONS

ORGANIZATION	WEBSITE ADDRESS
Airport Consultants Council	www.acconline.org
American Bar Association Forum on the Construction Industry	www.americanbar.org
American Institute of Architects	www.aia.org
American Road & Transportation Builders Association	www.artba.org
American Society for Healthcare Engineering	www.ashe.org
American Society of Landscape Architects	www.asla.org
American Society of Professional Estimators	www.aspenational.org
American Subcontractors Association	www.asaonline.com
Associated Builders & Contractors	www.abc.org
Associated General Contractors of America	www.agc.org
Association for the Advancement of Cost Engineering International	www.aacei.org
Building Owners & Managers Association	www.boma.org
Construction Management Association of America	www.cmaanet.org
Construction Owners Association of America	www.coaa.org
Construction Specifications Institute	www.csinet.org
Design-Build Institute of America	www.dbia.org

ORGANIZATION	WEBSITE ADDRESS
International Association of Venue Managers	www.iavm.org
International Code Council	www.iccsafe.org
International Construction Information Society	www.icis.org
International Council of Shopping Centers	www.icsc.org
International Facility Management Association	www.ifma.org
NAIOP Commercial Real Estate Development Association	www.naiop.org
National Association of Home Builders	www.nahb.org
National Association of Women in Construction	www.nawic.org
National Indian Gaming Association	www.indiangaming.org
National Mining Association	www.nma.org
Royal Institution of Chartered Surveyors	www.rics.org
SAVE International	www.value-eng.org
Society for College & University Planning	www.scup.org
Society for Marketing Professional Services	www.smps.org
Society for Mining, Metallurgy & Exploration	www.smenet.org
Society of American Military Engineers	www.same.org
U.S. Green Building Council	www.usgbc.org
Urban Land Institute	www.uli.org

LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Leadership in Energy and Environmental Design (LEED) is a voluntary green building certification system which recognizes that a building or community was designed and built using strategies aimed at improving performance across the following sustainability metrics: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Developed by the U.S. Green Building Council (USGBC), LEED provides building owners and operators with a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

HOW LEED WORKS

LEED can be applied to any building type and any building life cycle phase. It promotes a whole-building approach to sustainability by recognizing performance in key areas:

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

LEED points are awarded on a 100-point scale, and credits are weighted to reflect their potential environmental impacts. Additionally, 10 bonus credits are available, six of which are awarded for innovation in design and four of which address regionally specific environmental issues.

LEED Certification is achievable in one of five current rating systems: Building Design and Construction; Interior Design and Construction; Building Operations and Maintenance; Neighborhood Development and Homes, each with a distinct weighting system.

	New Const.*	Core & Shell	Schools	Retail	Data Centers	Warehouse & Dist. Centers	Hospitality	Healthcare
Location & Transportation	16	20	15	16	16	16	16	9
Sustainable Sites	10	11	12	10	10	10	10	9
Water Efficiency	11	11	12	12	11	11	11	11
Energy & Atmosphere	33	33	31	33	33	33	33	35
Materials & Resources	13	14	13	13	13	13	13	19
Indoor Environmental Quality	16	10	16	15	16	16	16	16
Innovation in Design	6	6	6	6	6	6	6	6
Regional Priority	4	4	4	4	4	4	4	4
Total Possible	110	110	110	110	110	110	110	110

*For Retail New Construction and Retail Commercial Interiors, points requirements match New Construction / Commercial Interiors, respectively.

A project must satisfy all prerequisites and earn a minimum number of points to be certified at one of four levels.

LEED CERTIFICATION SCORING (out of a possible 100 points + 10 bonus points)	
Certified	40+ points
Silver	50+ points
Gold	60+ points
Platinum	80+ points

LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

ELIGIBILITY

Building types that are eligible for certification include – but are not limited to – offices, retail and service establishments, institutional buildings (e.g., libraries, schools, museums and religious institutions), hotels and residential buildings of four or more habitable stories.

WHO USES LEED?

Architects, real estate professionals, facility managers, engineers, interior designers, landscape architects, construction managers, lenders and government officials all use LEED to help transform the built environment to sustainability.

Many U.S. state and local governments are adopting LEED for public-owned and public-funded buildings; there are LEED initiatives in federal agencies, including the Departments of Defense, Agriculture, Energy, and State; and LEED projects are in countries worldwide, including Canada, Brazil, Mexico and India.

BENEFITS

There are both environmental and financial benefits to earning LEED certification.

LEED-certified buildings are designed to:

- Lower operating costs and increase asset value
- Reduce waste sent to landfills
- Conserve energy and water
- Be healthier and safer for occupants
- Reduce harmful greenhouse gas emissions
- Qualify for tax rebates, zoning allowances and other incentives in hundreds of cities
- Demonstrate an owner's commitment to environmental stewardship and social responsibility

PROCUREMENT OPTIONS

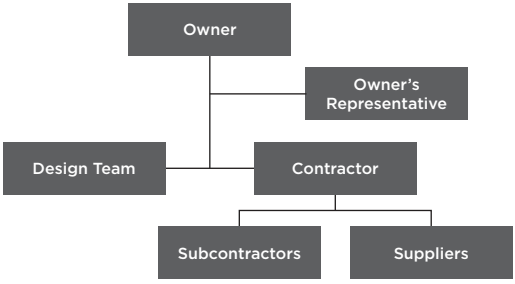
Selecting the best procurement method for a project is fundamental to its success, and will affect its cost, schedule, quality and team relationships throughout the project's development. Procurement strategies should be considered fully at the earliest opportunity and should be weighed with regards to owner and project requirements. Rider Levett Bucknall can advise on an appropriate route to best meet these requirements.

Descriptions of some of the more common procurement routes – along with advantages and concerns to consider before utilizing – are on the following pages.

Rider Levett Bucknall is also well versed in implementing projects using Integrated Project Delivery and other collaborative practices. Through these proactive strategies, owners can align the interests of the project team to operate in a more efficient and effective manner, delivering a superior project and ultimately increasing value for the owner.

