



PUBLICATION

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UNITED KINGDOM EDITION

RLB

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RIDERS DIGEST

UNITED KINGDOM — 2023 EDITION

A yearly publication from RLB's Research & Development department. Riders Digest is a compendium of cost data and related information on the United Kingdom construction industry.

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Cost information in this publication is indicative and for general guidance only. All prices and rates are as at December 2022 and expressed in British Pounds unless otherwise stated. References to legislative provisions and regulations are as at Q4 2022. Changes after this period will not be reflected.

Please note that all prices exclude prevailing Value Added Tax (VAT).

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INTRODUCTION

FOREWORD — ANDREW REYNOLDS

RLB's Riders Digest provides a reference point for the built environment at a moment in time. It reflects the changing macro economies and their impact on the industry, how each of the sectors and UK regions are faring and also looks forward with a market outlook.

At RLB, our role as independent consultants is to help our clients navigate the challenges and opportunities within the built environment and in doing this, it is important to share our understanding of the marketplace and the conditions in which they are operating – the Riders Digest does just this. We are proud that this publication has now become an industry standard, with feedback from clients and key stakeholders that it is one of the reference documents they use to understand the industry and what is happening within it.

As Global Chair of RLB as well as Chief Executive of RLB UK & Europe, I believe it is our duty to build for a better future, one that is sustainable and safe for all. As an industry, now is the time for action on our climate pledges to ensure that as a sector we slow down the climate crisis by reducing the carbon we are using within the built environment. We must raise our standards of building safety to ensure that all buildings – both new and existing – are fit for the future. Both elements we feel passionately about and areas we are working hard with Government, industry bodies and other stakeholders to ensure RLB plays its part in making a difference.

The future of our industry will be reliant on the new generation of those coming up through it, and encouraging talent to look at the built environment as a career choice will be fundamental to us meeting these goals. This is why we are encouraging new and fresh talent into our industry and showcasing what a difference our industry can make to society. We hope you enjoy this issue of the Riders Digest. As always, feel free to contact me personally or one of the RLB team if you have any feedback or would like to discuss any aspect of it.



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A busy construction sector dominates the national picture, with one eye on replacement workloads as projects are completed, and the other on still uncertain costs of materials amid broader, global economic challenges facing all economies.

At the beginning of 2023, the focus was the ongoing challenges faced by the relatively new government as it looked to balance the sometimes competing concerns of UK business, people and trading partners.

The International Monetary Fund (IMF) view on UK GDP prospects for 2023 is down from +0.9% in their October 2022 forecast to -0.3% in the April 2023 follow-up. This suggests that there is work to do in re-invigorating the UK market, yet nationally, this must be done against a background of rapid inflation last year. The Office for Budget Responsibility (OBR) acknowledges that inflation has peaked at over 10% at the end of 2022 but foresees a rapid fall as energy bills lessen, and global inflationary pressures recede. However, issues surrounding the continuation of the hostilities in Ukraine and high levels of inflation across Europe continue to underpin economic concerns.

For construction in the UK, 2022 saw increases in the BCIS General Building Cost Index exceed those of the BCIS All-in Tender Price Index for 2022 by 9.7% against 7.6% and for materials, the overall yearly uplift was 11.4%. According to the Office for National Statistics (ONS) figures, the volume (net of any price changes) of work carried out across the construction industry in the UK in November 2022, was 5% down on the last pre-Covid year. However, the repairs and maintenance sector were up nearly 14% for the same timeframe indicating that the overall work volume was just over 1% higher than pre-Covid, but the proportions of new work versus repairs and maintenance had changed significantly during this time.

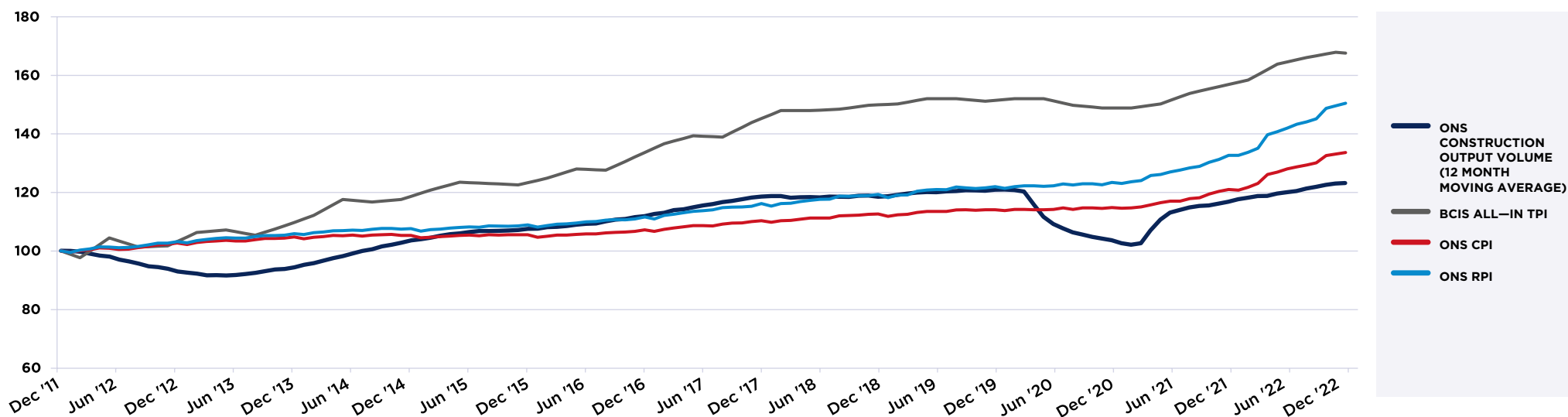
In relation to new work orders, ONS figures for the entirety of 2022 indicated a recovery of workload availability by volume, seeing an uplift of around 1% over 2021, and 13% up on pre-Covid volumes. The recovery of 2021 supported the stabilisation of new workload, except for infrastructure work which continues to expand.



UK CONSTRUCTION TRENDS

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INDICES AND UK CONSTRUCTION OUTPUT COMPARISON



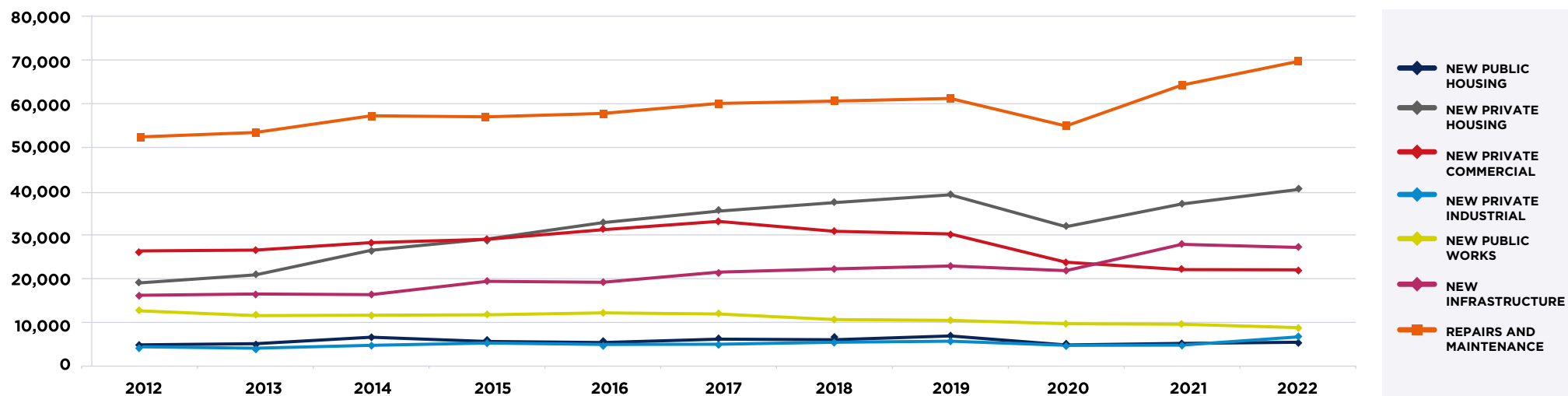
Indices and UK Construction Output Comparison

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
BCIS "All-in" Tender Price Index	103	110	119	123	134	145	150	151	149	157	168
Retail Price Index (RPI)	103	106	108	109	112	116	119	122	123	133	151
Consumer Price Index (CPI)	103	105	105	105	107	110	113	114	115	121	134
UK Chain Volume Construction Output	93	94	104	108	112	119	119	121	104	117	123

Note: UK Chain Volume Construction Output is shown as a 12-month moving average index and depicts changing work volume, net of price change.

BCIS "All-in" Tender Price Index % Change	+ 3.2%	+ 6.3%	+ 8.1%	+ 4.0%	+ 8.3%	+ 8.7%	+ 3.2%	+ 1.0%	— 1.7%	+ 5.4%	+ 6.8%
Retail Price Index (RPI) % Change	+ 3.1%	+ 2.7%	+ 1.6%	+ 1.2%	+ 2.5%	+ 4.1%	+ 2.7%	+ 2.2%	+ 1.2%	+ 7.5%	+ 13.4%
Consumer Price Index (CPI) % Change	+ 2.6%	+ 2.0%	+ 0.5%	+ 0.2%	+ 1.6%	+ 2.9%	+ 2.1%	+ 1.3%	+ 0.6%	+ 5.4%	+ 10.5%
UK Chain Volume Construction Output % Change	— 7.2%	+ 1.6%	+ 9.9%	+ 3.8%	+ 4.1%	+ 6.1%	— 0.0%	+ 2.0%	— 14.5%	+ 12.8%	+ 5.6%

