RLB Rider Levett Bucknall

RIDERS DIGEST 2016

USA
EDITION

Riders Digest

USA 2016

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 2015.

ACKNOWLEDGEMENTS

Rider Levett Bucknall wishes to express their appreciation for advice received from the following organization in the preparation of this digest:

Cini • Little International, Inc.
Richard H. Eisenbarth +1 954 846 9600
Kitchen Equipment

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

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FOREWORD

Welcome to the 2016 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.

In an industry first, Rider Levett Bucknall has also produced a desktop and smartphone application (rlb.com/app) which enables users to access construction cost information from anywhere in the world, instantly.

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

Julian Anderson
President
Rider Levett Bucknall, North America

INTERNATIONAL CONSTRUCTION

COLORADO SCHOOL OF MINES
ELM STREET RESIDENCES & DINING HALL
GOLDEN, COLORADO

Located at the southeast corner of 18th Street and Maple Street on the main campus in Golden is the Colorado School of Mines' new 98,000 square-foot building comprises 210 residence beds plus common areas and a 600-seat dining hall. The project considers a special approach to the dining hall in order to create a healthy and resource efficient program for culinary work and student dining. The project is pursuing LEED™ Gold certification.

During the design phase, Rider Levett Bucknall prepared independent estimates of probable construction costs at the SD and DD milestones. Additionally, we reconciled with the CM/GC during both phases to ensure that Colorado School of Mines was receiving fair and reasonable estimates from the CM/GC.

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 2015 are provided in the table below.

CURRENCY	EXCHANGE RATE TO USD	
Australian Dollar	AUD	0.7229
British Pound	GBP	1.5027
Chinese Yuan	CNY	0.1544
Hong Kong Dollar	HKD	0.1290
Indonesian Rupiah	IDR	0.0001
South-Korean Won	KRW	0.0008
Malaysian Ringgit	MYR	0.2318
New Zealand Dollar	NZD	0.6794
Philippine Peso	PHP	0.0200
Qatari Rial	QAR	0.2746
Saudi Riyal	SAR	0.2665
Singapore Dollar	SGD	0.7100
United Arab Emirates Dirham	AED	0.2723
Vietnamese Dong	VND	0.0000

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA & CARIBBEAN													
Anguilla	USD	165	270	135	215	130	245	110	215	270	435	195	270
Antigua & Barbuda	USD	210	330	175	295	150	270	140	260	290	530	235	295
Bahamas	USD	270	480	250	350	175	305	165	255	295	760	165	525
Barbados	USD	210	350	190	300	160	250	140	220	240	400	160	250
Bermuda	USD	330	440	305	415	275	350	240	320	330	440	275	330
Boston	USD	200	280	175	245	120	210	90	145	250	400	160	250
British Virgin Islands	USD	270	280	235	345	195	325	165	215	435	595	270	380
Cayman Islands	USD	265	390	245	360	255	360	225	310	275	360	235	330
Chicago	USD	230	360	120	180	115	210	80	130	250	450	120	210
Cuba	USD	300	420	270	390	300	420	215	285	270	420	215	300
Denver	USD	140	225	100	150	80	130	65	125	185	280	105	165
Dominica	USD	180	195	145	205	180	180	145	180	240	310	190	240
Dominican Republic	USD	115	185	90	150	90	140	80	125	175	345	115	230
Grenada	USD	265	350	230	290	210	290	185	255	255	350	230	290

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA & CARIBBEAN													
Guadaloupe	USD	245	280	180	260	150	225	175	230	325	445	245	300
Haiti	USD	175	235	115	175	95	155	85	140	175	260	95	155
Honolulu	USD	255	470	215	355	185	440	155	385	460	665	290	485
Jamaica	USD	175	200	130	150	130	180	100	150	230	350	150	200
Las Vegas	USD	140	285	105	190	115	480	65	145	325	465	120	225
Los Angeles	USD	200	300	140	210	125	280	100	160	300	450	200	275
Martinique	USD	245	285	180	260	155	230	175	230	325	445	245	300
Montserrat	USD	170	285	140	225	135	255	115	225	285	455	205	285
Netherlands Antilles	USD	240	305	175	275	165	240	165	240	220	435	140	220
New York	USD	205	350	180	270	140	250	115	160	320	475	185	265
Phoenix	USD	140	240	100	160	105	165	70	125	230	400	140	180
Portland	USD	165	220	115	170	110	220	90	130	175	265	130	170
Peurto Rico	USD	245	330	190	275	190	245	110	165	355	440	220	275
San Francisco	USD	220	330	160	240	150	280	130	185	300	470	220	290

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA & CARIBBEAN													
Seattle	USD	165	205	115	160	115	200	95	135	185	275	140	180
St. Kitts & Nevis	USD	230	330	190	255	165	230	175	230	310	465	230	285
St. Lucia	USD	205	315	150	220	130	195	155	195	305	180	205	265
St. Vincent & The Grenadines	USD	170	180	135	195	115	170	135	170	225	295	180	225
Trinidad & Tobago	USD	220	385	195	305	165	275	110	165	275	385	165	240
Turks & Caicos Islands	USD	275	435	195	380	165	380	165	220	245	325	165	240
U.S. Virgin Islands	USD	265	385	245	350	210	310	155	220	495	605	330	415
Washington D.C.	USD	175	240	130	185	95	190	75	135	230	375	150	230

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA & CARIBBEAN									(NP) Not Published
Anguilla	USD	NP	NP	NP	NP	65	130	165	325
Antigua & Barbuda	USD	NP	NP	NP	NP	95	175	175	330
Bahamas	USD	NP	NP	NP	NP	165	525	150	490
Barbados	USD	NP	NP	NP	NP	65	185	280	400
Bermuda	USD	NP	NP	NP	NP	220	280	285	440
Boston	USD	60	90	80	110	70	100	135	220
British Virgin Islands	USD	NP	NP	NP	NP	105	205	195	305
Cayman Islands	USD	NP	NP	NP	NP	175	275	210	340
Chicago	USD	65	110	90	130	70	130	130	210
Cuba	USD	NP	NP	NP	NP	155	215	NP	NP
Denver	USD	40	70	60	95	65	110	70	190
Dominica	USD	NP	NP	NP	NP	145	215	180	250
Dominican Republic	USD	NP	NP	NP	NP	60	85	75	175
Grenada	USD	NP	NP	NP	NP	155	210	175	325

NORTH AMERICA & CARIBBEAN

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA & CARIBBEAN		(NP) Not Published							
Guadaloupe	USD	NP	NP	NP	NP	110	175	230	325
Haiti	USD	NP	NP	NP	NP	35	70	95	175
Honolulu	USD	85	125	120	235	125	200	170	395
Jamaica	USD	NP	NP	NP	NP	80	140	150	300
Las Vegas	USD	50	85	60	150	50	100	70	400
Los Angeles	USD	95	115	110	155	95	160	150	245
Martinique	USD	NP	NP	NP	NP	110	175	230	325
Montserrat	USD	NP	NP	NP	NP	70	135	170	340
Netherlands Antilles	USD	NP	NP	NP	NP	110	165	165	325
New York	USD	65	105	85	125	90	130	140	250
Phoenix	USD	40	65	60	100	55	100	90	185
Portland	USD	40	65	60	100	55	100	90	185
Peurto Rico	USD	NP	NP	NP	NP	85	130	165	275
San Francisco	USD	100	130	120	165	95	160	160	260