PROCUREMENT OPTIONS

DESIGN-BID-BUILD



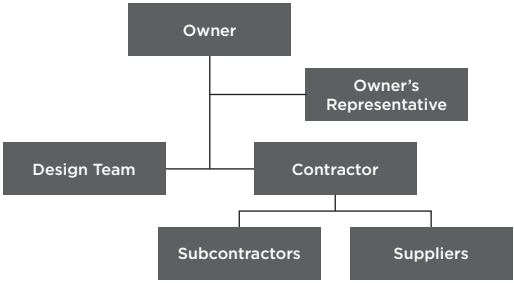
KEY FEATURES

- Owner contracts with design team first, then with construction team after design is complete
- Design fully complete prior to contractor bidding
- Construction starts after design and bidding processes are complete

ADVANTAGES	CONCERNS / RISKS
• Best potential for competitive construction bidding (lowest price) • Contractor familiarity with process • Accommodates owner input throughout design process • Facilitates check and balance process between design and construction	• Construction starts only after design and bidding is complete • Design and construction related decisions must be made early • No contractor input to design process • Competitive bidding creates higher risk for change orders and litigation • No team-oriented approach

SEQUENCE

CONSTRUCTION MANAGER AT-RISK

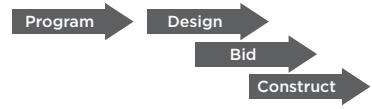


KEY FEATURES

- Owner contracts with design team and construction team concurrently at beginning of design process
- Contractor provides cost and constructability input throughout design process
- Contractor provides guaranteed maximum price (GMP) based on partial design
- Construction can start prior to design completion

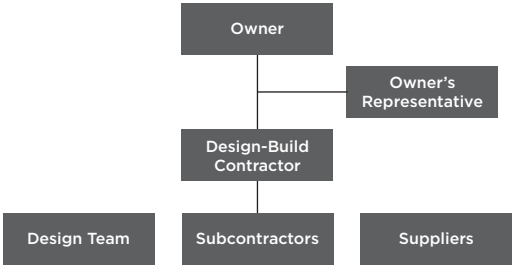
ADVANTAGES	CONCERNS / RISKS
• Early construction start facilitates expedited schedule (fast track) • Contractor advice informs design, typically generates more efficient design • Accommodates owner input through design • Facilitates check and balance process between design and construction • Pricing and cost control performed during pre-construction	• Limited competitive bidding • Added cost of contractor participation in design process • Timing and assumptions of GMP contract must be closely managed • Contingencies must be closely monitored and managed

SEQUENCE



PROCUREMENT OPTIONS

DESIGN-BUILD

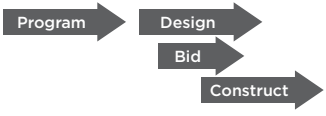


KEY FEATURES

- Owner executes one contract with integrated design/construction team based on program requirements
- Design/construction team executes full design, bidding and construction process based on requirements
- Construction typically starts before design completion

ADVANTAGES	CONCERNS / RISKS
▪ Single point of responsibility and risk for design and construction ▪ Early construction start facilitates expedited schedule ▪ Contractor can integrate design with construction for more efficient schedule ▪ Cost certainty at outset (for work included in requirements document)	▪ Owner input in design process is limited; owner requirements must be clearly outlined and communicated before start of process ▪ Limited competitive bidding ▪ Integrated contract eliminates check and balances between design and construction ▪ Quality of end product must be closely monitored

SEQUENCE



BEVERLY REGIONAL AIRPORT

BEVERLY, MASSACHUSETTS

As the third-busiest small airport in the state, Beverly Regional Airport welcomed a new and improved 4,500 SF administration building. This project is part of the Massachusetts DOT statewide master planning effort to improve the quality of general aviation airports across Massachusetts. The building is based off a prototype, that are each customized to its airport's location, micro climate, and building operations.

The Airport now features a variety of upgraded facilities including improved office and meeting room for airport staff, interior and exterior space for the public to engage with airport activities, and quiet rooms for pilots.

RLB provided cost estimating services for this project to Fennick McCredie Architects Ltd.

ESTIMATING DATA

MECHANICAL & ELECTRICAL COSTS

The costs stated in this section reflect the standards and specifications normal to that region. Variation in costs may be experienced for factors such as site conditions, climatic conditions, standards of specification, market conditions, etc.

All costs are stated in USD($) per square foot, based on rates at December 2017.

		SCHOOLS						HOSPITAL	
	M/E INDEX	ELEMENTARY		HIGH SCHOOL		UNIVERSITY		GENERAL	
LOCATION		LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA									
Boston	1.56	59	81	80	120	92	144	164	248
Calgary	1.33	51	70	68	103	78	123	141	212
Chicago	1.49	57	78	76	115	87	138	157	236
Denver	1.01	39	53	52	78	60	94	107	161
Honolulu	1.87	71	98	96	144	110	173	197	297
Las Vegas	0.99	38	52	51	76	58	91	104	157
Los Angeles	1.40	53	73	72	108	82	130	148	223
New York	1.83	70	95	93	141	107	169	193	290
Phoenix	1.00	38	52	51	77	59	93	106	159
Portland	1.07	41	56	55	83	63	99	113	170
San Francisco	1.67	64	87	85	129	98	155	176	265
Seattle	1.18	45	62	61	92	70	110	125	188
Washington, DC	1.45	55	76	74	112	85	134	153	231

LOCATION	M/E INDEX	OFFICES - Class A				SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
		LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA													
Boston	1.56	81	134	70	95	47	70	37	56	100	141	68	98
Calgary	1.33	70	115	60	81	41	60	32	48	86	121	58	84
Chicago	1.49	78	128	66	91	45	66	36	53	96	134	65	94
Denver	1.01	53	87	45	62	31	45	24	36	65	92	44	64
Honolulu	1.87	98	160	83	114	57	83	45	67	120	169	81	118
Las Vegas	0.99	52	85	44	60	30	44	24	35	63	89	43	62
Los Angeles	1.40	73	121	63	86	43	63	34	50	90	127	61	89
New York	1.83	95	157	82	111	56	82	44	66	117	165	80	115
Phoenix	1.00	52	86	45	61	31	45	24	36	64	90	44	63
Portland	1.07	56	92	48	65	33	48	26	38	69	97	47	67
San Francisco	1.67	87	143	75	102	51	75	40	60	107	151	73	105
Seattle	1.18	62	102	53	72	36	53	28	43	76	107	52	75
Washington, DC	1.45	76	125	65	89	44	65	35	52	93	131	63	92