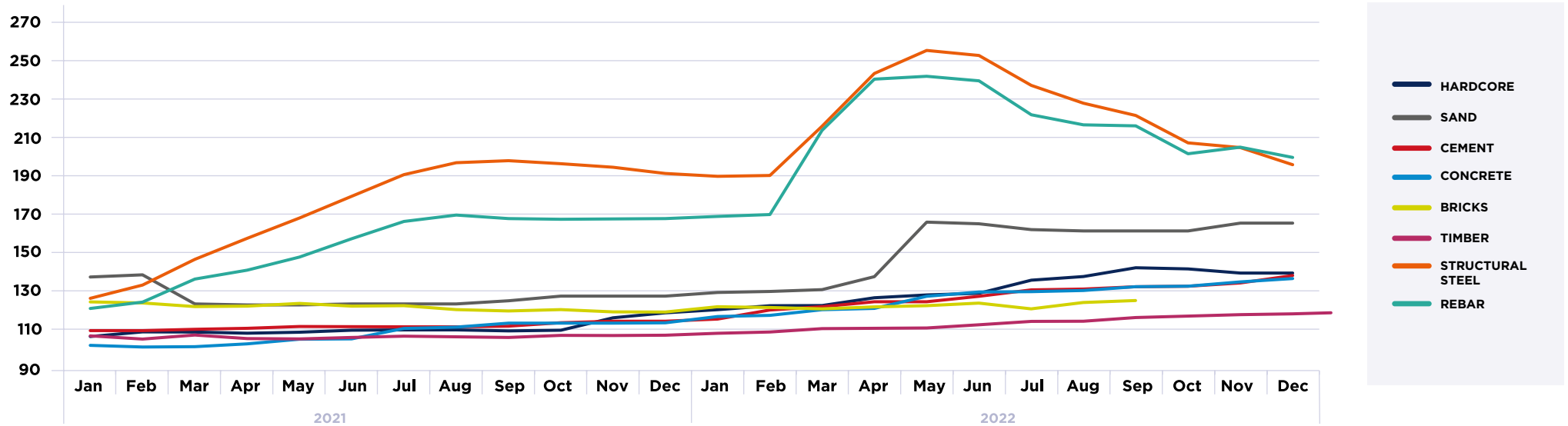
UK CONSTRUCTION OUTPUT BY SECTOR



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NEW PUBLIC HOUSING	4,754	5,044	6,688	5,605	5,326	6,205	6,041	7,016	4,731	5,120	5,411
NEW PRIVATE HOUSING	18,898	20,748	26,441	29,037	32,814	35,476	37,448	39,250	31,890	37,134	40,456
NEW PRIVATE COMMERCIAL	26,285	26,496	28,241	28,995	31,237	33,180	30,864	30,268	23,667	21,939	21,892
NEW PRIVATE INDUSTRIAL	4,326	3,977	4,686	5,256	4,916	4,965	5,467	5,732	4,700	4,756	6,780
NEW PUBLIC WORKS	12,744	11,594	11,699	11,780	12,256	11,978	10,635	10,438	9,614	9,498	8,674
NEW INFRASTRUCTURE	16,079	16,359	16,215	19,332	19,101	21,454	22,220	22,898	21,799	27,931	27,238
REPAIRS AND MAINTENANCE	52,247	53,292	57,147	56,901	57,684	60,008	60,545	61,165	54,798	64,234	69,712

NOTE: Figures are Construction Output Volume (£ million).

UK CONSTRUCTION MATERIALS MONTHLY AVERAGE PRICE INDEX



UK Construction Materials Monthly Average Price Index																												
	2021												2022												2021 Percentage Change	2022 Percentage Change	Two—Year Percentage Change	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
Hardcore	106	108	108	108	108	109	109	109	109	109	116	118	120	122	122	126	128	129	136	138	142	142	140	140	+10.6%	+17.9%	+30.3%	
Sand	137	138	123	122	122	123	123	123	125	127	127	127	129	129	130	137	166	165	162	162	162	162	166	166	—5.6%	+30.4%	+23.1%	
Cement	109	109	110	110	111	111	111	111	111	113	114	114	115	120	122	124	124	127	131	131	132	133	134	138	+6.4%	+21.4%	+29.3%	
Concrete	101	100	101	102	105	105	110	111	113	113	113	113	117	117	120	121	127	130	130	130	132	133	135	137	+13.1%	+20.8%	+36.6%	
Structural Steel	126	133	146	157	168	179	191	197	198	196	194	191	190	190	216	244	256	253	237	228	222	207	205	196	+59.2%	+2.4%	+63.0%	
Rebar	120	124	136	141	147	157	166	169	168	167	167	168	169	170	214	241	242	240	222	217	216	202	205	200	+51.0%	+19.1%	+79.8%	

Table NP = Not Published

UK CONSTRUCTION COST DATA

Building Costs

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Average Construction Payment Drawdown

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UK CONSTRUCTION COST DATA

BUILDING COSTS

Building Costs															
			Birmingham		Bristol		London		North West		Thames Valley		Yorkshire & Humber		
Work Type	Description	Unit	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
Offices; Prestige CBD;	10—25 Storeys	GBP/m2	2,400	3,400	2,300	3,250	3,200	4,150	2,500	3,200	3,000	3,500	2,300	3,850	
Offices; Investment CBD;	Up to 10 Storeys	GBP/m2	1,860	2,850	1,840	2,650	2,850	3,750	2,100	3,200	2,600	2,900	1,620	2,400	
Offices; Investment CBD;	10—25 Storeys	GBP/m2	2,300	3,300	2,050	3,250	3,050	3,950	2,450	3,200	2,750	3,250	2,150	2,800	
Offices; Investment Non CBD;	1 to 3 Storeys	GBP/m2	1,800	2,600	1,380	2,050	1,880	2,600	1,440	2,100	1,960	2,600	1,100	1,820	
Hotels; Multi—Storey;	Five Star Rating	GBP/m2	2,700	3,850	2,650	3,550	3,050	4,050	2,650	3,600	3,000	3,950	2,300	3,550	
Hotels; Multi—Storey;	Four Star Rating	GBP/m2	1,900	2,900	2,250	2,800	2,300	3,650	2,100	3,050	2,400	3,650	1,680	2,650	
Hotels; Multi—Storey;	Three Star Rating	GBP/m2	1,600	2,550	1,540	2,050	2,050	2,600	1,760	2,200	2,100	2,650	1,400	1,860	
Hotels; Multi—Storey;	Five Star Rating	GBP/bedroom	185,000	395,000	172,500	342,500	227,500	447,500	195,000	382,500	225,000	462,500	202,500	350,000	
Hotels; Multi—Storey;	Four Star Rating	GBP/bedroom	95,000	172,500	102,500	167,500	130,000	195,000	110,000	167,500	102,500	192,500	115,000	222,500	
Hotels; Multi—Storey;	Three Star Rating	GBP/bedroom	60,000	120,000	57,000	112,500	68,000	145,000	67,000	120,000	71,000	155,000	46,250	97,000	
Car Park;	Open Deck; Multi Storey	GBP/m2	440	860	470	920	490	980	650	820	510	1,020	370	1,100	
Car Park;	Basement; CBD	GBP/m2	1,000	1,740	1,100	1,720	1,300	2,150	1,240	1,760	1,260	2,250	690	1,120	
Car Park;	Basement; Other than CBD	GBP/m2	810	1,640	980	1,380	1,280	2,000	1,180	1,660	1,220	2,100	710	1,420	
Car Park;	Undercroft; Other than CBD	GBP/m2	530	1,420	580	1,280	640	1,600	790	1,400	650	1,660	480	1,180	
Car Park;	Open Deck; Multi Storey	GBP/car	10,250	22,000	11,750	20,500	12,000	24,000	10,500	20,500	11,500	23,500	8,800	17,500	
Car Park;	Basement; CBD	GBP/car	26,000	51,000	25,250	36,250	31,750	57,000	27,750	48,000	31,250	59,000	23,500	47,750	
Car Park;	Basement; Other than CBD	GBP/car	22,750	41,500	23,000	34,250	24,000	47,250	21,000	41,250	24,000	47,750	17,750	35,000	
Car Park;	Undercroft; Other than CBD	GBP/car	13,500	23,500	13,250	25,250	16,000	27,750	14,250	24,000	13,750	25,250	12,000	20,250	
Industrial; 6.00m to U/S Truss;	4,500m2 fl. Area; Metal Cladding	GBP/m2	610	880	470	740	540	970	580	820	550	1,020	430	760	
Industrial; att. a/c offices;	200m2	GBP/m2	1,200	2,050	1,040	1,780	1,300	2,300	1,140	1,980	1,340	2,400	960	1,700	
Industrial; att. a/c offices;	400m2	GBP/m2	1,140	1,980	920	1,720	1,120	2,150	990	1,800	1,200	2,250	860	1,600	
Aged Care;	Single Storey Facility	GBP/m2	1,640	2,500	1,720	2,550	1,880	2,800	1,680	2,550	1,940	2,950	1,460	2,250	
Aged Care;	Multi Storey Facility	GBP/m2	1,760	2,800	1,620	2,000	2,150	3,100	1,920	2,800	2,200	3,250	1,680	2,500	
Private Hospitals; Low Rise;	45—60m2 floor area per bed	GBP/m2	2,600	3,100	2,350	3,100	2,800	3,600	2,550	3,200	3,000	3,800	2,700	3,900	
Private Hospitals; Low Rise;	55—80m2 floor area per bed; Major Operating Theatre	GBP/m2	3,300	4,650	2,900	4,000	3,100	4,700	2,850	4,150	3,300	4,950	3,800	4,950	
Retail; Regional Shopping Centres;	Department Store	GBP/m2	2,250	4,000	2,150	3,900	2,650	4,700	2,400	4,150	2,800	4,900	2,050	3,550	
Retail; Regional Shopping Centres;	Supermarket/Variety Store	GBP/m2	1,580	2,500	1,540	2,350	1,880	2,800	1,680	2,550	1,940	3,000	1,420	3,050	
Retail; Regional Shopping Centres;	Discount Department Store	GBP/m2	1,820	2,800	1,800	2,700	2,200	3,250	1,980	2,900	2,200	3,300	1,680	2,550	
Retail; Regional Shopping Centres;	Malls	GBP/m2	3,500	4,950	3,200	4,450	3,850	5,400	3,450	4,850	3,400	5,100	2,950	4,200	
Retail; Regional Shopping Centres;	Speciality Shops	GBP/m2	1,980	3,050	1,920	2,800	2,350	3,400	2,100	3,050	2,350	3,600	1,780	2,650	
Retail; General;	Small Shops and Showrooms	GBP/m2	1,100	2,150	1,000	1,900	1,240	2,300	1,100	2,100	1,260	2,450	950	1,780	
Residential; General;	Single and Double Storey	GBP/m2	1,040	1,560	1,240	1,640	1,500	1,800	1,060	1,420	1,560	1,900	890	1,180	
Residential; General;	1 to 3 Storey Units; 85—120m2 per Unit	GBP/m2	1,160	1,900	2,000	2,450	1,480	2,200	1,260	1,660	1,520	2,300	960	1,600	
Residential; General;	Townhouses; 90—120m2 per Unit	GBP/m2	1,160	1,900	2,000	2,450	1,500	2,050	1,400	1,800	1,520	2,250	1,180	1,620	
Residential; General;	Single and Double Storey	GBP/House	68,000	187,500	172,500	292,500	132,500	155,000	63,000	90,000	137,500	160,000	53,000	135,000	
Residential; General;	1 to 3 Storey Units; 85—120m2 per Unit	GBP/Unit	99,000	230,000	172,500	292,500	167,500	210,000	120,000	195,000	165,000	217,500	89,000	165,000	