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA & CARIBBEAN									(NP) Not Published
Seattle	USD	65	85	85	125	75	110	120	235
St. Kitts & Nevis	USD	NP	NP	NP	NP	90	190	220	385
St. Lucia	USD	NP	NP	NP	NP	75	165	195	275
St. Vincent & The Grenadines	USD	NP	NP	NP	NP	75	105	135	240
Trinidad & Tobago	USD	NP	NP	NP	NP	110	265	130	275
Turks & Caicos Islands	USD	NP	NP	NP	NP	110	165	245	380
U.S. Virgin Islands	USD	NP	NP	NP	NP	155	220	200	310
Washington D.C.	USD	55	80	75	100	70	100	100	185

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
ASIA													(NP) Not Published
Beijing	RMB	830	1,355	770	1,165	905	1,385	795	1,245	1,400	1,850	1,045	1,340
Chengdu	RMB	730	1,065	380	505	755	1,165	605	755	1,250	1,595	935	1,175
Guangzhou	RMB	775	1,240	715	1,080	885	1,260	765	1,145	1,400	1,810	925	1,260
Ho Chi Minh City	VND ('000)	2,520	3,620	2,145	2.690	2,030	2,705	NP	NP	3,275	4,010	2,460	3,185
Hong Kong	$HKD	2,420	3,605	2,065	2,800	2,435	3,090	2,075	2,690	3,780	4,605	3,110	3,595
Jakarta	Rp ('000)	1,040	1,420	720	1,145	700	915	NP	NP	1,470	1,875	1,120	1,280
Kuala Lumpur	RINGGIT	270	460	140	300	225	375	NP	NP	515	700	270	410
Macau	MOP	1,950	2,810	1,710	2,410	2,130	2,625	1,810	2,315	3,230	3,985	2,635	3,045
Manila	PHP	3,495	4,770	2,820	3,845	2,960	3,410	2,245	2,515	5,760	6,630	4,650	5,260
Seoul	KRW ('000)	245	310	185	225	165	235	140	205	330	485	210	270
Shanghai	RMB	795	1,255	710	1,080	855	1,325	745	1,190	1,355	1,785	1,010	1,290
Shenzhen	RMB	775	1,150	395	520	635	775	795	1,215	1,300	1,690	980	1,225
Singapore	SGD	290	430	225	325	235	365	NP	NP	465	605	355	400

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
ASIA									(NP) Not Published
Beijing	RMB	240	330	405	705	470	590	435	660
Chengdu	RMB	NP	NP	390	635	360	625	210	570
Guangzhou	RMB	225	325	400	690	445	555	410	615
Ho Chi Minh City	VND ('000)	920	1,370	1,890	2,580	630	950	1,615	2,445
Hong Kong	$HKD	945	1,120	1,840	2,560	1,595	2,015	2,270	3,930
Jakarta	Rp ('000)	370	480	480	665	500	610	690	1,075
Kuala Lumpur	RINGGIT	85	130	150	345	110	185	195	485
Macau	MOP	NP	NP	1,075	1,400	NP	NP	1,470	2,335
Manila	PHP	1,580	1,820	1,730	1,990	1,875	2,210	2,930	5,215
Seoul	KRW ('000)	70	85	90	110	120	155	160	230
Shanghai	RMB	220	325	420	695	430	555	395	625
Shenzhen	RMB	NP	NP	400	680	370	680	225	310
Singapore	SGD	75	150	160	240	120	170	215	345

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
EUROPE													
Amsterdam	EUR	140	180	100	150	80	100	65	85	160	205	130	160
Berlin	EUR	145	190	105	125	125	155	90	110	215	295	146	190
Bristol	GBP	210	280	170	255	290	410	95	175	240	325	140	185
Dublin	EUR	195	215	170	195	205	225	110	130	215	235	145	155
London	GBP	260	335	215	330	345	485	110	205	270	365	185	235
Madrid	EUR	95	160	85	125	205	280	150	205	210	280	145	195
Manchester	GBP	205	270	175	266	290	405	90	175	220	300	140	185
Moscow	EUR	160	215	140	170	185	225	130	160	300	375	185	235
Oslo	EUR	305	395	235	305	195	250	155	200	420	550	320	415
Paris	EUR	140	140	260	295	165	250	130	165	430	475	NP	NP

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
EUROPE								(NP) Not Published	
Amsterdam	EUR	45	65	70	110	40	55	90	145
Berlin	EUR	50	75	85	110	40	80	105	150
Bristol	GBP	45	85	100	155	40	70	185	260
Dublin	EUR	45	55	65	110	45	60	150	170
London	GBP	45	90	120	190	50	85	215	300
Madrid	EUR	75	95	85	130	65	85	75	110
Manchester	GBP	35	70	95	150	40	70	175	245
Moscow	EUR	45	60	85	110	55	65	130	160
Oslo	EUR	75	95	95	125	170	220	260	340
Paris	EUR	NP	NP	95	NP	NP	225	250	265

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
MIDDLE EAST													(NP) Not Published
Abu Dhabi	AED	625	755	505	710	440	700	NP	NP	970	1,290	645	915
Dubai	AED	625	755	505	710	440	700	NP	NP	970	1,345	645	915
Doha	QAR	700	915	655	885	570	700	NP	NP	1,240	1,560	805	915

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
MIDDLE EAST									(NP) Not Published
Abu Dhabi	AED	195	390	280	485	160	290	485	700
Dubai	AED	250	390	335	485	200	310	485	700
Doha	QAR	NP	NP	295	485	NP	NP	700	805

		OFFICES				RETAIL SHOPPING				HOTELS			
		PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
OCEANIA													(NP) Not Published
Adelaide	AUD	280	415	225	350	165	305	140	195	375	475	270	365
Auckland	NZD	325	450	270	410	205	280	120	170	390	450	320	390
Brisbane	AUD	280	430	215	325	250	335	120	170	430	590	300	430
Canberra	AUD	345	445	280	350	235	330	125	210	425	520	310	430
Christchurch	NZD	400	515	340	450	180	235	NP	NP	400	450	325	355
Darwin	AUD	325	440	255	405	185	275	130	220	380	475	300	375
Melbourne	AUD	325	405	250	310	220	325	115	165	370	485	330	375
Perth	AUD	340	515	225	405	250	300	110	275	390	475	285	390
Sydney	AUD	350	495	260	370	195	405	150	195	435	575	305	390
Wellington	NZD	315	360	250	285	140	195	NP	NP	365	440	250	295

		PARKING				INDUSTRIAL		RESIDENTIAL	
		MULTI-STORY		BASEMENT		WAREHOUSE		MULTI-STORY	
LOCATION	CURRENCY	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
OCEANIA								(NP) Not Published	
Adelaide	AUD	65	100	140	205	65	120	240	380
Auckland	NZD	60	85	130	195	50	85	280	410
Brisbane	AUD	75	120	170	225	65	120	215	345
Canberra	AUD	80	110	105	150	75	115	285	415
Christchurch	NZD	90	145	190	235	80	120	NP	NP
Darwin	AUD	80	135	125	165	85	150	215	285
Melbourne	AUD	70	115	120	145	60	120	235	375
Perth	AUD	80	110	200	335	60	110	240	410
Sydney	AUD	75	115	110	170	70	115	255	470
Wellington	NZD	55	95	205	295	95	150	285	360

RLB CONSTRUCTION BID PRICE INDEX
(ANNUAL % CHANGE)