LOCATION	M/E INDEX	PARKING				INDUSTRIAL				RESIDENTIAL MULTISTORY			
		MULTI-STORY		BASEMENT		WAREHOUSE		ATTACHED OFFICE		INVESTMENT		OCCUPIED	
		LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA													
Boston	1.56	12	17	15	25	14	29	37	70	46	68	58	92
Calgary	1.33	10	15	13	22	12	25	32	60	39	58	49	78
Chicago	1.49	11	16	15	24	13	28	36	66	44	65	55	87
Denver	1.01	8	11	10	17	9	19	24	45	30	44	37	60
Honolulu	1.87	14	20	18	30	16	35	45	83	55	81	69	110
Las Vegas	0.99	8	11	10	16	9	18	24	44	29	43	37	58
Los Angeles	1.40	11	15	14	23	12	26	34	63	41	61	52	82
New York	1.83	14	20	18	30	16	34	44	82	54	80	68	107
Phoenix	1.00	8	11	10	16	9	19	24	45	29	44	37	59
Portland	1.07	8	12	10	17	9	20	26	48	31	47	40	63
San Francisco	1.67	13	18	16	27	15	31	40	75	49	73	62	98
Seattle	1.18	9	13	12	19	10	22	28	53	35	52	44	70
Washington, DC	1.45	11	16	14	24	13	27	35	65	43	63	54	85

OFFICE BUILDING EFFICIENCIES

The efficiency of an office building is expressed as a percentage of the Net Rentable Area to the Gross Floor Area. The table below indicates that relationship to the Gross Floor Area of the whole building both with parking garages and basements included and excluded, that could be expected for an average project in the nominated category. Also shown is the efficiency of a typical floor in each category.

TYPE OF OFFICE BUILDING	EFFICIENCY (PER CENT)		
	BASEMENTS & PARKING		TYPICAL FLOOR
	INCLUDED	EXCLUDED	
PRESTIGE CENTRAL BUSINESS DISTRICT (CBD)			
10 to 25 Stories	63 - 68	75 - 80	85 - 90
25 to 40 Stories	58 - 63	70 - 75	80 - 85
40 to 55 Stories	53 - 58	68 - 73	75 - 80
INVESTMENT CBD			
Up to 10 Stories	69 - 74	81 - 85	86 - 91
10 to 25 Stories	64 - 69	76 - 81	81 - 86
25 to 40 Stories	59 - 64	71 - 76	76 - 81
INVESTMENT, Other than CBD			
Up to 10 Stories	70 - 75	82 - 86	87 - 92
10 to 25 Stories	65 - 70	77 - 82	82 - 87

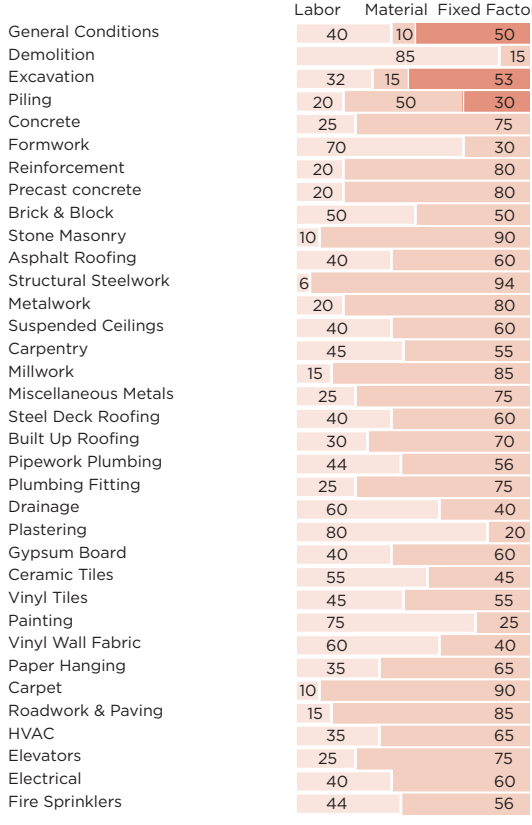
MECHANICAL & ELECTRICAL SERVICES

Generally mechanical and electrical space represents 5 – 7% of the Gross Floor Area of a multi-story office building.

LABOR & MATERIAL TRADE RATIOS

The following represents the ratio of on-site labor to material for various trades and sub-trades based upon our own survey.

The figures are relevant to all works constructed by traditional practices; variations to these practices will change the ratios, i.e. on-site fabrication of items traditionally factory fabricated such as casework, metalwork items, etc.



ESTIMATING REINFORCEMENT RATIOS

The following ratios give an indication of the average weight of bar reinforcement in typical concrete applications. Differing structural systems, ground conditions, height of buildings, load calculations and sizes of individual elements and grid sizes may cause considerable variation to the stated ratios. For project specific ratios a structural engineer should be consulted.

ELEMENT	WEIGHT RATIO	
Caissons (belled or straight shaft)		
12" diameter	40	lbs/Lft
36" diameter	350	lbs/Lft
72" diameter	1500	lbs/Lft
Paving	3	lbs/sq ft
Cantilevered retaining walls (1 face of rebar, 1 layer)		
8" thick, 10' - 12' high	96	lbs/yd
12" thick, 10' - 12' high	62	lbs/yd
Continuous, stepped and sloped footings	5 - 25 25 - 110	lbs/Lft lbs/yd
Grade beams	7.5 - 35 40 - 132	lbs/Lft lbs/yd
Slab on-grade	1.5 - 4.75 90 - 165	lbs/sq ft lbs/yd
Beams		
10' - 16'	210 - 240	lbs/yd
20' - 26'	200 - 230	lbs/yd
Columns	210 - 530	lbs/yd
Supported slabs	2.25 - 6.75 85 - 155	lbs/sq ft lbs/yd
Slab over metal deck	2.08 - 4.15 98 - 140	lbs/sq ft lbs/yd
Pits and trenches	50 - 70	lbs/yd
Tiltup panels	1.5	lbs/sq ft

PROGRESS PAYMENTS

The tabulations on the following pages are derived from the statistical average of a series of case histories which, when used for a specific project, will give an indication of the anticipated rate of expenditure. Construction times incorporate various extensions including wet weather, industrial disputes, etc.