UK CONSTRUCTION COST DATA

BUILDING COSTS

Building Costs															
			Birmingham		Bristol		London		North West		Thames Valley		Yorkshire & Humber		
Work Type	Description	Unit	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
Residential; General;	Townhouses; 90—120m2 per Unit	GBP/Unit	99,000	230,000	170,000	275,000	162,500	235,000	125,000	205,000	165,000	225,000	102,500	177,500	
Residential; Multi Storey Units;	Up to 10 Storeys with lift	GBP/m2	1,980	2,700	1,480	2,150	2,700	4,750	2,050	2,450	2,450	3,450	1,780	2,050	
Residential; Multi Storey Units;	Up to 10 Storeys with lift	GBP/m2	1,980	2,800	1,480	2,150	2,700	4,550	2,400	2,950	2,450	3,300	2,100	2,600	
Residential; Multi Storey Units;	Up to 10 Storeys with lift	GBP/Unit	122,500	187,500	87,000	147,500	227,500	392,500	137,500	167,500	195,000	350,000	107,500	142,500	
Residential; Multi Storey Units;	Up to 10 Storeys with lift	GBP/Unit	180,000	337,500	135,000	250,000	352,500	582,500	210,000	347,500	245,000	397,500	180,000	297,500	
Office Fit—Out;	Insurance Offices; Government Departments	GBP/m2	1,040	2,800	900	2,250	1,120	2,800	960	2,400	980	2,550	870	2,200	
Office Fit—Out;	Major Company Headquarters	GBP/m2	1,240	3,050	1,080	2,450	1,340	3,100	1,160	2,650	1,200	2,800	1,040	2,400	
Office Fit—Out;	Solicitors, Financiers	GBP/m2	1,140	2,800	980	2,250	1,240	2,800	1,060	2,400	1,100	2,500	960	2,200	
Office Fit—Out;	Executive and Front of House	GBP/m2	1,240	3,050	1,080	2,450	1,340	3,100	1,160	2,650	1,200	2,750	1,040	2,400	
Workstations;	Secretarial	GBP/Each	4,500	6,800	4,450	6,400	5,400	7,800	4,850	7,000	5,000	7,000	4,250	6,000	
Workstations;	Technical Staff	GBP/Each	7,200	9,400	7,000	8,900	8,500	11,000	7,600	9,800	8,300	10,500	6,500	8,500	
Workstations;	Executive	GBP/Each	7,600	16,250	7,100	15,000	9,300	18,750	8,200	16,750	9,000	17,000	7,200	24,500	
Hotel FF&E;	Five Star Rating	GBP/bedroom	25,250	112,500	28,000	112,500	33,000	132,500	27,750	112,500	28,000	100,000	23,750	95,000	
Hotel FF&E;	Four Star Rating	GBP/bedroom	15,250	27,250	16,750	27,500	20,000	33,000	16,500	27,500	18,500	32,000	14,000	23,250	
Hotel FF&E;	Three Star Rating	GBP/bedroom	10,250	16,500	11,250	16,750	13,250	20,000	11,250	17,250	12,750	19,000	9,300	14,250	
Office Refurbishment;	CBD offices; Typical floor	GBP/m2	390	1,600	390	1,280	500	1,600	430	1,420	530	1,500	390	1,200	
Recreational Facilities;	Regional Stadium	GBP/Seat	2,000	3,500	1,840	3,000	1,860	3,050	1,980	3,250	1,940	3,200	1,780	2,900	
Recreational Facilities;	Regional Feature Stadium	GBP/Seat	2,900	6,500	2,650	5,500	2,650	5,500	2,900	5,900	2,800	5,900	2,600	5,400	
Recreational Facilities;	National Iconic Stadium	GBP/Seat	5,100	10,500	4,850	8,800	4,850	9,000	5,200	9,600	5,100	9,500	4,650	8,600	
Recreational Facilities;	Indoor Arena	GBP/Seat	7,900	11,000	7,300	9,600	7,500	9,600	7,900	10,500	7,800	10,250	7,100	9,200	
Recreational Facilities;	Indoor Swimming Pools — 50m (including dry sports facilities)	GBP/m2	3,950	5,900	3,650	5,200	3,750	5,200	3,950	5,600	3,850	5,500	3,550	4,950	
Site Works	Landscaping;	GBP/Hectare	38,500	175,000	59,000	175,000	46,000	195,000	41,500	165,000	44,250	197,500	35,000	142,500	
Site Works	Landscaping;	GBP/m2	30	60	45	65	50	85	50	75	50	85	40	60	
Site Works	Landscaping;	GBP/m2	15	25	25	35	25	35	30	40	30	40	20	30	
Site Works	Car Parks on Ground;	GBP/car	1,200	2,650	1,440	2,150	1,480	2,400	1,260	2,100	1,520	2,500	1,080	1,880	
Site Works	Car Parks on Ground;	GBP/car	1,820	3,550	2,400	3,500	2,400	4,000	2,100	3,500	2,350	4,000	1,760	2,950	
Site Works	Car Parks on Ground;	GBP/car	1,200	2,650	1,440	2,150	1,480	2,500	1,260	2,100	1,520	2,450	1,080	1,760	
Site Works	Roads; asphalt incl. drainage and kerbs;	GBP/m	890	2,100	1,220	2,150	1,140	2,500	980	2,100	1,240	2,650	830	1,760	
Site Works	Roads; asphalt incl. drainage and kerbs;	GBP/m	1,320	2,850	1,620	2,900	1,600	3,200	1,400	2,800	1,660	3,350	1,180	2,400	

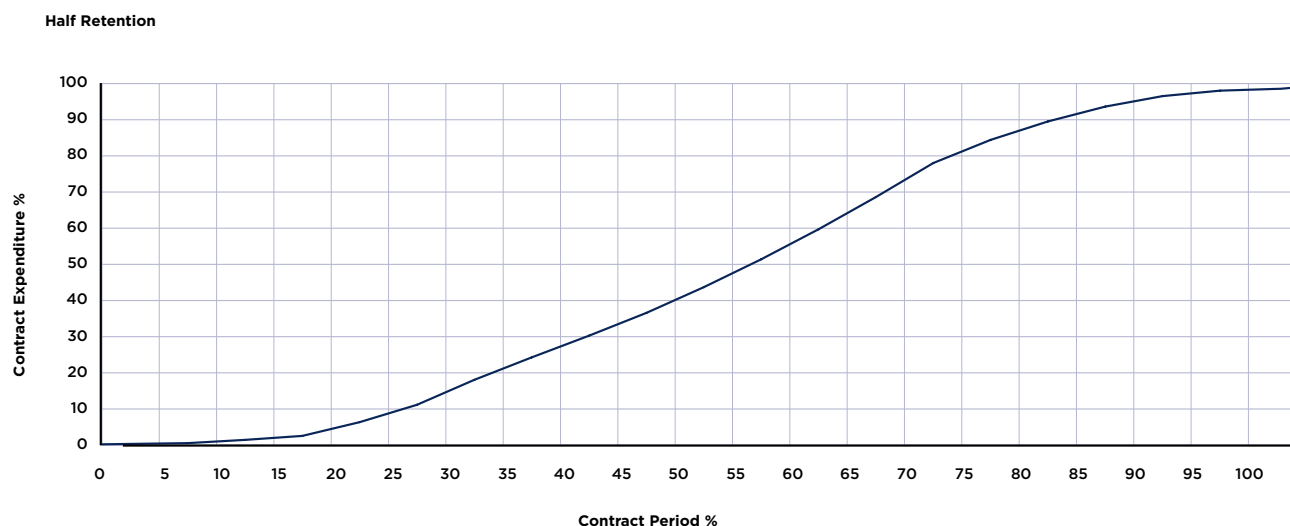
AVERAGE CONSTRUCTION PAYMENT DRAWDOWN

The tabulation below is derived from the statistical average of a series of case histories, which will give an indication of the anticipated rate of expenditure when used for specific project types for preliminary budgetary purposes.

Construction periods exclude various extensions, including wet weather, industrial disputes, etc.

All data is related to the date of submission of contractors' application to the client and not actual payment, which is generally one month later.

Half retention is assumed released at Practical Completion, the other half being released at end of Defects Liability Period.



Contract Period %	Contract Expenditure %
0	0
5	0.6
10	1.5
15	2.6
20	6.4
25	11.2
30	18.1
35	24.3
40	30.3
45	36.6
50	43.7
55	51.4
60	59.7
65	68.6
70	78
75	84.4
80	89.5
85	93.6
90	96.5
95	98
100	98.5
Half retention (1.5%) released at end of defects period	100



ESTIMATING DATA

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DEFINITION OF OFFICE FIT-OUT CATEGORIES

Building Element	Shell and Core	Cat A Fit-out	Cat B Fit-out
Building envelope	✓	✗	✗
Emergency staircases	✓	✗	✗
Balustrades and handrails to emergency stairs	✓	✗	✗
Accommodation stairs	✓	✗	✗
Balustrades and handrails to accommodation stairs	✓	✗	✗
Feature stairs	✗	✓	✗
Balustrades and handrails to feature stairs	✗	✓	✗
Lifts	✓	✗	✗
Base services, plant and equipment to edge of floor plates	✓	✗	✗
Life safety infrastructure, sprinkler pumps, tanks, risers, main fire alarm panels	✓	✗	✗
Finishes to main entrances	✓	✗	✗
Finishes to common areas	✓	✗	✗
Finishes to staircases fitted as part of shell and core	✓	✗	✗
Finishes to lifts	✓	✗	✗
Finishes to common toilets	✓	✗	✗
Sanitary fit-out of common toilets	✓	✗	✗
Suspended ceilings	✗	✓	✗
Raised access floors	✗	✓	✗
Extension of basic mechanical and electrical services, lighting, heating, cooling and ventilation systems including controls, from the riser across the lettable floor space	✗	✓	✗
Sprinklers, fire alarms and basic safety signage	✗	✓	✗
Office carpets	✗	✓	✗
Distributed power to each floor but not to each terminal point	✗	✓	✗
Installation of cellular offices	✗	✗	✓
Enhanced finishes	✗	✗	✓
Conference / meeting room facilities	✗	✗	✓
IT and AV installations	✗	✗	✓
Tea point and kitchen fit-out	✗	✗	✓
Furniture	✗	✗	✓

REINFORCEMENT RATIOS

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

Element	kg/m ³
Substructure	
Pile caps	115 — 200
Bored piles (compression)	30 — 60
Bored piles (tension)	150 — 250
Raft foundation	100 — 150
RC pad footings	70 — 150
Ground beams	200 — 300
Basement	
Retaining wall	150 — 250
RC wall	75 — 150
Ground bearing slab	80 — 150
Edge beams	220 — 300
Lift pits	100 — 200
Above Ground	
Columns	150 — 450
Beams	180 — 300
Slab	90 — 200
Walls (core)	75 — 200
Lift core	125 — 200
Stairs	130 — 160

METHOD OF MEASUREMENT OF BUILDING AREAS

The two tables below are designed for comparative purposes

The information provided is a summary from the RICS Code of Measurement Practice, effective globally from 18 May 2015.