LOCATION	2012	2013	2014
NORTH AMERICA			
Boston	3.7	5.2	4.7
Chicago	NP	4.7	4.9
Denver	1.8	2.2	4.1
Honolulu	3.1	7.7	13.3
Las Vegas	2.0	0.9	3.6
Los Angeles	1.0	1.8	4.9
New York	4.3	5.9	4.4
Phoenix	2.4	2.5	3.7
Portland	0.9	1.7	6.0
San Francisco	0.9	1.8	6.1
Seattle	2.1	3.5	4.5
AFRICA			
Cape Town	NP	NP	5.0
Johannesburg	NP	NP	8.3
Maputo	NP	NP	NP
Port Loius	NP	NP	NP
Pretoria	NP	NP	8.3
ASIA			
Beijing	0.5	1.0	2.0
Chengdu	NP	NP	1.1
Guangzhou	4.1	4.1	3.0
Hong Kong	7.4	9.0	8.2
Macau	7.2	9.3	10.4
Seoul	—	2.4	1.1
Shanghai	3.5	2.0	(1.0)
Shenzhen	(1.0)	3.0	1.5

(F) Forecast
(NP) Not Published

2015 (F)	2016 (F)	2017 (F)	2018 (F)
NORTH AMERICA			
1.1	4.8	4.1	4.1
4.9	4.6	4.1	4.1
5.0	4.8	4.1	4.1
11.2	7.2	5.1	4.1
4.4	5.9	4.6	4.1
4.6	5.4	4.1	4.1
3.6	4.6	4.1	4.1
4.2	5.4	4.3	4.1
4.5	4.6	4.1	4.1
5.5	4.3	4.1	4.1
5.0	4.6	4.1	4.1
AFRICA			
6.0	7.0	8.0	4.8
7.2	7.5	8.0	4.8
NP	NP	NP	NP
NP	NP	NP	NP
7.2	7.5	8.0	4.8
ASIA			
(0.0)	2.0	2.0	2.0
0.5	0.4	0.4	0.4
(2.0)	2.0	2.0	2.0
7.2	6.1	3.0	3.0
7.2	4.1	3.0	3.0
0.4	1.5	1.7	1.8
(2.5)	3.0	2.0	2.0
1.5	NP	NP	NP

RLB CONSTRUCTION BID PRICE INDEX
(ANNUAL % CHANGE)

LOCATION	2012	2013	2014
EUROPE			
Berlin	NP	NP	1.8
Birmingham	(0.8)	8.0	7.1
Bristol	(2.1)	6.3	7.1
Budapest	NP	NP	NP
Dublin	NP	4.0	5.0
London	1.3	3.4	5.0
Madrid	NP	NP	0.0
Manchester	(0.8)	6.3	7.1
Moscow	NP	NP	0.0
Warsaw	NP	NP	(0.8)
Welwyn Garden City	NP	5.9	4.6
Workingham	NP	5.9	6.4
MIDDLE EAST			
Abu Dhabi	0.7	3.2	3.3
Doha	4.0	3.2	4.5
Dubai	1.4	3.2	3.7
Riyadh	3.0	4.4	5.0
OCEANIA			
Adelaide	0.1	0.9	0.6
Auckland	0.0	0.8	4.1
Brisbane	(0.0)	(0.9)	5.1
Canberra	(0.6)	2.2	1.6
Christchurch	4.7	5.1	6.0
Darwin	2.0	3.0	1.8
Melbourne	0.0	0.2	1.5
Perth	(2.3)	1.1	0.8
Sydney	1.2	2.0	3.0
Townsville	1.0	1.3	2.0
Wellington	1.5	2.0	3.4

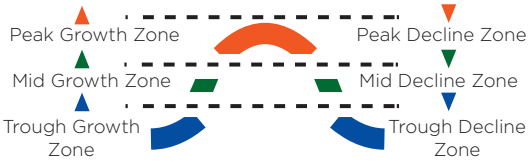
(F) Forecast
(NP) Not Published

2015 (F)	2016 (F)	2017 (F)	2018 (F)
EUROPE			
2.2	2.0	2.0	2.0
4.0	5.0	5.0	5.5
4.5	5.0	5.0	5.5
2.5	3.0	3.3	2.5
8.0	9.0	9.0	9.0
5.9	5.0	4.5	4.0
(0.0)	0.1	0.8	0.1
4.0	5.0	5.0	5.5
(5.0)	0.0	1.0	1.5
0.7	3.2	3.2	1.2
4.9	4.8	4.4	4.3
5.1	4.1	3.8	3.0
MIDDLE EAST			
4.7	5.7	6.1	7.3
5.0	5.5	6.0	7.0
4.6	3.1	2.5	2.9
4.8	5.0	5.0	5.0
OCEANIA			
0.8	2.5	3.0	3.0
5.6	6.0	4.1	3.0
5.9	5.1	4.1	4.1
2.0	2.2	3.0	3.0
6.0	6.0	5.0	5.0
1.0	1.5	1.8	2.3
2.0	2.0	3.0	3.0
0.8	2.1	3.0	3.0
4.5	4.8	4.0	3.5
3.0	3.0	4.0	4.0
3.0	3.0	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 2015.

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



INDUSTRIAL	RETAIL	HOTEL	CIVIL
NORTH AMERICA & CARIBBEAN			
▲	▲	▲	▲
▼	▼	▲	▲
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▲	▲	▲	▲

CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
NORTH AMERICA & CARIBBEAN			
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. Vigin Islands	▲	▼	▼
Washington	▲	▲	▲

INDUSTRIAL	RETAIL	HOTEL	CIVIL
NORTH AMERICA & CARIBBEAN			
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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	▲	▲	▲
Seoul	▲	▲	▲
Shanghai	▼	▲	▲
Shenzhen	▼	▲	▲
Singapore	▼	▼	▼

INDUSTRIAL	RETAIL	HOTEL	CIVIL
AFRICA			
▲	▼	▲	▼
▲	▼	▲	▲
▲	▲	▲	▲
▼	▲	▲	▼
▲	▼	▲	▲
ASIA			
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▼	▼	▲	▲

CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
EUROPE			
Berlin	▲	▲	▼
Birmingham	▲	▲	▲
Bristol	▲	▲	▲
London	▲	▲	▲
Manchester	▲	▲	▲
Moscow	▼	▼	▼
Sheffield	▲	▲	▲
MIDDLE EAST			
Abu Dhabi	▲	▼	▼
Doha	▲	▲	▼
Dubai	▲	▲	▼
Riyadh	▲	▲	▲

INDUSTRIAL	RETAIL	HOTEL	CIVIL
EUROPE			
▼	▲	▲	▼
▲	▲	▲	▲
▲	▲	▲	▲
▲	▲	▲	▲
▲	▲	▲	▲
▼	▼	▼	▼
▲	▲	▲	▲
MIDDLE EAST			
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▲	▲	▲	▲
▲	▲	▼	▲
▲	▲	▲	▲

CONSTRUCTION MARKET ACTIVITY

LOCATION	HOUSES	APARTMENTS	OFFICES
OCEANIA			
Adelaide			
Auckland			
Brisbane			
Canberra			
Christchurch			
Darwin			
Melbourne			
Perth			
Sydney			
Townsville			
Wellington			

INDUSTRIAL	RETAIL	HOTEL	CIVIL
OCEANIA			
▲	▲	▲	▲
▲	▲	▲	▲
▲	▲	▲	▼
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▼	▲	NP	▲
▲	▲	▲	▲

RIDER LEVETT BUCKNALL INTELLIGENCE APP

In an industry first, Rider Levett Bucknall has produced a free construction cost-based smartphone app and a corresponding desktop application. Both applications enable users to access updated global construction cost research data from anywhere in the world, instantly and without subscription or purchase fees.