All data is related to the date of submission of contractor's application for payment to the owner and not actual payment which is generally one month later.

No adjustment has been made for the retained money on the assumption that most projects will substitute bonds for retainage.

Construction projects under $5,000,000 and/or less than one year construction period to substantial completion.

CONTRACT DURATION	BUILDER'S WORK	MECHANICAL SERVICES	ELEVATORS, ETC.	ELECTRICAL SERVICES	OVERALL PROJECT
%	%	%	%	%	%
5	3.9	—		—	3.3
10	8.6	—		—	7.2
15	13.6	1.2		—	11.5
20	18.7	3.5		0.2	16.0
25	25.0	7.6		2.0	21.7
30	31.4	13.9		4.6	27.8
35	37.9	21.0		9.9	34.2
40	44.4	29.6	N	16.0	40.8
45	51.0	38.4		22.1	47.5
50	57.7	47.7	I	29.6	54.5
55	64.2	56.5		37.9	61.3
60	70.5	65.2	L	48.5	68.1
65	76.4	73.3		63.2	74.7
70	81.6	80.0		71.7	80.2
75	86.1	85.7		78.0	85.1
80	90.2	90.3		83.2	89.4
85	93.5	94.0		88.0	92.9
90	95.7	95.7		92.6	95.2
95	97.2	97.0		95.8	96.8
100	98.4	98.2		97.4	98.0

PROGRESS PAYMENTS

Construction projects from $5,000,000 to $40,000,000 and/or greater than one year but less than two years construction period to substantial completion.

CONTRACT DURATION	BUILDER'S WORK	MECHANICAL SERVICES	ELEVATORS, ETC.	ELECTRICAL SERVICES	OVERALL PROJECT
%	%	%	%	%	%
5	2.8	—	—	—	1.9
10	6.1	—	—	—	4.2
15	9.9	—	—	0.5	6.9
20	14.2	1.5	—	1.4	10.2
25	19.1	4.8	—	3.3	14.1
30	24.3	10.5	0.9	6.4	18.8
35	31.1	16.9	6.0	9.8	24.6
40	37.8	25.9	11.2	14.1	31.2
45	44.7	36.7	17.7	19.4	38.2
50	50.5	49.9	25.4	25.1	46.6
55	57.3	61.3	34.9	33.1	55.3
60	63.7	70.1	46.2	43.0	62.7
65	69.7	76.9	61.2	54.9	69.6
70	75.3	82.8	73.5	68.6	76.4
75	81.0	88.4	80.8	78.1	82.1
80	86.2	92.4	85.7	85.0	86.9
85	91.1	94.9	89.9	90.8	91.1
90	94.5	96.8	93.1	94.3	93.9
95	97.1	97.9	94.5	96.7	96.3
100	98.5	98.3	95.1	97.5	97.5

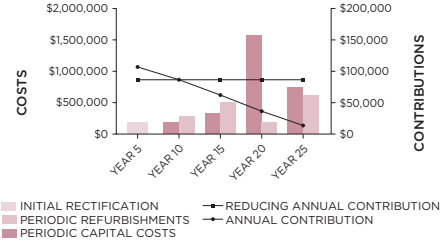
Construction projects from $40,000,000 and/or greater than two years construction period to substantial completion.

CONTRACT DURATION	BUILDER'S WORK	MECHANICAL SERVICES	ELEVATORS, ETC.	ELECTRICAL SERVICES	OVERALL PROJECT
%	%	%	%	%	%
5	1.4	—	—	—	0.9
10	3.3	—	—	—	2.1
15	5.6	—	—	—	3.6
20	8.7	0.3	—	0.5	5.7
25	12.2	1.2	—	2.0	8.3
30	16.6	3.6	0.3	4.3	11.8
35	21.3	7.8	4.9	7.4	16.2
40	27.9	13.3	10.1	11.4	22.3
45	35.3	19.9	16.1	17.3	29.3
50	43.1	26.6	22.2	23.5	36.6
55	50.5	33.9	34.8	30.1	44.4
60	57.3	42.1	49.0	37.6	52.1
65	63.6	50.6	67.0	45.9	59.8
70	69.8	59.1	76.8	55.0	67.0
75	76.0	67.3	82.6	65.4	73.9
80	82.2	75.4	87.2	76.4	80.7
85	87.5	83.4	90.6	85.2	86.7
90	92.7	90.3	94.0	92.2	92.2
95	96.8	96.1	96.4	96.8	96.6
100	98.8	98.9	97.6	98.6	98.8

SINKING FUNDS

A sinking fund provides a responsible and equitable method of managing future capital expenditure. Sinking funds for property address capital expenditure for repainting, recarpeting, replacement of machinery and equipment, refurbishment of common property and similar items which inevitably wear out.

BASED ON A $15 MILLION OFFICE BUILDING



Drawdowns can be equal annual contributions or reducing annual contributions for the specified period, as commitments are met, as graphically illustrated.

Property owners have a degree of control over when capital expenditure is committed, i.e. certain items can be deferred or brought forward.

The following sinking fund table with total capital expenditure over 25 years of $4,350,000 reflects the benefit and sensitivity of expenditure deferral.

	YR 5	YR 10	YR 15	YR 20	YR 25
SCHEDULED					
x	78,779	78,779	78,779	78,779	78,779
ø	101,942	82,416	62,565	39,822	12,561
TWO YEAR EXPENDITURE					
x	63,978	63,978	63,978	63,978	63,978
ø	77,251	64,868	49,891	32,068	10,201

x - Annual Contribution ø - Reducing Annual Contribution

METHOD OF MEASUREMENT OF BUILDING AREAS

The following rules for measurement of building areas are extracted from the BOMA Method of Measurement (1996 Revision) which is published by the Building Owners and Managers Association International.

GROSS BUILDING AREA

The GROSS BUILDING AREA shall mean the total constructed area of a building. The area is computed by measuring to the outside finished surface of permanent outer building walls, without any deductions. All enclosed floors of the building, including basements, garages, mechanical equipment floors, penthouses, and the like are calculated.