These rules are intended as a brief guide only and the full RICS Code of Measuring Practice should be consulted if required. Advice regarding net lettable areas used for calculating revenues should be given by the client's commercial property agent.

Note from 1 January 2016 a RICS Professional Statement (PS)¹ came into effect.

The purpose of the statement was to change the rules for measurement for offices only from the standard RICS Code of Measuring Practice (6th edition) to IPMS (International Property Measurement Standards).

NOTE: the RICS Code of Measuring Practice (6th edition) still applies to all other building types. The PS affects GEA, GIA and NIA in respect of offices.

Gross External Area (GEA)

The area of a building measured externally (i.e. to the external face of the perimeter walls) at each floor level. The rules of measurement of gross external floor area are defined in the RICS Code of Measuring Practice (6th edition).

RICS Code of Measuring Practice (6th edition) applicable to all buildings except offices.

IPMS 1: Gross External Area (GEA)

The area of a building measured externally (i.e. to the external face of the perimeter walls) at each floor level. The rules of measurement of gross external floor area are defined in the RICS Code of Measuring Practice (6th edition) – adjusted below to reflect the implications of the RICS Professional Statement (PS) as applicable to offices only. Please refer to the RICS Professional Statement for a full definition.

RICS Professional Statement (PS) 2nd Edition effective from 1 May 2018, which affects the measurement of offices.

ALL BUILDINGS EXCLUDING OFFICES	
INCLUDING	EXCLUDING
Perimeter wall thickness and external projections	External open—sided balconies, covered ways and fire escapes
Areas occupied by internal walls and partitions	Canopies
Columns, piers, chimney breasts, stairwells, lift—wells, and the like	Open vehicle parking areas, roof terraces, and the like

OFFICES ONLY	
INCLUDING	EXCLUDING
Definition provided: the external area of basements is calculated by extending the exterior plane of the perimeter walls at ground floor level downwards, or by estimation of the wall thickness if the extent of the basement differs from the ground floor level	
Perimeter wall thickness and external projections	Fire escapes and open external stairways not being part of the structure
External open—sided balconies, covered ways. Now included but must be stated separately	
Areas occupied by internal walls and partitions	Canopies
Columns, piers, chimney breasts, stairwells, lift—wells etc.	Open vehicle parking areas, non—accessible roof terraces etc.

¹ RICS (www.rics.org)

METHOD OF MEASUREMENT OF BUILDING AREAS

GROSS EXTERNAL AREA (GEA)		IPMS 1: Gross External Area (GEA)	
ALL BUILDINGS EXCLUDING OFFICES		OFFICES ONLY	
INCLUDING	EXCLUDING	INCLUDING	EXCLUDING
		Accessible rooftop terraces – now included but must be stated separately	
Atria and entrance halls, with clear height above, measured at base level only	Voids over or under structural, raked or stepped floors	Atria and entrance halls, with clear height above, measured at base level only	Voids over or under structural, raked or stepped floors
	Open light wells upper level voids of an atrium – definition added in PS		Open light wells upper level voids of an atrium – definition added in PS
Internal balconies	Greenhouses, garden stores, fuel stores, and the like in residential property	Internal balconies also called covered galleries are included but must be stated separately as different interpretations may have been applied regarding their inclusion	Greenhouses, garden stores, fuel stores, and the like in residential property
Structural, raked or stepped floors are to be treated as a level floor measured horizontally	Patios, decks at ground level – definition added in PS	Structural, raked or stepped floors are to be treated as a level floor measured horizontally	Patios, decks at ground level – definition added in PS
Horizontal floors, whether accessible or not, below structural, raked or stepped floors	External car parking, equipment yards, cooling equipment and refuse areas – definition added in PS	Horizontal floors, whether accessible or not, below structural, raked or stepped floors	External car parking, equipment yards, cooling equipment and refuse areas – definition added in PS
Mezzanine areas intended for use with permanent access	Other ground level areas that are not fully enclosed – definition added in PS	Mezzanine areas intended for use with permanent access	Other ground level areas that are not fully enclosed – definition added in PS
Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above the main roof level		Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above the main roof level	
Outbuildings which share at least one wall with the main building		Outbuildings which share at least one wall with the main building	
Loading bays		Loading bays	
Areas with a headroom of less than 1.5m		Areas with a headroom of less than 1.5m	
Pavement vaults		Pavement vaults	
Garages		Garages	
Conservatories		Conservatories	

METHOD OF MEASUREMENT OF BUILDING AREAS

Gross Internal Floor Area (GIFA) (or Gross Internal Area (GIA))

The area of a building measured to the internal face of the perimeter walls at each floor level. The rules of measurement of gross internal floor area are defined in the RICS Code of Measuring Practice (6th edition).

RICS Code of Measuring Practice (6th edition) applicable to all buildings except offices

IPMS 2 – Office: Gross Internal Floor Area (GIFA) (or Gross Internal Area (GIA))

The area of a building measured to the internal face of the perimeter walls at each floor level. The rules of measurement of gross internal floor area are defined in the RICS Code of Measuring Practice (6th edition). – adjusted below to reflect the implications of the RICS Professional Statement (PS) as applicable to offices only. Please refer to the RICS Professional Statement for a full definition.

RICS Professional Statement (PS) 2nd Edition effective from 1 May 2018, which affects the measurement of offices.

Using IPMS 2 offices are separated for measurement into eight component areas:

Component A – Vertical penetration e.g. lift / elevator shaft and ducts

Component B – Structural elements all structural walls to inside of internal dominant face

Component C – Technical services e.g. plant rooms, lift /elevator motor rooms and maintenance rooms

Component D – Hygiene areas e.g. toilet facilities, cleaners, shower room and changing room

Component E – Circulation areas – all horizontal circulation areas

Component F – Amenities e.g. cafeteria, day care facilities, fitness areas and prayer rooms

Component G – Workspace, e.g. the area available for use by personnel, furniture and equipment for office purposes

Component H – Other areas including balconies, covered galleries, internal car parking and storage rooms

If an area is for multi functional use, it is to be stated as its Principal use.

Limited use areas must be identified, measured and stated separately within IPMS reported areas.

OFFICES ONLY

Definition added – the sum of the areas of each floor of an office building measured to the internal dominant face reported on a component-by-component basis for each floor of a building

The internal dominant face is the inside finished surface comprising 50% or more of the surface area for each vertical section forming an internal perimeter. Where the internal dominant face is a window the internal dominant face is taken to the glazing

METHOD OF MEASUREMENT OF BUILDING AREAS

Gross Internal Floor Area (GIFA) (or Gross Internal Area (GIA))		IPMS 2 — Office: Gross Internal Floor Area (GIFA) (or Gross Internal Area (GIA))	
ALL BUILDINGS EXCLUDING OFFICES		OFFICES ONLY	
Areas occupied by internal walls and partitions projections	Perimeter wall thicknesses and external projections	Areas occupied by internal walls and partitions projections	Perimeter wall thicknesses and external projections
Columns, piers, chimney breasts, stairwells, lift—wells, other internal projections, vertical ducts, and the like	External open—sided balconies, covered ways and fire escapes	Columns, piers, chimney breasts, stairwells, lift—wells, other internal projections, vertical ducts, and the like	Open external stairways not being part of the structure e.g. fire escapes
		External balconies often referred to as external open sided balconies – included but stated separately	
Enclosed walkways or passages between separate buildings – definition added in PS		Enclosed walkways or passages between separate buildings – definition added in PS	
Atria and entrance halls, with clear height above, measured at base level only	Canopies	Atria and entrance halls, with clear height above, measured at base level only	Canopies
		Areas occupied by the reveals of windows when measured and assessed as the internal dominant face — definition added in PS	
Internal open—sided balconies, walkways, and the like	Voids over or under structural, raked or stepped floors	Internal open—sided balconies, walkways, and the like — included but stated separately	Voids over or under structural, raked or stepped floors
		External balconies often referred to as external open sided balconies – included but stated separately	
	Accessible rooftop terraces – normally excluded	Accessible rooftop terraces included but stated separately	
Structural, raked or stepped floors are to be treated as a level floor measured horizontally	Greenhouses, garden stores, fuel stores, and the like in residential property	Structural, raked or stepped floors are to be treated as a level floor measured horizontally	Greenhouses, garden stores, fuel stores, and the like in residential property
Horizontal floors, with permanent access, below structural, raked or stepped floors	Patios, decks at ground level not forming part of the structure – definition added in PS	Horizontal floors, with permanent access, below structural, raked or stepped floors	Patios, decks at ground level not forming part of the structure — definition added in PS

METHOD OF MEASUREMENT OF BUILDING AREAS

Gross Internal Floor Area (GIFA) (or Gross Internal Area (GIA))		IPMS 2 — Office: Gross Internal Floor Area (GIFA) (or Gross Internal Area (GIA))	
ALL BUILDINGS EXCLUDING OFFICES		OFFICES ONLY	
Corridors of a permanent essential nature (e.g. fire corridors, smoke lobbies)	External car parking, equipment yards, cooling equipment and refuse areas — definition added in PS	Corridors of a permanent essential nature (e.g. fire corridors, smoke lobbies)	External car parking, equipment yards, cooling equipment and refuse areas — definition added in PS
Mezzanine floor areas with permanent access	Other ground level areas that are not fully enclosed — definition added in PS	Mezzanine floor areas with permanent access	Other ground level areas that are not fully enclosed — definition added in PS
Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above the main roof level		Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above the main roof level	
Service accommodation such as toilets, toilet lobbies, bathrooms, showers, changing rooms, cleaners' rooms, and the like		Service accommodation such as toilets, toilet lobbies, bathrooms, showers, changing rooms, cleaners' rooms, and the like	
Projection rooms		Projection rooms	
Voids over stairwells and lift shafts on upper floors		Voids over stairwells and lift shafts on upper floors	
Loading bays		Loading bays	
Areas with a headroom of less than 1.5m		Areas with headroom of less than 1.5m — refer to PS rules. The internal dominant face is the inside finished surface comprising 50% or more of the surface area for each vertical section forming an internal perimeter	
Pavement vaults		Pavement vaults	
Garages		Garages	
Conservatories		Conservatories	

METHOD OF MEASUREMENT OF BUILDING AREAS

Net Internal Area (NIA)

The usable area within a building measured to the internal face of the perimeter walls at each floor level. The rules of measurement of net internal area are defined in the RICS Code of Measuring Practice (6th edition).