The smartphone and desktop applications use the firm's regularly updated, location-specific construction cost data which is similar to what is represented in this section of our Riders Digest- a range of current expected building costs for specified building types across the world. Users looking for initial indication of the cost of a proposed development can now access this information whenever and wherever they need it.

Additional features include a library of the firm's historical bid price index figures which enable users to compare construction cost differentials between two locations at a specified date or between dates in one particular location.

The app is available on iPhone, Android, Blackberry and Windows Phone 8 Operating Systems, and can be downloaded free of charge from various app stores by searching for 'RLB' or 'Rider Levett Bucknall' or by visiting www.rlb.com/app.

USA CONSTRUCTION

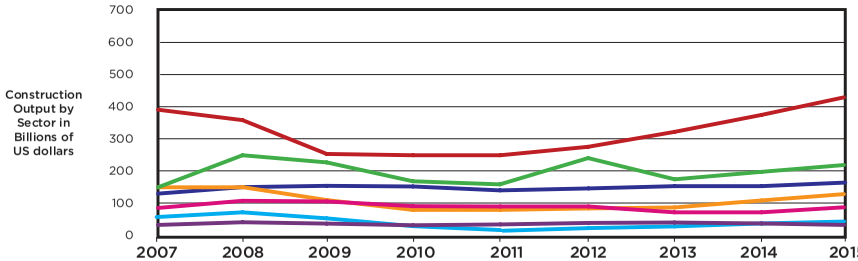
MAUNA KEA BEACH COPPER BAR & BALLROOM RENOVATIONS

WAIMEA, HAWAII

Initially built by Laurance S. Rockefeller in 1965, the Mauna Kea Beach Hotel has become an landmark on the North Kohala Coast of the Island of Hawaii and was the most expensive hotel ever built at the time, at $15 million. Praised by travel writers and critics worldwide, the luxury resort hotel was named one of the "Three greatest hotels in the world" by Esquire magazine, one of "10 best buildings of 1966" by Fortune, and presented with an honors award by the American Institute of Architects. A decade later, AIA placed The Mauna Kea Beach Hotel in the top 150 of its America's Favorite Architecture list. To this day, the hotel repeatedly receives accolades for its remarkable sense of place surrounding the one of the world's best beaches, Kauana'oa Bay.

The 50 year hotel's most recent renovations were to remaster the former Kauna'oa Bar & Grill to nearly 4,000 square feet contemporary ballroom - a facility with spectacular event space and floor to ceiling windows with sweeping views of Kauna'oa Bay. The iconic Copper Bar was transformed to a vibrant open area seating, the original copper and past design was incorporated into the newly renovated bar.

Rider Levett Bucknall provided complete cost estimating and project management services for the preconstruction and construction. Our involvement included coordination between the owner, Prince Resorts Hawaii, Inc., the architect, and contractor. In addition to the coordination, Rider Levett Bucknall was responsible for managing the schedule and budget for the project, including contract administration, and FF&E procurement and tracking.



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential	496.07	366.66	255.54	252.33	252.65	276.06	329.22	375.10	434.36
Public Works	139.82	151.90	153.88	154.52	146.17	148.29	149.89	156.04	166.56
Commercial	154.94	154.78	106.65	77.95	78.83	85.14	91.14	108.76	128.24
Industrial	159.14	247.09	226.32	162.84	156.14	241.89	184.07	199.39	216.24
Educational	96.76	104.89	103.20	88.41	84.99	84.67	79.06	79.70	89.95
Hospitality/Leisure	57.46	64.86	51.10	33.87	29.36	30.16	32.28	36.00	46.42
Healthcare	43.77	46.90	44.85	39.34	40.20	42.54	40.69	38.41	40.69
Total	**1,147.95**	**1,137.08**	**941.53**	**809.25**	**788.33**	**908.74**	**906.35**	**993.41**	**1,122.46**

Sources: U.S. Census Bureau

*Forecast based on seasonally adjusted annual figures as of November 30, 2015

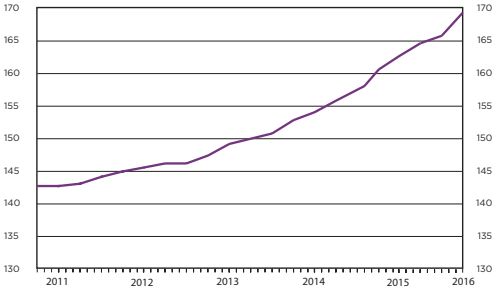
INFLATION INDEX COMPARISON

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 2010.



QUARTER	COST INDEX
October 2010	142.60
January 2011	142.77
April 2011	143.42
July 2011	144.53
October 2011	145.29
January 2012	145.73
April 2012	146.35
July 2012	146.67
October 2012	147.74
January 2013	149.19
April 2013	150.75
July 2013	151.89
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

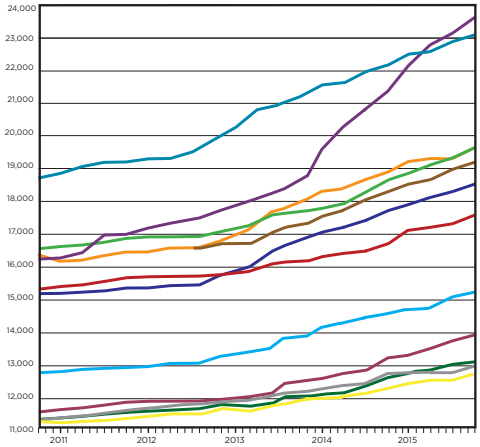
CONSTRUCTION ACTIVITY CYCLE

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 2014	October 2015	% Change
Boston	18,982	19,638	3.45%
Chicago	18,293	19,250	5.23%
Denver	12,546	13,150	4.81%
Honolulu	21,445	23,690	10.46%
Las Vegas	12,319	12,844	4.26%
Los Angeles	16,833	17,617	4.65%
New York	22,384	23,136	3.35%
Phoenix	12,608	13,080	3.74%
Portland	13,249	13,859	4.60%
San Francisco	18,665	19,645	5.25%
Seattle	14,577	15,299	4.95%
Washington, DC	17,788	18,568	4.38%

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)

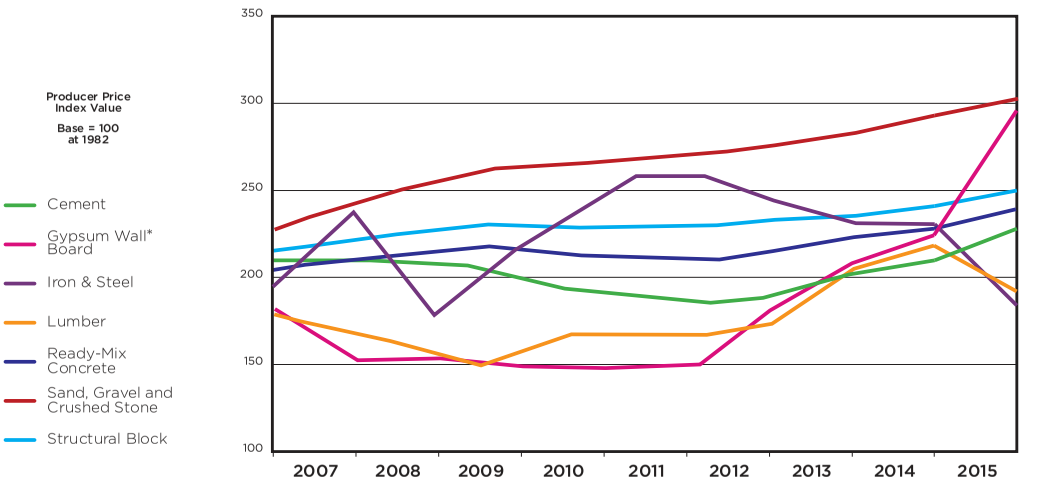
The sum of the above costs are not always what the project will cost the owner (or the entity for whom the project is being constructed). In a weak market the contact sum may be significantly less than the figured costs (such as zero figuring for home office overhead and profit) but in a booming market 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 2015, using labor wage costs in Phoenix, Arizona as a baseline.