FLOOR RENTABLE AREA

FLOOR RENTABLE AREA shall mean the result of subtracting from the GROSS BUILDING AREA of a floor the area of MAJOR VERTICAL PENETRATIONS on that same floor. No deductions shall be made for columns and projections necessary to the building. Spaces outside the exterior walls, such as balconies, terraces, or corridors are excluded.

FLOOR USABLE AREA

FLOOR USABLE AREA shall be computed by measuring the area enclosed between the finished surface of the office area side of corridors and the dominant portion and/or the major vertical penetrations. No deductions shall be made for columns and projections necessary to the building. Where alcoves, recessed entrances or similar deviations from the corridor line are present, floor usable area shall be computed as if the deviation were not present.

DEFINITIONS

BUILDING WORKS
Building works include substructure, structure, finishes, fittings, general conditions, supervision of sub-trades and general contractor's work in connection with services.

BUILDING SERVICES
Building services include special equipment, plumbing, fire protection, mechanical, vertical transportation, building management and electrical services.

OFFICE BUILDINGS
Prestige offices are based on very high quality buildings for the upper range of the rental market and leading owner-occupiers including headquarters buildings for banks, insurance, mining and other major companies.

Investment offices are based on good quality buildings which are built for the middle range of the rental market.

HOTEL

RATING	GFA/ROOM TOTAL	GFA/ROOM ACCOM.	GFA/ROOM PUBLIC
5 STAR	915-1200 SF	485-600 SF	430-600 SF
4 STAR	700-915 SF	430-485 SF	275-430 SF
3 STAR	430-700 SF	325-430 SF	115-270 SF
	GFA/UNIT TOTAL	GFA/UNIT ACCOM.	GFA/UNIT PUBLIC SPACE
ALL SUITES	700-860 SF	645-750 SF	50-110 SF

Exclusions: Furniture, Fixtures and Equipment.
Note: Public space includes back-of-house areas.

CAR PARKS
Multi-story – Minimal external walls.

Basement – Central business district locations incur higher penalties for restricted sites and perimeter conditions.

INDUSTRIAL BUILDINGS

Quality reflects a simplified type of construction suitable for light industry. Exclusions: special equipment.

REGIONAL SHOPPING CENTERS

Department Store: partially finished suspended ceilings and painted walls. Exclusions: Floor finishes, store fixtures, etc.

Supermarket: fully finished space with utilities. Exclusions: cool rooms, store fixtures, etc.

Malls: fully finished space with utilities.

Specialty shops: partially finished with ceilings, unpainted walls, power to perimeter point. Exclusions: floor finishes, store fixtures, etc.

SMALL SHOPS AND SHOWROOMS

Exclusions: floor finishes, plumbing (other than stub outs for cold water and drainage in each store), store fittings, etc.

RESIDENTIAL

Multi-story condominiums reflect medium to luxury quality, air-conditioned, accommodation up to 20 stories in height.

Single-story or walk-up units reflect medium quality non air conditioned accommodation.

Note: the ratio of kitchen, laundry and bathroom areas to living areas and finishes required considerably affects the cost range.

Range given is significantly affected by the height and configuration of the building.

Exclusions: furnishings, carpet, special fixtures, washing machines, dryers, refrigerators and tenant's special requirement.

BRICKELL CITY CENTER

MIAMI, FLORIDA

Brickell City Centre comprises a host of luxury facilities strategically and conveniently located in the center of Miami's Brickell financial district.

The 4.9 million square-foot development spans more than nine acres, featuring two mid-rise office buildings, two residential towers, a luxury lifestyle hotel with residences, and 500,000 square feet of retail and entertainment space. Brickell City Centre is designed around the concept of connectivity - the mixed-use development shares a close relationship with both the neighborhood of Brickell and the wider urban area, as it is centrally positioned in close proximity to key transport nodes, including the Miami Metromover light rail station and all major highways.

This project's flagship sustainability feature, The Climate Ribbon™ spanning 150,000 square feet over three city blocks of Brickell City Centre, demonstrates an awareness of the development's environmental responsibilities. This elevated trellis not only protects visitors from inclement weather, but also captures sea breezes to regulate air flow and temperature, collects rainwater for reuse, and allows visitors to enjoy natural light in an open air environment. RLB provided construction cost management services.

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ASIA

NORTH ASIA

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THE AUSTIN

SAN FRANCISCO, CALIFORNIA

A 12-story development will encompass 100 residences made up of studios, one-, and two-bedroom floorplans, The Austin is a residential property that features ground floor retail space, a communal lobby lounge with attached courtyard, a rooftop terrace, and two levels of subterranean parking.

True to San Francisco's artisan culture, the development will also donate space to a local non-profit community group who will operate an art gallery for local artists to showcase their work.

The Austin is one of San Francisco's newest condominium projects, located near the affluent neighborhoods of Nob Hill, Russian Hill and Pacific Heights. RLB is providing cost management services for the residential development, assisting in the preparation of cost reports, change order assessment, and contract administration.

PROFESSIONAL SERVICES

PROFESSIONAL SERVICES

Rider Levett Bucknall offers the following professional services on building and civil engineering projects including the specialist components of plumbing, mechanical, electrical, vertical transportation, fire and security systems.

COST CONSULTANCY SERVICES

The service encompasses cost estimating, cost management, the production of bid and contract documents, the financial administration of building contracts and dispute resolution.

PLANNING STAGE COST CONTROL

- Budget report
- Elemental analysis
- Estimates
- Cost benefit studies
- Cost planning
- Cost negotiation

CONTRACTUAL ADVICE

- Project delivery systems
- Forms of contract
- Special contract clauses
- Bidding procedures
- Contractor suitability reports
- Design/Build & package deal contractual assessments

COST CONTROL DOCUMENTATION

- Bills of quantities
- Trade bills of quantities
- Provisional bills of quantities
- Simplified bills of quantities

BID ADVICE

- Assessment of bids
- Negotiation

CONSTRUCTION STAGE COST CONTROL

- Valuation of monthly progress claims
- Progressive budgetary reporting
- Change order review and negotiation
- Cost escalation calculations

PROJECT MANAGEMENT SERVICES

FEASIBILITY

- Definition of client's requirements
- Review of concept design
- Budget development
- Evaluation of environmental studies
- Preliminary project scheduling
- Cash flow and market analysis
- Risk analysis and identification
- Value engineering studies
- Feasibility studies and recommendations