RICS Code of Measuring Practice (6th edition) applicable to all buildings except offices

ALL BUILDINGS EXCLUDING OFFICES	
INCLUDING	EXCLUDING
Atria with clear height above, measured at base level only excluding common areas	Those parts of entrance halls, atria, landings and balconies used in common
Entrance halls excluding common areas	Toilets, toilet lobbies, bathrooms, cleaners' rooms, and the like
Notional lift lobbies and notional fire corridors	Lift rooms, plant rooms, tank rooms (other than those of a trade process nature), fuel stores, and the like
Kitchens	Stairwells, lift—wells and permanent lift lobbies
Built—in units, cupboards, and the like occupying usable areas	Corridors and other circulation areas where used in common with other occupiers

IPMS 3 — Office: Net Internal Area (NIA)

The usable area within a building measured to the internal face of the perimeter walls at each floor level. The rules of measurement of net internal area are defined in the RICS Code of Measuring Practice (6th edition) – adjusted below to reflect the implications of the RICS Professional Statement (PS) as applicable to offices only. Please refer to the RICS Professional Statement for a full definition.

RICS Professional Statement (PS) 2nd Edition effective from 1 May 2018, which affects the measurement of offices.

OFFICES ONLY	
INCLUDING	EXCLUDING
Definition added: The floor area available on an exclusive basis to an occupier, but excluding standard facilities and shared circulation areas, and calculated on an occupier—by—occupier floor—by—floor basis for each building. All internal walls and columns with an occupant; exclusive area included within IPMS 3 — office. The floor area is taken to the internal dominant face and, where there is a common wall with an adjacent tenant, to the centre line of the common wall.	
Atria with clear height above, measured at base level only excluding common areas	Those parts of entrance halls, atria, landings and balconies used in common
Entrance halls excluding common areas	Toilets, toilet lobbies, bathrooms, cleaners' rooms, and the like
Notional lift lobbies and notional fire corridors	Lift rooms, plant rooms, tank rooms (other than those of a trade process nature), fuel stores, and the like
Kitchens	Stairwells, lift—wells and permanent lift lobbies
Built—in units, cupboards, and the like occupying usable areas	Corridors and other circulation areas where used in common with other occupiers

METHOD OF MEASUREMENT OF BUILDING AREAS

ALL BUILDINGS EXCLUDING OFFICES	
INCLUDING	EXCLUDING
Areas occupied by ventilation/heating grilles	Areas under the control of service or other external authorities including meter cupboards and statutory service supply point
Areas occupied by skirting and perimeter trunking	Internal structural walls, walls enclosing excluded areas, columns, piers, chimney breasts, other projections, vertical ducts, walls separating tenancies and the like
Areas occupied by non—structural walls subdividing accommodation in sole occupancy	The space occupied by permanent and continuous air—conditioning, heating or cooling apparatus, and ducting in so far as the space it occupies is rendered substantially unusable
Pavement vaults	The space occupied by permanent, intermittent air—conditioning, heating or cooling apparatus protruding 0.25m or more into the usable area
	Areas with a headroom of less than 1.5m
	Areas rendered substantially unusable by virtue of having a dimension between opposite faces of less than 0.25m
	Vehicle parking areas (the number and type of spaces noted)

OFFICES ONLY	
INCLUDING	EXCLUDING
Areas occupied by ventilation/heating grilles	Areas under the control of service or other external authorities including meter cupboards and statutory service supply point
Areas occupied by skirting and perimeter trunking	
All internal walls and columns	
Areas occupied by non—structural walls subdividing accommodation in sole occupancy	The space occupied by permanent and continuous air—conditioning, heating or cooling apparatus, and ducting in so far as the space it occupies is rendered substantially unusable
Pavement vaults	The space occupied by permanent, intermittent air—conditioning, heating or cooling apparatus protruding 0.25m or more into the usable area
Areas with a headroom of less than 1.5m – now included but may be stated separately as a limited use area	
Areas rendered substantially unusable by virtue of having a dimension between opposite faces of less than 0.25m	Measured but identified separately
	Vehicle parking areas (the number and type of spaces noted)

METHOD OF MEASUREMENT OF BUILDING AREAS

ALL BUILDINGS EXCLUDING OFFICES	
INCLUDING	EXCLUDING
	Enclosed walkways or passages between separate buildings – definition added in PS
	Accessible rooftop terraces – normally excluded
	Open external stairways not being part of the structure e.g. open framework fire escapes
	Patios, decks at ground level not forming part of the structure – definition added in PS
	External car parking, equipment yards, cooling equipment and refuse areas — definition added in PS
	Other ground level areas that are not fully enclosed — definition added in PS
	Open light wells upper level voids of an atrium

Source: RICS²

OFFICES ONLY	
INCLUDING	EXCLUDING
The common wall with adjacent occupier — the floor areas is taken to the centre line of the common wall, so the area includes half the width of the common wall — definition added in PS	
Enclosed walkways or passages between separate buildings – definition added in PS	
Areas occupied by the reveals of windows when measured and assessed as the internal dominant face	
External open sided balconies used exclusively – included but stated separately	
Accessible rooftop terraces included but stated separately	
	Open external stairways not being part of the structure e.g. open framework fire escapes
	Patios, decks at ground level not forming part of the structure – definition added in PS
	External car parking, equipment yards, cooling equipment and refuse areas — definition added in PS
	Other ground level areas that are not fully enclosed — definition added in PS
	Open light wells upper level voids of an atrium

INTERNATIONAL COST MANAGEMENT STANDARD (ICMS)

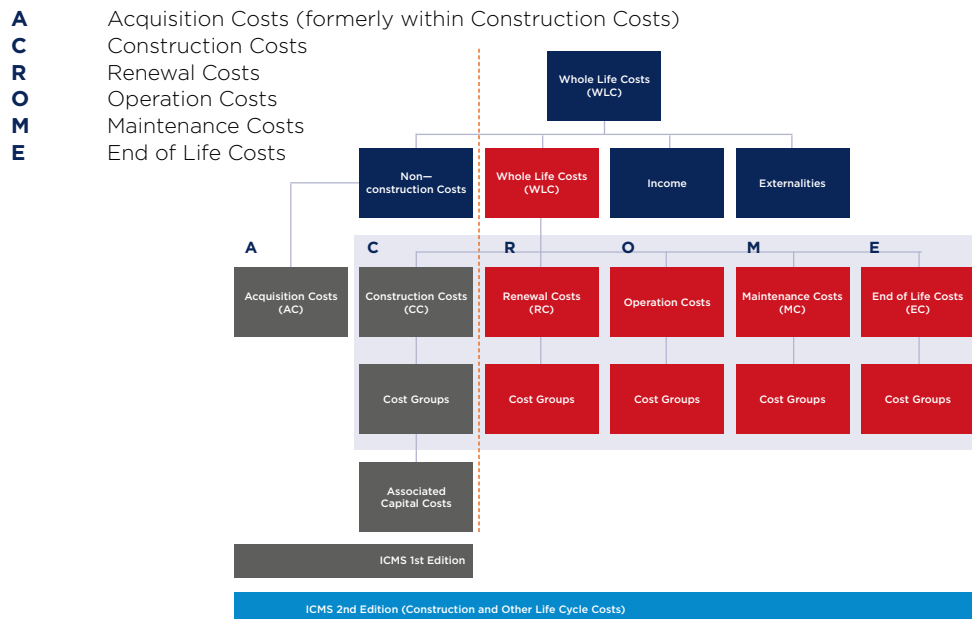
Introduction

The aim of ICMS is to, "... provide a structure and format for classifying, defining, measuring, analysing and presenting construction costs that will provide consistency and transparency across international boundaries." (ICMS Coalition²)

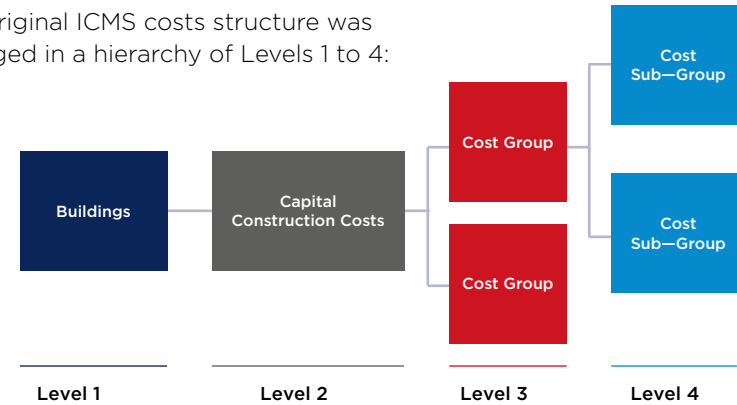
What is it and why?

The ICMS project is backed by more than 40 building and surveying national groups and professional bodies globally, working as the ICMS Coalition.

ICMS has been designed to be back-to-back with International Property Measurement Standards (IPMS), but addresses the cost aspects of projects. First issued in July 2017 as ICMS, ICMS2 was issued in September 2019 and ICMS3 in November 2021. Whereas the original edition featured only Construction Costs, ICMS2 addressed Whole Life Costs in the ACROME format:



The original ICMS costs structure was arranged in a hierarchy of Levels 1 to 4:



Level 1: Project or Sub-Project – mandatory, classification by essence and principal purpose

Level 2: Cost Category – mandatory, to permit high level comparison between projects

Level 3: Cost Group – mandatory, equivalent of New Rules of Measurement Group Elemental

Level 4: Cost Sub-Group – non-mandatory, but subject to Level 3 constraints
This first edition orientation can be shown for a set of categories as follows:

Cost Code	Description
	Cost Category (Level 2)
	Cost Group (Level 3)
	Cost Sub-Group (Level 4)
1	Capital Construction Costs
1.02	Substructure
1.02.020	Foundations up to top of lowest floor slabs: 010 – excavation and disposal 020 – lateral supports 030 – raft footings, pile caps, column bases, wall footings, strap beams, tie beams 040 – substructure walls and columns 050 – lowest floor slabs and beams (excluding basement bottom slabs) 060 – lift pits

² ICMS Coalition (<https://icms-coalition.org>)

INTERNATIONAL COST MANAGEMENT STANDARD (ICMS)



In ICMS 2, the aforementioned general format was retained. However, with the separation of Acquisition Costs now as Cost Code 1, Construction Costs became Cost Code 2. Other changes to Cost Groups and Sub—Groups were limited but include the addition of a Cost Group for “composite or prefabricated work”.