COMPARATIVE LABOR INDEX	
217	Boston, MA
137	Calgary, AB
190	Chicago, IL
151	Cincinnati, OH
81	Columbus, OH
135	Denver, CO
192	Honolulu, HI
112	Houston, TX
168	Las Vegas, NV
174	Los Angeles, CA
77	Miami, FL
178	Minneapolis, MN
114	Nashville, TN
269	New York, NY
100	Phoenix, AZ
177	Portland, OR
198	San Francisco, CA
207	Seattle, WA
170	Washington, DC

Source: Davis-Bacon Wage Determinations at December 2014.



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

Average year-to-date as of December 2015

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.

DESIGN & CONSTRUCTION REGULATIONS

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., 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	fedworld.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.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.com
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, CO_2 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	16
Sustainable Sites	10	11	12	10	10	10	10	10
Water Efficiency	11	11	12	12	11	11	11	11
Energy & Atmosphere	33	33	31	33	33	33	33	33
Materials & Resources	13	14	13	13	13	13	13	13
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

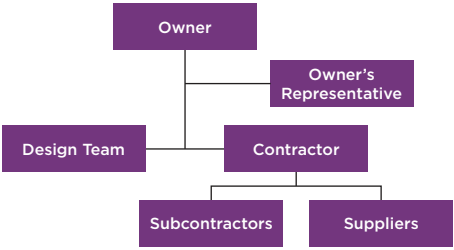
Selecting the best procurement method for a project is fundamental to its success, and will affect its cost, schedule, quality and team relationships throughout the project's development. Procurement strategies should be considered fully at the earliest opportunity and should be weighed with regards 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



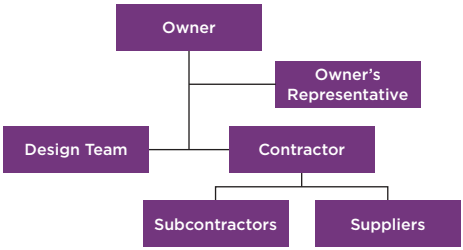
KEY FEATURES

- 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

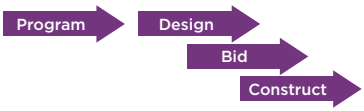


KEY FEATURES

- 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

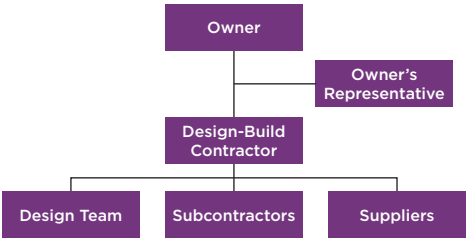
ADVANTAGES	CONCERNS / RISKS
• Early construction start facilitates expedited schedule (fast track) • Contractor advice informs design, typically generates more efficient design • Accommodates owner input through design • Facilitates check and balance process between design and construction • Pricing and cost control performed during preconstruction	• 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

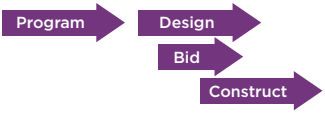


KEY FEATURES

- 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



ESTIMATING DATA

UNIVERSITY OF ARIZONA MCCLELLAND HALL

TUSCON, ARIZONA

Scheduled to open in August of 2016, the Karl and Stevie Eller Professional Development Center is a $5 million, 13,000 square-foot addition which will infill two levels on the south side of the McClelland Hall. This state of the art facility will be the dedicated home for undergraduate career coaching, networking, and team collaboration and will provide students with the facilities needed to position themselves to start great careers.

Rider Levett Bucknall, working on behalf of the University of Arizona, assisted the team in controlling and maximizing the value achieved from the project budget through the pre-construction phase.

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 2015.

LOCATION	M/E INDEX	SCHOOLS				UNIVERSITY		HOSPITAL	
		ELEMENTARY		HIGH SCHOOL				GENERAL	
		LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
NORTH AMERICA									
Boston	1.52	56	77	76	114	87	137	156	235
Calgary	1.29	48	66	64	97	74	116	133	200
Chicago	1.48	55	78	74	112	85	134	152	229
Denver	1.00	37	51	50	76	57	90	103	155
Honolulu	1.84	68	93	91	138	105	165	189	284
Las Vegas	0.98	36	50	49	74	56	88	101	152
Los Angeles	1.35	50	69	67	102	77	122	139	209
New York	1.79	66	91	89	135	102	161	184	277
Phoenix	1.00	37	51	50	75	57	90	103	155
Portland	1.06	39	54	53	79	60	95	108	163
San Francisco	1.51	56	77	75	114	86	136	155	234
Seattle	1.17	44	60	58	88	67	106	121	181
Washington, DC	1.43	53	73	71	108	82	129	147	222

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	1.52	77	124	66	90	45	66	35	53	95	133	64	93
Calgary	1.29	66	105	56	77	38	56	30	45	81	114	55	79
Chicago	1.48	75	121	64	88	44	64	35	52	93	130	63	91
Denver	1.00	51	82	44	60	30	44	23	35	63	88	43	62
Honolulu	1.84	93	150	80	109	54	80	43	64	115	161	78	113
Las Vegas	0.98	50	80	43	58	29	43	23	34	61	86	42	60
Los Angeles	1.35	69	110	59	80	40	59	32	47	85	119	57	83
New York	1.79	91	146	78	106	53	78	42	63	112	157	76	110
Phoenix	1.00	51	82	43	59	30	43	23	35	62	88	42	61
Portland	1.06	54	86	46	63	31	46	25	37	66	93	45	65
San Francisco	1.51	77	123	66	90	45	66	35	53	94	133	64	93
Seattle	1.17	60	96	51	70	35	51	27	41	73	103	50	72
Washington, DC	1.43	73	117	62	85	43	62	33	50	90	126	61	88

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	1.52	11	16	14	24	13	27	35	66	43	64	55	87
Calgary	1.29	10	14	12	21	11	23	30	56	37	55	47	74
Chicago	1.48	11	16	14	24	13	27	35	64	42	63	53	85
Denver	1.00	7	11	10	16	9	18	23	44	29	43	36	57
Honolulu	1.84	14	19	18	29	16	33	43	80	53	78	66	105
Las Vegas	0.98	7	10	9	16	8	18	23	43	28	42	35	56
Los Angeles	1.35	10	14	13	21	11	24	32	59	39	57	49	77
New York	1.79	13	19	17	28	15	32	42	78	51	76	64	102
Phoenix	1.00	7	11	10	16	8	18	23	43	29	42	36	57
Portland	1.06	8	11	10	17	9	19	25	46	30	45	38	60
San Francisco	1.51	11	16	14	24	13	27	35	66	43	64	54	86
Seattle	1.17	9	12	11	19	10	21	27	51	34	50	42	67
Washington, DC	1.43	11	15	14	23	12	26	33	62	41	61	52	82