DESIGN & DEVELOPMENT

- Consultant selection advice and contract negotiation
- Contract execution
- Prepare project scope
- Value engineering
- Confirm preliminary cost estimate and prepare cost plan
- Submit regular design status reports
- Advise on project delivery systems
- Prepare and monitor design documentation
- Manage and coordinate consultant team
- Chair regular project management meetings
- Maintain compliance with client objectives
- Negotiate with authorities as required
- Constructability review
- Provide design and feasibility reports
- Obtain client approval and sign off
- Prepare and monitor project schedule

PROJECT MANAGEMENT SERVICES

DOCUMENTATION & PRE-CONTRACT

- Formulate contract strategies
- Prepare conditions of contract
- Secure authority and client approvals
- Manage documentation
- Cost control of design against budget
- Check design against client's requirements
- Set up management reporting system
- Set up cost control procedures
- Prepare contract administration procedures
- Prepare project manual
- Chair project management meetings
- Prepare monthly project progress reports
- Coordinate the bid documents
- Prepare bid report with recommendations
- Formalize and execute contract
- Prepare and monitor project website

CONSTRUCTION

- Monitor and report schedule performance
- Coordinate documentation for fast-tracking
- Monitor contract compliance
- Manage documentation
- Identify potential delays and take action
- Process progress payments
- Monitor, analyze and forecast cash flows
- Enforce cost control procedures
- Chair cost management meetings
- Evaluate claims and manage disputes
- Prepare monthly project progress reports
- Identify potential cost overruns
- Evaluate extension of time claims
- Monitor contractor's performance
- Coordinate FF&E and fit-out procedures
- Maintain management reporting system
- Streamline and manage time and cost
- Monitor quality control

ADVISORY SERVICES

ALTERNATE DISPUTE RESOLUTION
- Arbitration of construction disputes
  - Private and AAA
  - Sole and panel
- Mediator of construction disputes
- Neutral third party evaluation
- Dispute review board members

CONDITION ASSESSMENTS
- Due diligence pre-acquisition surveys
- Dilapidation/condition surveys

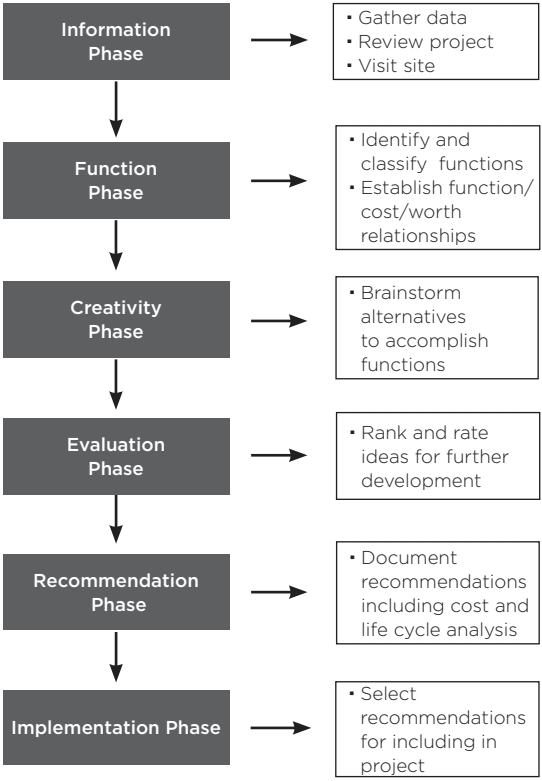
CONSTRUCTION CLAIMS
- Performance and payment bond investigations
- Analysis of outstanding change order claims
- Cost auditing
- Loss of efficiency/lost productivity analysis
- Disruption impact analysis
- Critical path analysis
- Changed conditions analysis
- Estimating reasonable value of work installed
- Construction management oversight and contract close out
- Expert Witness testimony
- Preparation or defense of
  - Requests for equitable adjustments
  - Delay claims
  - Excusable and compensable time extensions

CONSTRUCTION DEFECTS
- Analysis of residential and commercial construction defects
- Standard of workmanship
- Scope and cost of repair
- Registrar of Contractors testimony
- Expert witness testimony
- Defense of plaintiff

CONSTRUCTION ECONOMIC ADVICE
- Market analysis
- Cost research

VALUE MANAGEMENT

STEPS TO FOLLOW IN THE VALUE MANAGEMENT PROCESS



RIDER LEVETT BUCKNALL | LIFE

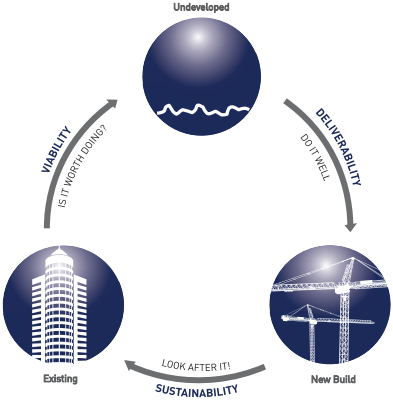
life

INNOVATIVE TOOLS TO HELP YOU ACHIEVE MORE EFFICIENT, COST CONSCIOUS AND ENVIRONMENTALLY SUSTAINABLE RESULTS–NOW AND INTO THE FUTURE.

Forward-thinking organizations are taking proactive measures to use their resources wisely. Along with technological advances to improve efficiency, there has been a significant and lasting shift toward preventing waste by making better use of existing assets.

More and more organizations have a heightened interest in project solutions which maximize performance, enhance value, and minimize environmental impact. Facing limited capital resources, building owners and managers must find the right balance between initial capital cost and long-term operation and maintenance costs.

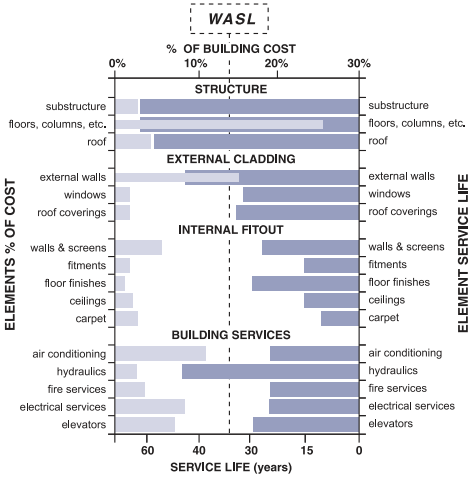
Rider Levett Bucknall|Life addresses this need by providing building owners and managers with new tools, methods, and information, allowing them to make well-informed decisions that represent their best long-term financial and sustainable interests.