While the second edition of ICMS “extended the scope of the first edition to encompass lifecycle costs”, the third edition “recognises the criticality of reducing greenhouse gas emissions if a disaster caused by global climate change is to be averted”. Considering these changes, the ICMS Coalition decided to change the title of ICMS to ‘International Cost Management Standard’, which, while retaining the same acronym, reflects the broader scope of its contents. The structural framework of ICMS remains unchanged, allowing comparisons with reports of capital and other lifecycle costs that have been produced in accordance with the first and second editions.

In both the original version of ICMS and edition 2, the user has not been exposed to anything that is fundamentally different from a standard approach to costing projects, however, Level 3 of the costs structure changes. Level 3 (shown below in the numbering convention of the original ICMS version) of ICMS introduces the concept of structure work separated from architectural works / non—structural

Table 2

1.03	Structure
1.04	Architectural works / non—structural works

The user must accord with the Level 3 ICMS headings, and so must break out some parts of NRM’s structural elements and measure these parts as non—structural. For example, what has been formerly understood as the roof element under NRM, will now be understood under ICMS as a structural component (roof structure) and a non—structural component (roof covering and drainage).

Whilst there is no definition of the suggested ICMS Cost Sub—Groups provided, they are stated within the ICMS document as being broadly compatible with ISO 12006.

Readers of the ICMS document should also be aware that there is an additional level in the suggested Level 4 structure that is effectively Level 5 (refer to 1.02.020.010 section within the table on the previous page). This is a mix between what we currently know as NRM element and NRM sub—element level.

Another key feature of ICMS is the requirement for cost reporting to be provided using both IPMS 1 and IPMS 2 areas of measurement formats. The IPMS 1 method measures the external face of the external walls of buildings, whereas IPMS 2 measures the internal face. While IPMS 2 is broadly equivalent to Gross Internal Floor Area (GIFA), ICMS also introduces the concept of Internal Dominant Face (IDF). IDF is defined as the inside finished face of that part of a wall that composes greater than 50% of the wall face. The use of IDF could, in extreme circumstances, result in the measured area exceeding the physical floor area of the space in question. The use of IPMS 1 and 2 raises other issues regarding measurement of areas such as balconies and rooftop terraces. ICMS requires these areas to be measured including, and stated separately, whereas currently GIFA under NRM excludes both balconies and terraces.

New editions of each of NRM 1—3 were introduced from 1 December 2021. The RICS website identifies that “the primary development in recent years has been the publication of the International Cost Management Standard (ICMS) (formerly known as International Construction Measurement Standards). Together with the recent publication of the cost prediction professional statement, there now exists a hierarchy of cost management standards and tools from the high—level and global ICMS, through to more detailed principles of all aspects of cost prediction in the professional statement and the detailed rules and guidance in the NRM suite.

As a consequence of all of the above, and notwithstanding the RICS statement on alignment of ICMS and NRM, care needs to be taken in considering benchmarked costs under NRM as against under ICMS. The above information is only an overview introduction to ICMS. For further information, please contact Roger Hogg, Research & Development Manager on roger.hogg@uk.rlb.com.

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INTRODUCTION

Confidence today inspires tomorrow

RLB is an independent global construction and property consultancy providing management and advice throughout the built environment.

We are committed to creating value for our clients, achieving commercial success, project and programme success and optimised assets to projects across the world. We do this through our extensive expertise in cost management and quantity surveying, project and programme management, asset advisory and specialist consultancy.

Our Vision

Creating a better tomorrow

The RLB vision is to be the global leader in the market, through flawless execution, a fresh perspective and independent advice. Our focus is to create value for our customers, through the skills and passion of our people, and to nurture strong long-term partnerships.

By fostering confidence in our customers, we empower them to bring their imagination to life, to shape the future of the built environment, and to create a better tomorrow.

At a Glance

- More than 4,200 people worldwide
- Offices in 140 locations across the world

Our Values

At the heart of everything we do

At RLB doing the right thing matters. We believe we all have a responsibility to support the communities in which we live and work. Our global values are based on these eight insights:



People Invest in our people and value their contribution



Workplace Provide an inclusive, safe working environment



Industry Lead by example and shape the future of our industry in everything we do



Business Act with integrity, honesty and fairness in all our relationships



Community Support the communities in which we live and work and deliver sustainable social outcomes



Environment Reduce our environmental footprint and collaborate to reduce the environmental impact of our industry



Customers Challenge the norm, give fresh perspectives and deliver flawlessly



Shareholders Be a self-owned organisation, be financially robust, and deliver agreed financial plans

ABOUT RLB

OUR PEOPLE



Our people bring their independent thinking and fresh perspective to make a difference to our clients and the communities we serve. Our people embody RLB's beliefs and values, and are dedicated to shaping the future of our built environment.

You can find out more about our specialists [here](#).

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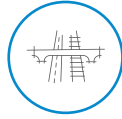
ABOUT RLB

OUR SECTORS

A core strength of RLB is our sector expertise. Our experts bring their technical expertise to deliver solutions for customers across a number of sectors, sharing our insight, knowledge and independent and objective advice. We work across all sectors of the built environment with a particular focus on the following:



COMMERCIAL



INFRASTRUCTURE



DATA CENTRES



**LOGISTICS &
MANUFACTURING**



**EDUCATION &
RESEARCH**



PUBLIC & CIVIC



ENERGY



RETAIL



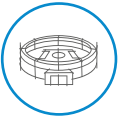
HEALTHCARE



RESIDENTIAL



HOTELS & LEISURE



SPORT

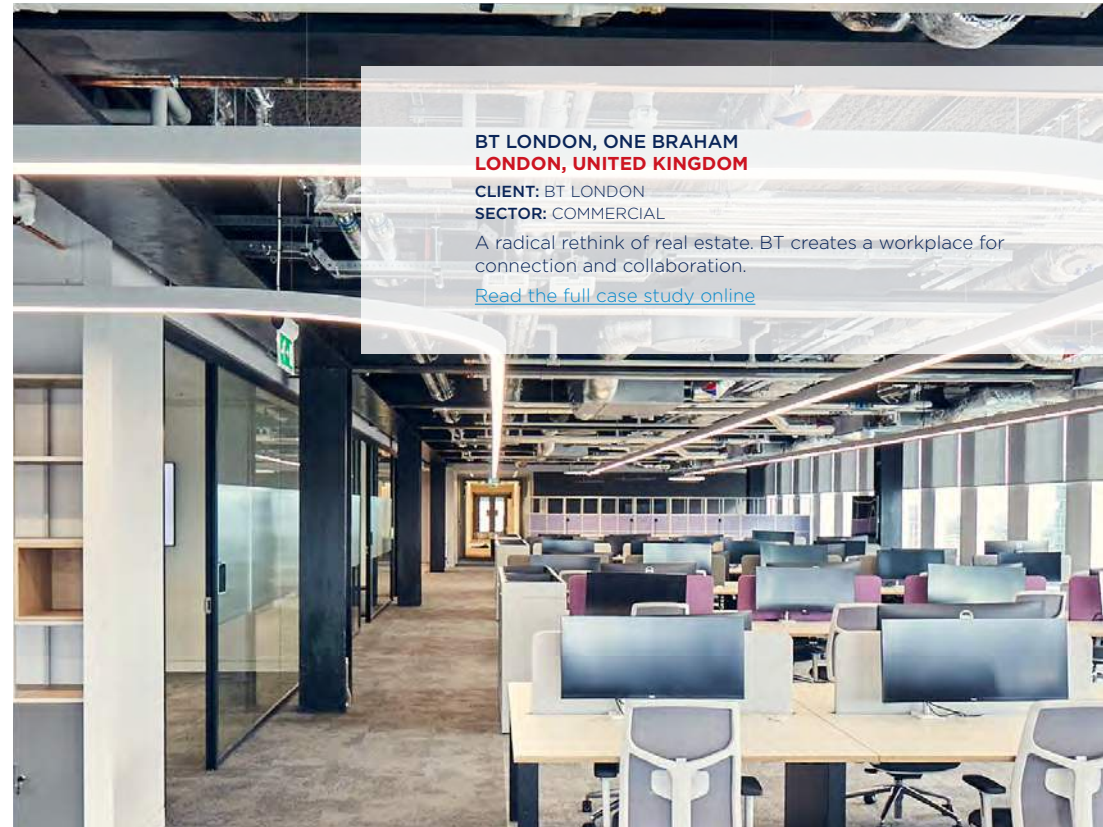


To find out more about the sectors we work in contact:

Matthew Brooker

Partner — National Head of Sectors and Commercial

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**BT LONDON, ONE BRAHAM
LONDON, UNITED KINGDOM**

CLIENT: BT LONDON
SECTOR: COMMERCIAL

A radical rethink of real estate. BT creates a workplace for connection and collaboration.

[Read the full case study online](#)

OUR SERVICES

RLB's Connected Thinking approach combines collaborative best practice and flawless execution with local knowledge and expertise. We take learnings from our global business and overlay them with an in-depth understanding of our clients' businesses, regardless of their sector or service, to create tailored solutions that deliver successful outcomes. Providing independent advice through the skills and passion of our people, we deliver value and sustainable outcomes that are relevant for today and into tomorrow.

Bringing a fresh perspective

Our approach is about accelerating the delivery of benefits while providing a sustainable solution for our clients. It involves an absolute focus on sharing knowledge, learning and experience across our global business, and with our clients to achieve real and tangible results.

Through collaborating both internally and externally, we can influence the development of industry quality standards, share knowledge and work together to drive industry-wide improvements. BIM and data management is a key tool for driving collaboration and efficiency within the design and construction of the built environment. We continuously develop our BIM and data capabilities working with some of the world's leading designers, engineers, software vendors and contractors delivering highly complex, high value projects worldwide.