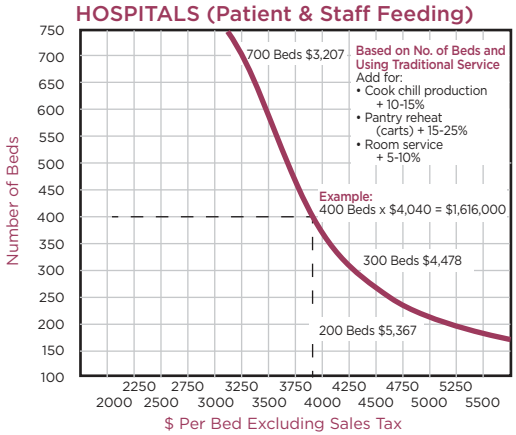
KITCHEN EQUIPMENT

The following are costs of kitchen equipment for patient and staff meal service in various facilities and include:

- Gas, steam and electric cooking, service and beverage making equipment
- Kitchen machinery and conveyors where applicable
- Coldrooms, refrigerators, freezers and similar equipment including refrigeration
- Stainless steel tables, benches, drainers, sinks, back counters, racks, rails, drawers, etc.
- Mobile and portable items of kitchen equipment
- Store and coldroom shelving
- Exhaust hoods and fire protection

Costs are at December 2015 and exclude:

- Building works
- Mechanical, electrical and plumbing services
- Kitchen utensils, chinaware, glassware, cutlery, trays, cash registers, tables, chairs, etc.
- Sales Tax



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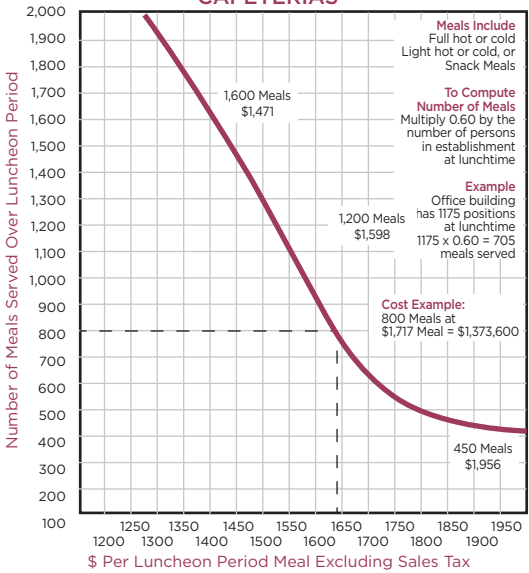
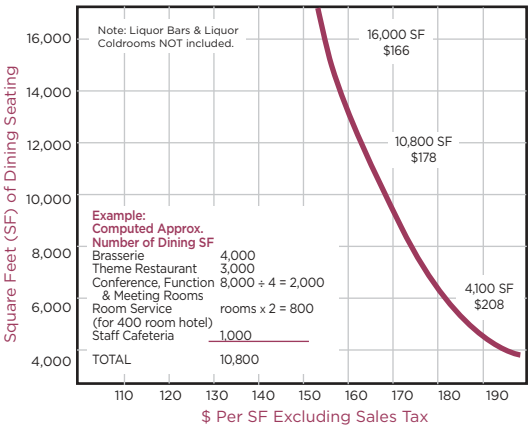
CAFETERIAS



HOTELS



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.

	Labor	Material	Fixed Factor
General Conditions	40	10	50
Demolition		85	15
Excavation	32	15	53
Piling	20	50	30
Concrete	25		75
Formwork	70		30
Reinforcement	20		80
Precast concrete	20		80
Brick & Block	50		50
Stone Masonry	10		90
Asphalt Roofing	40		60
Structural Steelwork	6		94
Metalwork	20		80
Suspended Ceilings	40		60
Carpentry	45		55
Millwork	15		85
Miscellaneous Metals	25		75
Steel Deck Roofing	40		60
Built Up Roofing	30		70
Pipework Plumbing	44		56
Plumbing Fitting	25		75
Drainage	60		40
Plastering	80		20
Gypsum Board	40		60
Ceramic Tiles	55		45
Vinyl Tiles	45		55
Painting	75		25
Vinyl Wall Fabric	60		40
Paper Hanging	35		65
Carpet	10		90
Roadwork & Paving	15		85
HVAC	35		65
Elevators	25		75
Electrical	40		60
Fire Sprinklers	44		56

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^3
12" thick, 10' - 12' high	62	lbs/yd^3
Continuous, stepped and sloped footings	5 - 25	lbs/Lft
	25 - 110	lbs/yd^3
Grade beams	7.5 - 35	lbs/Lft
	40 - 132	lbs/yd^3
Slab on-grade	1.5 - 4.75	lbs/sq ft
	90 - 165	lbs/yd^3
Beams		
10' - 16'	210 - 240	lbs/yd^3
20' - 26'	200 - 230	lbs/yd^3
Columns	210 - 530	lbs/yd^3
Supported slabs	2.25 - 6.75	lbs/sq ft
	85 - 155	lbs/yd^3
Slab over metal deck	2.08 - 4.15	lbs/sq ft
	98 - 140	lbs/yd^3
Pits and trenches	50 - 70	lbs/yd^3
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.

PROGRESS PAYMENTS

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

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

PROGRESS PAYMENTS

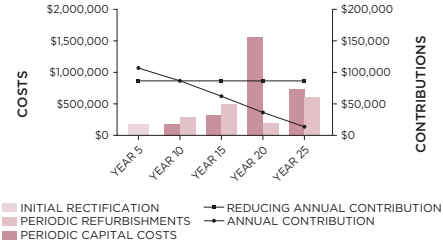
Construction projects from $40,000,000 and/ or greater than two years construction period to substantial completion.

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.

DEFINITIONS

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.

RIDER LEVETT BUCKNALL OFFICES

NLAND WAVE GARDEN

AUSTIN, TEXAS

Set to open Spring 2016, the NLand Surf Park is not only a state-of-the-art facility, but the first-ever inland surf park in North America. The first-of-its-kind surfer's playground poses a myriad of construction challenges that require cost-saving design and water management strategies for the 113-acre park.

The revolutionary park will feature a lagoon approximately the size of nine football fields with eleven surfing areas and proprietary Wavegarden® technology that will create one-foot, four-foot, and perfectly tubing six-foot waves. The project scope includes building the main lagoon, building its proprietary equipment foundation, and constructing a pier and boardwalks. The site has been shaped so rainwater channels into the reservoir. Even in the most challenging drought conditions, the lagoon will be self-sustaining with rainwater.

To further minimize water loss and cost, the lagoon bathymetry was designed via computer modeling to create perfect waves.

Rider Levett Bucknall is serving as project manager and design coordinator for NLand Surf Park. The firm originally provided budgeting services and went on to serve as design coordinator, ensuring designs meet certain cost-saving criteria, in an owner's representative role.