RELIFING®

Rider Levett Bucknall's proprietary RElifing® service is a mathematically-based methodology to help building owners capture the remaining value and extend the life of their buildings after years of service.

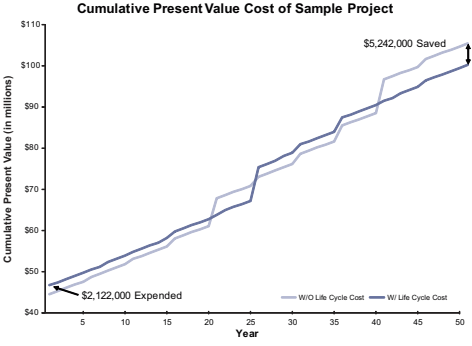
RElifing® determines the 'useful life' of a building by analyzing the cost and service life of its various components–structure, external claddings, internal fit-out, and building systems—and then calculating the total life expectancy or Weighted Average Service Life (WASL) RElifing® then analyzes and prices the recommendations for maintenance, upgrades, renovation, and replacement of various building components necessary to extend the building's life expectancy to certain milestones. When this analysis is compared with the cost to build new, owners are presented with a quantitative tool to determine which investment option will make the best use of functional and financial resources.



LIFE CYCLE COST + CARBON MODELING

This service is our response to the challenges property owners face in reconciling commercial viability with efficiency, sustainability, and environmental sensitivity throughout a structure's life cycle. Using our model, owners can develop facilities which are not only cost effective to build but operationally efficient over their life span.

Sophisticated owners recognize that the capital cost of a facility may be less significant when compared with the total cost of ownership over time. An integrated Life Cycle Cost model enables capital and life cycle characteristics of individual components, elements, and whole buildings to be modeled and forecasted over the life of a proposed facility.

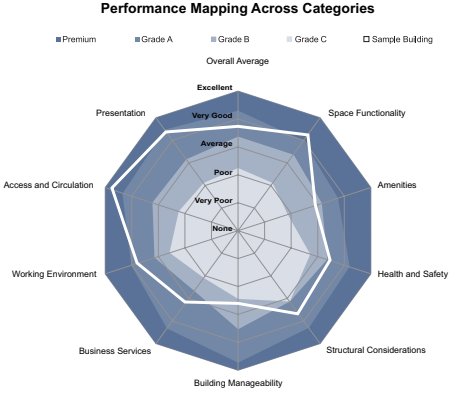


Interdependencies between variables are established and comparison of multiple options provides a frame of reference for making important long-term investment decisions. The model can also be used to calculate carbon footprint, LEED™, energy and CO_2 consumption, water consumption and capital allowances.

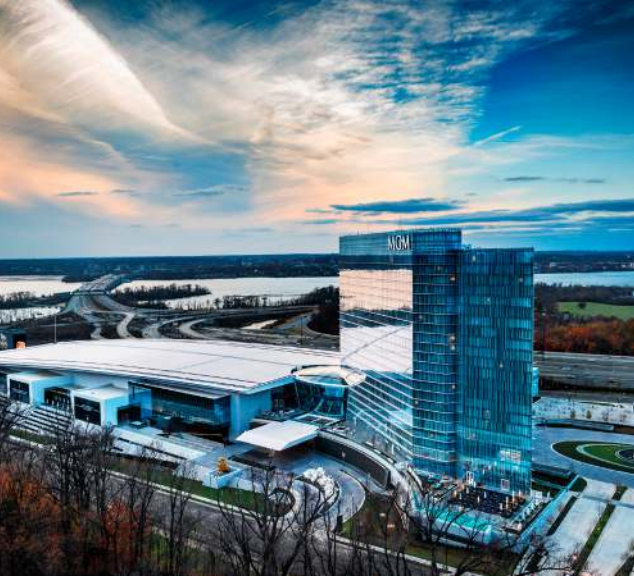
The Rider Levett Bucknall model can be used at all stages of the asset life cycle from inception, through design development and into operation.

BUILDING QUALITY ASSESSMENT

There is a critical link between the quality of an office building and its ultimate performance as an asset. Yet, there is no prevailing rating system in place to measure a facility's relative strengths and weaknesses in relation to industry standards and tenant expectations.
Our Building Quality Assessment service addresses this need with a standardized method for quantifying and evaluating building quality based on standard criteria across a number of general categories (space functionality, amenities, building operations, etc.). The service provides a quality grade for a specific facility based on its physical characteristics and an 'apples to apples' comparative analysis against other similar structures.



The analysis highlights categories where the facility did not perform to the expected standards of quality and identifies areas where upgraded capacity or utility could be considered to enhance the grading performance of the building. This evaluation enables the optimization of the right mix of quality factors to match investor, owner, and user objectives.



MGM NATIONAL HARBOR

NATIONAL HARBOR, MARYLAND

Located on the banks of the Potomac River, MGM brings to life a slice of Vegas in National Harbor, Maryland, with a casino resort true to the MGM Resorts International brand. Featuring a spectacular art collection, a restaurant roster to be rivaled and an assortment of luxury stores plucked straight from the Vegas Strip. National Harbor is situated in a location touching all three major parts of the Potomac region: across the Woodrow Wilson Bridge from Alexandria, Virginia, adjacent to Prince George's County, Maryland, and south of Washington, D.C.

Rider Levett Bucknall provided cost consultancy services to the MGM Resorts International for the new resort, MGM National Harbor.