Understanding the value of data within our solutions is a key enabler for successful outcomes. We are adopting new technology and techniques to work faster and smarter to deliver projects with greater certainty and transparency, providing the insights needed to help our clients make more informed decisions at the right time.

We are focused on creating and delivering value and marry together expertise in capital and whole life cost modelling, the creation of human and social value and the assessment of environmental impact of projects. This enables our clients to test their business cases and identify and deliver optimum—value outcomes.



Russell Lloyd

Partner — Head of Service

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COMMERCIAL SUCCESS



Sam Barnes

Partner — Head of Cost Management

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A KEY MEASURE OF SUCCESS

Our approach to cost management focuses on the business needs of the client. We deliver a cost management service which supports the project objectives and enables clients to make informed decisions in relation to their property assets.

Supported by our sector expertise and bespoke digital solutions we aim to deliver commercial certainty at all stages of the project life cycle from early feasibility through to financial close. Our independence and commercial approach allows us to deliver the right project outcomes and add value.

Key Differentiators

- 50 specialist in-house M&E cost managers
- A project needs based approach driving value outcomes
- Carbon calculation
- Critical investment in developing technologies including 5DBIM, Data Analytics and Artificial Intelligence
- Experts in life cycle life costing
- First cost consultancy accredited with ISO19650

BIM Design and Construction.

- RLB Focus data analytics tool providing innovative use of data visualisation for improved analysis and strategic insight enabling agile decision making
- RLB Pulse Benchmarking data base and modelling tool
- ROSS5D industry leading in-house cost planning tool.

Feasibility Studies

A reliable feasibility study enables a speedy response at the early stages of a project, to assess the viability and value objectives of the project requirements, and to offer alternative solutions if appropriate. This includes the assessment of environmental and social impact of investment through a monetised mechanism.

Our cost benchmarking data, together with cost modelling can be used as a dynamic tool to review alternative design options and explore “what if” scenarios to identify the most cost—effective options.

Benchmarking

We can benchmark a particular project against similar projects to quickly assess if the project requirements can be achieved and measure value.

We have a global cost benchmarking tool that includes both functional and design metrics. This enables us to benchmark building efficiencies as well as cost, helping identify alternative solutions and add value.

Cost Planning

Establishing a robust elemental cost plan will form the key cost management control document for any project. This will be prepared in conjunction with the whole project team to ensure ownership of the budget. All future changes will be managed against the approved cost plan. The cost plan will enable proactive cost—checking of design development, alternative cost studies and support value engineering and risk management.

RLB is at the forefront of Building Information Modelling (BIM) utilisation. Our bespoke cost planning ROSS5D software interfaces with BIM files created by the various software packages used by designers and consultants. Our specialist MEP cost managers add value by providing detailed cost advice in relation to MEP services, and where appropriate, challenge designs.

The data generated in our ROSS5D cost planning tool is integrated with both our Life Cycle Cost and Carbon Calculation tools. This integrated approach supports our Sustainability and Whole Life Cost services to deliver value driven outcomes. (See Specialist Solutions section).

Value Engineering

Delivering value against the project business plan is a key measure of success. We work with the project team, and where required, facilitate workshops in order to undertake a structured review at key project stages, to ascertain that the project is meeting the functional requirements of the brief. To achieve the maximum benefit from value engineering, it is best undertaken during the early planning and design stages.

Risk Management

Quantifying and managing risk is fundamental to delivering a project on time and on budget. We will advise the project team on strategies for identifying and minimising specific risks, together with appropriate levels of cost, and a methodology for managing risks within the identified levels. We apply probabilistic risk assessment techniques to support risk management.

Procurement

Selecting the correct procurement strategy for a project is key to commercial success. Based on the clients' principal objectives in relation to cost certainty, quality of design, workmanship and programme, we can undertake a review of these objectives and provide recommendations in relation to the optimum procurement strategy to best achieve these objectives.

Selecting the most appropriate contractor or supplier is equally important. We can evaluate the most suitable contractor/supplier for a project based upon scope, content, complexity, procurement and the need for specialist knowledge and innovative thinking. This includes consideration of Modern Methods of Construction to maximise time, cost and quality benefits. We can introduce Social Value metrics into the tender process to achieve the clients ESG objectives.

We undertake preparation of tender and contract documents which provide full details of the project requirements and clearly identify responsibility for risks. Undertaking a detailed tender analysis ensures both compliance with the tender requirements and parity between the bids.

Contract Administration

Cost certainty during the construction phase relies on robust methodology and experienced employees. We can fulfil the traditional quantity surveyor role or undertake Contract Administrator or Employers Agent roles to suit client requirements. The key element of our role is to manage the costs within the signed—off budget through:

- Post contract cost control via a robust change order process
- Proactive cost checking of design development
- Alternative cost studies
- Agree the cost of contract variations in a timely manner
- Regular financial reports of estimated final cost
- Financial close.

Commercial Assurance

We can assist our clients with third—party contracts or relationships by providing independent advice including:

- Ensuring regulatory compliance
- Identifying, understanding and managing risks
- Instigating cost reductions
- Testing contingency plans.

PROJECT & PROGRAMME SUCCESS



Guy Robinson
Partner — Head of Project Management
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REIMAGINING THE LIMITS

We have reimagined the way in which we deliver projects and programmes as an outcome—based activity built within a framework that delivers benefits at pace, whilst maintaining the predictability and rigour needed to achieve successful outcomes.

Strategic Programme Management

Effective and successful Programme Management requires a different approach, one that takes a broader strategic perspective and full advantage of the latest digital efficiencies delivering real—time programme information, analysis, and visibility.

Using unique RLB digital tools, our approach decodes the objectives of the programme and delivers significant time and cost optimisation as well as challenging traditional approaches to programme management, taking care to deliver a programme approach tailored to your needs that provides you the best efficiencies and savings that can be produced across the whole commission.

Our agile approach to programme design and delivery has been tried and tested across a wide range of sectors. We use our digital tools and technology to help drive collaborative behaviours and ensure that programmes can embrace change. Using this data first approach we develop

programme environments and dashboard reporting that brings real control over the most challenging programmes and geographies, consolidating important cost, programme, and risk—based data into a highly visualised environment and helping to drive better reporting, better data—based decision making and better governance.

Project Management

Having a robust project management strategy in place is more essential than ever before. We work with both public and private clients across a variety of sectors.

Our project management service guides our clients with expertise and skill through all project phases including feasibility, design, procurement, construction and handover. RLB recognises that different sectors and clients have varying needs and we offer project management services that can be tailored to provide the right service level for our clients, achieving the best project outcomes.

RLB creates collaborative team environments working closely with all stakeholders to establish the key projects drivers and success criteria. We aim to meet our client's requirements to produce a functionally and financially viable project that will be completed on time, within authorised cost and to the required quality standards.

Our project managers use certified and exemplar systems and processes aided by advanced technologies and digital reporting procedures.

Development Management

Development Management requires assessing the optimum solution, team leadership and risk management to meet the strategic objectives of the owner and occupier. With a thorough understanding of our client's requirements, we have the means to successfully add value and deliver positive outcomes.

At RLB, we are able to support clients in developing effective and deliverable solutions that meet all the requirements of developers, funding institutions and investors, therefore driving premium value and returns.

Our development management team is made up of experienced professionals from various disciplines, reflecting the diverse and complex nature of many of today's development schemes. Our strength lies in our ability to draw on the best resources from a range of specialist fields.

Project and Fund Monitoring

We recognise that development financiers are exposed to increased financial risk and, in specific cases, have incurred financial loss due to an absence of comprehensive technical due diligence and progress reporting throughout a development life cycle.

We critically appraise each project at the outset to highlight development and funding risks and then continue to monitor development progress, advise on residual risks and provide drawdown recommendations for the duration of the project.

Our proactive, rather than reactive, approach provides an early warning system for our clients; helping to ensure better informed decision making by acting as the client's 'eyes and ears' during the development process.

Pre—Construction Management & Project Planning

Our pre—construction management and project planning services place us at the forefront of the market, with the capability to plan and manage projects professionally, efficiently and safely. With strong capabilities across all building sectors, utilising the latest project planning techniques, our pre—construction and project planning services will manage your project related time risks from feasibility through to completion.

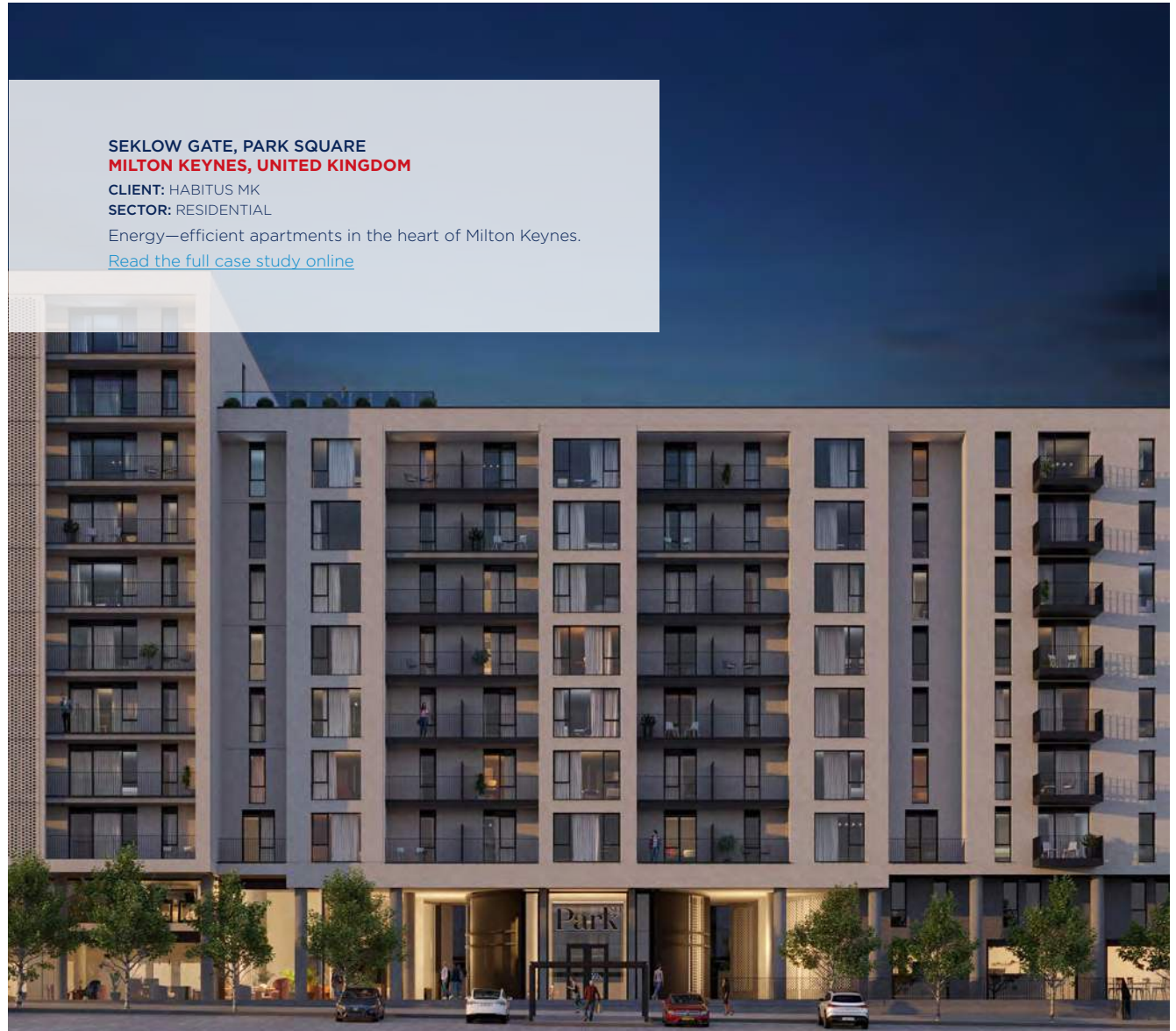
Our team has an in—depth knowledge of a wide range of construction techniques and delivery methodologies, and experience working for owners, developers and contractors.