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Fourways
Johannesburg, South Africa
Telephone: +27 11 548 4000
Fax: +27 11 465 1439
E-mail: leon@pentadqs.com
Contact: Leon Cronje

PRETORIA

Pentad Quantity Surveyors Pty Ltd
1st Floor, Building A
Lynnwood Bridge Office Park
Pretoria, South Africa
Telephone: +27 12 348 1040
Fax: +27 12 348 8586
E-mail: nicolas@pentadqs.com
Contact: Nicolas Sheard

OCEANIA

AUSTRALIA

ADELAIDE
Rider Levett Bucknall SA Pty Ltd
Level 1, 8 Leigh Street
Adelaide, SA 5000
Australia
Telephone: +61 8 8100 1200
Fax: +61 8 8100 1288
E-mail: adelaide@au.rlb.com
Contact: Peter Tulla

BRISBANE
Rider Levett Bucknall QLD Pty Ltd
Level 13, 10 Eagle Street
Brisbane, QLD 4000
Australia
Telephone: +61 7 3009 6933
Fax: +61 7 3009 6999
E-mail: brisbane@au.rlb.com
Contact: Dave Stewart

CAIRNS
Rider Levett Bucknall QLD Pty Ltd
Suite 7, 1st Floor,
Cairns Professional Centre,
92-96 Pease Street,
Cairns, QLD 4870
Australia
Telephone: +61 7 4032 1533
Fax: +61 7 4032 1566
E-mail: cairns@au.rlb.com
Contact: Nicholas Duncan

CANBERRA
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16 Bentham Street
Yarralumla, ACT 2600
Australia
Telephone: +61 2 6281 5446
Fax: +61 2 6281 5378
E-mail: canberra@au.rlb.com
Contact: Mark Chappé

OCEANIA

AUSTRALIA

DARWIN
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Level 4, 62 Cavanagh Street
Darwin, NT 0800
Australia
Telephone: +61 8 8941 2262
Fax: +61 8 8941 2572
E-mail: darwin@au.rlb.com
Contact: Paul Lassemillante

GOLD COAST
Rider Levett Bucknall QLD Pty Ltd
45 Nerang Street
Southport, QLD 4215
Australia
Telephone: +61 7 5595 6900
Fax: +61 7 5595 6999
E-mail: goldcoast@au.rlb.com
Contact: Stuart Houghton

MELBOURNE
Rider Levett Bucknall VIC Pty Ltd
Level 13, 380 St Kilda Road
Melbourne, VIC 3004
Australia
Telephone: +61 3 9690 6111
Fax: +61 3 9690 6577
E-mail: melbourne@au.rlb.com
Contact: Ewen McDonald

NEWCASTLE
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63 Lindsay Street
Hamilton, NSW 2303
Australia
Telephone: +61 2 4940 0000
Fax: +61 2 4961 1222
E-mail: newcastle@au.rlb.com
Contact: Mark Hocking

NORTHERN NSW
Rider Levett Bucknall NSW Pty Ltd
Level 1, 9 Park Avenue
Coffs Harbour NSW 2450
Australia
Telephone: +61 2 6659 2060
E-mail: northernnsw@au.rlb.com
Contact: Mark Hocking

PERTH
Rider Levett Bucknall WA Pty Ltd
Level 9
160 St. Georges Terrace
Perth, WA 6000
Australia
Telephone: +61 8 9421 1230
Fax: +61 8 9322 7592
E-mail: perth@au.rlb.com
Contact: Alastair McMichael

SUNSHINE COAST
Rider Levett Bucknall Qld Pty Ltd
63 The Esplanade
Maroochydore, QLD 4558
Australia
Telephone: +61 7 5443 3622
Fax: +61 7 5443 6233
E-mail: suncoast@au.rlb.com
Contact: David Stewart

SYDNEY
Rider Levett Bucknall NSW Pty Ltd
Level 19, 141 Walker Street
North Sydney, NSW 2060
Australia
Telephone: +61 2 9922 2277
Fax: +61 2 9957 4197
E-mail: sydney@au.rlb.com
Contact: Matthew Harris

OCEANIA

AUSTRALIA

TOWNSVILLE

Rider Levett Bucknall QLD Pty Ltd
Level 1, 45 Eyre Street
North Ward, Townsville QLD 4810
Australia
Telephone: +61 7 4771 5718
Fax: +61 7 4772 3848
E-mail: townsville@au.rlb.com
Contact: Chris Marais

NEW ZEALAND

AUCKLAND

Rider Levett Bucknall Auckland Ltd
Level 16, Vero Centre,
48 Shortland Street,
Auckland 1141
New Zealand
Telephone: +64 9 309 1074
Fax: +64 9 379 5420
E-mail: auckland@nz.rlb.com
Contact: Stephen Gracey

CHRISTCHURCH

Rider Levett Bucknall Christchurch Ltd
Level 1, Unit JA, 1 Radcliffe Road,
Belfast, Christchurch 8051
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Telephone: +64 3 354 6873
E-mail: christchurch@nz.rlb.com
Contact: Malcolm Timms

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Suite 1, Level 1, 219 Broadway Avenue
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Fax: +64 6 356 5624
E-mail: palmerstonnorth@nz.rlb.com
Contact: Michael Craine

QUEENSTOWN

Rider Levett Bucknall Otago Ltd
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Queenstown 9348
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Fax: +64 3 409 0327
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TAURANGA

Rider Levett Bucknall Auckland Ltd
Ground Floor, 3/602 Cameron Road
Tauranga 3141
New Zealand
Telephone: +64 7 579 5873
Fax: +64 7 571 5210
E-mail: tauranga@nz.rlb.com
Contact: Martin Grace

WELLINGTON

Rider Levett Bucknall Wellington Ltd
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Wellington 6011
New Zealand
Telephone: +64 4 384 9198
Fax: +64 4 385 7272
E-mail: wellington@nz.rlb.com
Contact: Tony Sutherland

PROFESSIONAL SERVICES

PHOENIX SKY HARBOUR INTERNATIONAL AIRPORT TERMINAL 3 MODERNIZATION

PHOENIX, ARIZONA

Phoenix Sky Harbor International Airport is located just southeast of downtown Phoenix and is owned and operated by the City of Phoenix. Terminal 3, which has been in operation for 36 years, is undergoing a modernization to create a more efficient terminal for passengers and accommodate tenants and concessionaires now and into the future.

When complete, the facility will be an approximately 676,000 square foot, three-story structure. The building will include modern ticket areas, additional baggage claim capacity, a consolidated security checkpoint, flexibility for additional gates, expanded concessions and retail space, and an expanded curb for drop-off and pickup. The modernization of Terminal 3 will deliver a world-class facility that improves passenger flow while improving airline efficiency, and will allow flexibility to accommodate future changes in economic conditions and airline markets.

Rider Levett Bucknall is providing independent cost estimating services to validate cost projections submitted by the programming team.