MISCELLANEOUS ITEMS

CALCULATION FORMULAE

TO FIND	CALCULATE
Area of triangle	Base × ½ × height
Area of circle	(radius)² × 3.1416
Area of sector of circle	Lengths of arc × ½ × radius
Area of square, rhombus	Base × height
Area of equilateral triangle	(Side)² × 0.433
Area of trapezium	Height × ½ × (sum of parallel sides)
Area of ellipse	Major axis × minor axis × 0.7854
Area of parabola	⅔ × base × height
Circumference of a circle	Diameter × 3.1416
Surface area of sphere	4 × (radius)² × 3.1416
Surface area of cone	(radius x slant side × 3.1416) + area of base
Volume of cylinder	Area of base × height
Volume of cube or prism	Length × breadth × depth
Volume of cone	Height × ⅓ × area of base
Volume of hexagonal prism	(Side)² × height × 2.598
Volume of sphere	⅘ × (radius)³ × 3.1416

CONVERSION FACTORS

TO CONVERT	MULTIPLY BY
LENGTH	
Inches into centimeters	2.54
Centimeters into inches	0.394
Feet into meters	0.305
Yards into meters	0.914
Meters into feet	3.281
Feet into meters	0.305
Yards into meters	0.914
Meters into yards	1.094
Kilometers into miles	0.621
Miles into kilometers	1.609
AREA	
Square meters into square feet	10.764
Square feet into square meters	0.093
Square yards into square feet	9.0
Square yards into square meters	0.836
Square kilometers into square miles	0.386
Square kilometers into hectares	100.0
Square miles into square kilometers	2.59
Square miles into acres	640.0
Acres into square feet	43,560
Acres into square meters	4,046.86
Acres into hectares	0.405
Hectares into acres	2.471
TEMPERATURE	
Degree Celsius to Degree Fahrenheit	(°C x 9/5) + 32
Degree Fahrenheit to Degree Celsius	(°F – 32) x 5/9

CONVERSION FACTORS

TO CONVERT	MULTIPLY BY
VOLUME AND CAPACITY	
Cubic feet into cubic meters	0.028
Cubic meters into cubic feet	35.315
Cubic yards into cubic meters	0.765
Cubic feet into liters	28.3168
U.S. pints into liters	0.473
U.S. quarts into liters	0.946
U.S. gallons into liters	3.785
Liters into U.S. gallons	0.264
Liters into U.S. pints	2.113
POWER	
Foot pounds-force/second into watts	1.356
Horsepower into watts	745.7
Kilowatts into horsepower	1.341
MASS	
Grams into ounces	0.035
Ounces into grams	28.350
Ounces into pounds	0.063
Ounces into kilograms	0.028
Pounds into kilograms	0.454
Kilograms into pounds	2.205
U.S. tons into metric tons	0.907
U.S. tons into pounds	2,000
Metric tons into pounds	2,204.623
Metric tons into U.S. tons	1.102
FORCE	
Newtons into pounds force	0.225

CALENDAR

JANUARY 2018

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY 2018

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

MARCH 2018

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL 2018

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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY 2018

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JUNE 2018

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JULY 2018

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22	23	24	25	26	27	28
29	30	31				

AUGUST 2018

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12	13	14	15	16	17	18
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CALENDAR

SEPTEMBER 2018

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30						

OCTOBER 2018

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21	22	23	24	25	26	27
28	29	30	31			

NOVEMBER 2018

S	M	T	W	T	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DECEMBER 2018

S	M	T	W	T	F	S
						1
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JANUARY 2019

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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY 2019

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH 2019

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL 2019

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	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

IMPORTANT DATES

EVENT	DATE
New Year's Day	Monday, January 1
Martin Luther King Day	Monday, January 15
Chinese New Year	Friday, February 16
Ash Wednesday	Wednesday, February 14
Valentine's Day	Wednesday, February 14
Presidents' Day	Monday, February 19
Daylight Savings Starts	Sunday, March 11
Saint Patrick's Day	Saturday, March 17
Passover Begins	Saturday, April 7
Good Friday	Friday, March 30
Easter	Sunday, April 1
Passover Ends	Friday, March 30
Mother's Day	Sunday, May 13
Memorial Day	Monday, May 28
Flag Day	Thursday, June 14
Father's Day	Sunday, June 17
Canada Day	Sunday, July 1
Independence Day	Wednesday, July 4
Labor Day	Monday, September 3
Rosh Hashanah	Sunday, September 9
Yom Kippur	Tuesday, September 18
Columbus Day	Monday, October 8
Thanksgiving Day – CAN	Monday, October 8
Daylight Savings Ends	Sunday, November 4
Veteran's Day	Sunday, November 11
Thanksgiving Day – USA	Thursday, November 22
Hanukkah Begins	Sunday, December 2
Hanukkah Ends	Monday, December 10
Christmas	Tuesday, December 25
Boxing Day	Wednesday, December 26

* Beginning at sundown.

IDD COUNTRY CODES & TIME DIFFERENCES

DESTINATION	IDD COUNTRY CODE	TIME DIFFERENCE FROM U.S. EST
Australia (Adelaide)	+61 (8)	+15:30
Australia (Brisbane)	+61 (7)	+15
Australia (Canberra)	+61 (2)	+16
Australia (Darwin)	+61 (8)	+14:30
Australia (Melbourne)	+61 (3)	+16
Australia (Perth)	+61 (8)	+13
Australia (Sydney)	+61 (2)	+16
Barbados	+1 (246)	+1
Cayman Islands	+1 (345)	+0
China (Coastal Cities)	+86	+13
France	+33	+6
Germany	+49	+6
Guam	+1 (671)	+15
Hong Kong	+852	+13
India	+91	+10:30
Indonesia (Jakarta)	+62	+12
Italy	+39	+6
Japan	+81	+14
Macau	+853	+13
Malaysia	+60	+13
Mexico (Mexico City)	+52	-1
Netherlands	+31	+6
New Zealand	+64	+18
Oman	+968	+9
Pakistan	+92	+10
Philippines	+63	+13
Qatar	+974	+8
Russia (Moscow)	+7 (495)	+8
Russia (Saint Petersburg)	+7 (812)	+8
Saudi Arabia	+966	+8
Singapore	+65	+13
South Korea	+82	+14
Spain	+34	+6
Sweden	+46	+6
Switzerland	+41	+6
Taiwan	+886	+13
Thailand	+66	+12
United Arab Emirates	+971	+9
United Kingdom	+44	+5
United States - Central	+1	-1
United States - Mountain	+1	-2
United States - Pacific	+1	-3
United States - Alaska	+1	-4
United States - Hawaii	+1	-5
Vietnam	+84	+12

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