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

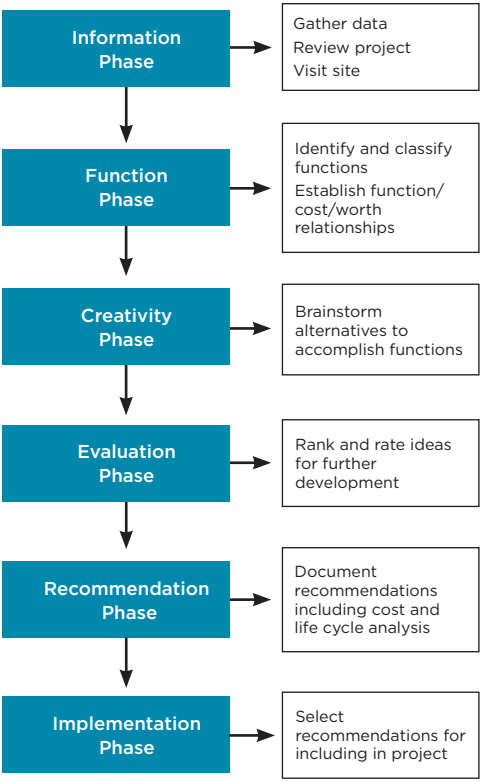
Construction Claims
- Performance and payment bond investigations
- Analysis of outstanding change order claims
- Cost auditing
- Loss of efficiency/lost productivity analysis
- Disruption impact analysis
- Critical path analysis
- Changed conditions analysis
- Estimating reasonable value of work installed
- 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

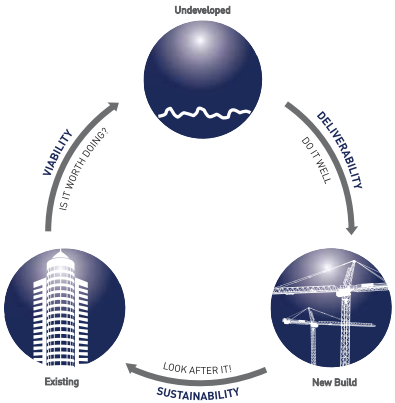
life

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.

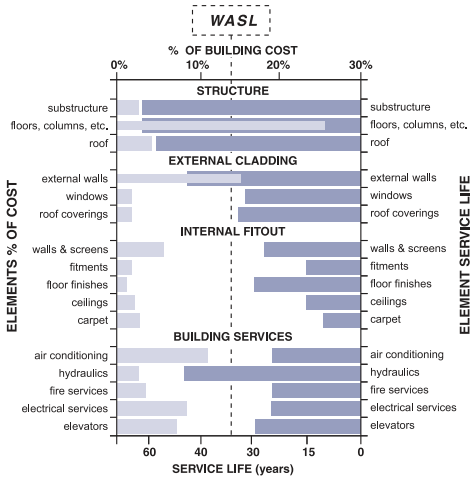


RELIFING®

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)

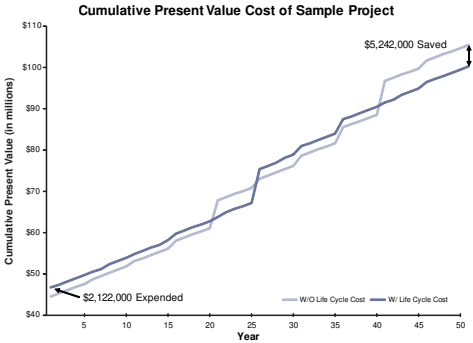
RElifing® then analyzes and prices the recommendations for maintenance, upgrades, renovation, and replacement of various building components necessary to extend the building's life expectancy to certain milestones. When this analysis is compared with the cost to build new, owners are presented with a 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.



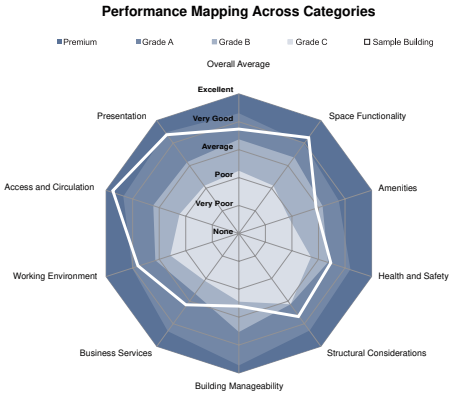
Interdependencies between variables are established and comparison of multiple options provides a frame of reference for making important long-term investment decisions. The model can also be used to calculate carbon footprint, LEED™, energy and CO_2 consumption, water consumption and capital allowances.

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.

Conventional Wisdom Corp (CW) is an international management-consulting firm based in Orlando, Florida that has provided its specialized services to over 250 public and private sector convention centers, arenas, stadiums, theaters, conference facilities and other assembly venues worldwide. Through its planning, programming, reviews, and management consulting, CW defined the future for those facilities and developed phased implementation plans to achieve their Owners' long-term vision. CW's broad experience from an owner and operator's perspective allows it to excel in providing "common sense solutions for complex problems".

Now in its 20th year, CW's professional staff serves as trusted advisors to the highest-level decision makers in destinations it serves. CW provides strategic planning, master planning, architectural programming and program management services for public assembly facilities, establishing project parameters for site, budget, schedule, design and delivery. CW's management consulting practice covers governance, organization and operational issues related to public versus private management and contracted vendors. The relationship of CW's staff with industry manufacturers, design professionals, engineers, and specialty service providers gives it an unparalleled knowledge of available technology, products and services.

Conventional Wisdom Corp joined the Rider Levett Bucknall group of companies in 2006.

For more information, visit www.cwisdom.com.

MISCELLANEOUS ITEMS

THE TOWER AT PNC PLAZA

PITTSBURGH, PENNSYLVANIA

Rising to 33 stories near the confluence of the Allegheny and Monongahela Rivers, The Tower at PNC Plaza is the new headquarters for The PNC Financial Services Group. Designed to exceed LEED Platinum certification, the 800,000 square-foot tower will be one of the world's most environmentally friendly high-rise buildings.

Rider Levett Bucknall provided the construction cost management services to The PNC Financial Services Group and the design team, led by Gensler, throughout the design phase.

Photography courtesy of The PNC Financial Services Group.

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	⅓ × (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 metres	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 2016

S	M	T	W	T	F	S
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3	4	5	6	7	8	9
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31						

FEBRUARY 2016

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MARCH 2016

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APRIL 2016

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MAY 2016

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JUNE 2016

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JULY 2016

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AUGUST 2016

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CALENDAR

SEPTEMBER 2016

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OCTOBER 2016

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NOVEMBER 2016

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DECEMBER 2016

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JANUARY 2017

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FEBRUARY 2017

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MARCH 2017

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APRIL 2017

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IMPORTANT DATES

EVENT	DATE
New Year's Day	Friday, January 1
Martin Luther King Day	Monday, January 18
Chinese New Year	Monday, February 8
Ash Wednesday	Wednesday, February 10
Valentine's Day	Sunday, February 14
Presidents' Day	Monday, February 15
Daylight Savings Starts	Sunday, March 13
Saint Patrick's Day	Thursday, March 17
Passover Begins	Friday, April 22
Good Friday	Friday March 25
Easter	Sunday, March 27
Passover Ends	Saturday, April 30
Mother's Day	Sunday, May 8
Memorial Day	Monday, May 30
Flag Day	Tuesday, June 14
Father's Day	Sunday, June 19
Canada Day	Friday, July 1
Independence Day	Monday, July 4
Labor Day	Monday, September 5
Rosh Hashanah	Sunday, October 2
Yom Kippur	Tuesday, October 11
Columbus Day	Monday, October 10
Thanksgiving Day – CAN	Monday, October 10
Daylight Savings Ends	Sunday, November 6
Veteran's Day	Friday, November 11
Thanksgiving Day – USA	Thursday, November 24
Hanukkah Begins	Sautday, December 24
Hanukkah Ends	Sunday, January 1
Christmas	Sunday, December 25
Boxing Day	Monday, 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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