SEKLOW GATE, PARK SQUARE MILTON KEYNES, UNITED KINGDOM

CLIENT: HABITUS MK
SECTOR: RESIDENTIAL

Energy—efficient apartments in the heart of Milton Keynes.

[Read the full case study online](#)



**Steven Reynolds****Partner — Head of Building Surveying****E:** steven.reynolds@uk.rlb.com**CREATING SMART, SUSTAINABLE SPACES**

We have extensive experience in asset optimisation which can lead to benefits in the efficient use of space, asset data capture to facilitate knowledge and focus on planned maintenance programmes, statutory compliance, and control and optimisation of expenditure.

Strategic Asset Management

To have certainty of budget expenditure, the future maintenance liabilities of the properties should be considered. This assessment will consider such matters as the condition of the construction elements, age and maintenance, location and the use of the property.

Decarbonisation and Retrofit

RLB ensures that a holistic approach is adopted to the implementation of sustainable/energy improvement measures, as without consideration on the effect that an energy efficiency measure can have on a building, the measure can be potentially harmful to a building's performance or the comfort of the occupants. Our advanced technical knowledge around building pathology and construction technology results in a deep understanding on the retrofit role and can provide accurate advice to our clients. We help our clients to implement available funding to meet their net zero targets.

Estate Optimisation

This is a specialist service offered to owners and occupiers on strategic, macro and micro scales to maximise the use of their accommodation. Our processes ensure optimal space utilisation, and assist in preparing space/workplace strategies that can identify where efficiencies, income generators or capital receipts can be realised across the public and private sector, while improving the maintainability and quality of spaces.

Building Surveying

We have embraced digitisation and are at the forefront of innovative procedures and technology to provide real value to our clients. Our technology and tools facilitate accurate data collection, and provide a fully addressable database enabling specific and detailed reporting on elements of an asset. This benefits trend analysis, driving economies in innovative approaches to estate asset management.

Our building surveyors naturally bring commercial awareness and ability, ensuring we are adding maximum value to built assets. Our team offers professional/regulatory services, project services and survey services, often in a combined and seamless service delivery offering, including:

- Accessibility and inclusive environments
- Building Pathology and Defects Diagnosis
- CIF/SCA Funding
- Clerk of Works/NEC supervisor
- Condition and Six Facet Surveys
- Design and M&E Services

- Development/Project Monitoring
- Dilapidations
- Fire Safety and Compliance
- Life cycle Asset Management
- Measured Surveys.
- Party Walls and neighbourly matters
- PFI Due Diligence
- Project Works Management
- Technical Due Diligence
- Workplace Strategies, Space Utilisation and Planning.

**SHEFFIELD CITY COUNCIL
STRATEGIC DELIVERY PARTNER
SHEFFIELD, UNITED KINGDOM**

CLIENT: SHEFFIELD CITY COUNCIL

SECTOR: PUBLIC & CIVIC AND COMMERCIAL

Multidisciplinary excellence: building a better Sheffield as a strategic delivery partner.

[Read the full case study online](#)

Strategic Facilities Management

The drive to create smart sustainable spaces and structures in the built environment will only increase. As technology in the industry develops at pace, the challenge is not only to maximise and measure the performance of built assets and deliver best value, but also to provide the optimum efficiency of the space for building owners and occupiers in the long term.

Our strategic facilities management (FM) service plays a crucial role in supporting clients throughout the entire life cycle of each project. Providing a holistic view of built asset requirements, we enable clients to develop, improve and track their spaces and help enhance their current estate portfolios.

With an in—depth knowledge and expertise in digital construction and smart asset management, our strategic facilities management team provides advisory services from facilities management and estates strategy review and development, through to BIM and soft landings, and whole life cost advice. Our insight and technical knowledge, gained from working on complex facilities management programmes worldwide, combined with collaborating with industry bodies on FM best practice, ensure we provide the best solutions for our clients in this fast—moving field.

ABOUT RLB

SPECIALIST SOLUTIONS



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Director UK
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Ian Sandland
Partner — Head of Specialist Solutions
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VALUE DRIVEN OUTCOMES

RLB's specialist solutions is a bespoke service using our global skills and knowledge combined with digital tools, data and cloud—based technology to support our clients. We identify project needs and value throughout the life cycle of an asset, from initial business case to occupation, and work with design teams to understand all the “components”, their inter—relationships and interactions and manage them to a solution to meet the desired outcome.

Every project has bespoke requirements that often require more specialist support, especially during inception when setting project objectives and outcomes, and defining value is becoming increasingly more complex than simply defining and balancing the trilogy of time, cost and quality. Clients' needs are constantly evolving to meet the requirements of multiple stakeholders and end—users who, in turn, operate in a complex policy, governance and legislation—driven environment. Along with this, digital solutions, increased collaboration, a greater emphasis on data, automation, artificial intelligence (AI), and machine learning are all evolving at pace.

Our digital solution combines capital and whole life costs, programme, social value, environmental credentials and models. Interactions and impacts are be tested, defined and set at the project outset and measured and monitored through the project life cycle to optimise projects' outcomes and value beyond the baseline of time, cost and quality.

Strategic Commercial Management

Contact: Eddie Visscher, Partner — Major Projects
E: eddie.visscher@uk.rlb.com

We focus on the business need, working intrinsically with our client and design teams to understand the value drivers and outcomes required of the project. on the business needs of the client. We work intrinsically with our clients and design teams to fully understand the value drivers and outcomes required of the project. Our commercial management service supports the delivery of the project business plan, enabling clients to make informed decisions about their property assets from inception, through design and delivery and into operation.

Supported by our large—scale international project expertise and bespoke digital solutions we deliver commercial certainty at all stages of the project life cycle from business case and optioneering through to financial close.

Our independence and commercial approach allow us to deliver the right project outcomes and optimise value.

- Business case support
- Commercial management and cost control
- Complex project delivery
- Contract administration
- Cost viability
- Feasibility studies
- International project delivery
- Major project and programme commercial management
- Master planning
- Procure for value toolkit
- Procurement and contracting strategy
- Project assurance and peer review
- Risk management
- Value creation.

Whole Life Asset Management and Life Cycle Costs

Contact: Trevor Globe, Head of Life Cycle Management
 E: trevor.globe@uk.rlb.com

Environmental and sustainability drivers and legislation are now key considerations throughout the project life cycle from business case, through design, build and ultimately disposal of a built asset.

RLB's Total Cost Model (TCM) is our response to this need. TCM has been developed to integrate with our capital cost planning system ROSS5D, our wider sustainability services and considers capital, operational, occupancy, energy, carbon, maintenance and replacement costs of a facility over a predetermined period during the design and construction phase. The model encapsulates capital cost and life cycle characteristics of whole buildings, elements and individual components.

TCM is fully dynamic model where all variables can impact on one another. This allows the facilitation of rapid "what if" analyses on different assets and design options at a building, element or component level to enable informed decision making from a whole life perspective.

Outputs utilise business information technology that allows RLB's specialist life cycle team to make iterative adjustments of variables and cashflows to support the optimisation of the design and asset management to meet the client's project objectives, needs and whole life value goals.

Whole Life Asset Management techniques, utilising the outputs from the TCM model, allow RLB to offer strategic estate planning optioneering to clients', to inform their business planning and capital investment decision making. RLB will identify opportunities for making financial savings over the medium term and for aligning capital investment programmes with carbon and energy reduction trajectories.

- Baseline whole life assessment
 - Based on elemental cost plan
 - Utilised to compare alternative design solutions
 - Provides optioneering guidance for capital investment decisions
 - Delivers on BREEAM point.
- Integrated whole, life assessment and analysis
 - Building condition surveys of existing portfolio site
 - Pricing and profiling replacement and repair programmes
 - Creation of annual, 3 and 20—year life cycle programmes
 - Identification of procurement opportunities
 - Life cycle efficiency planning.
- Whole life management consultancy
 - Management consultancy advice to develop life cycle approach
 - Integration of life cycle management with capital investment planning.
- Integration of life cycle management with FM services
- Development of maintenance and replacement approaches to align with business strategy
- Cashflow management to maximise effectiveness of life cycle management
- Business case inputs of whole life costs for repair and replacement profiles
- Carbon trajectory profiling of proposed replacement of plant and fabric elements
- Social Value assessment for development schemes to calculate benefits to local communities.
- Asset condition based—whole life cost modelling
- LC/Carbon model
- Support for BREEAM/LEED and Green Star assessments
- Whole life cost modelling
- Operational carbon modelling
- Life cycle cost modelling
- Optimisation of the cost of asset ownership
- Sustainability services.

EVERTON FC — THE PEOPLE'S PROJECT
LIVERPOOL, UNITED KINGDOM

CLIENT: EVERTON FC

SECTOR: SPORT

Creating a sustainable sports stadium for future generations.

[Read the full case study online](#)



Sustainability Services

Contact: Heather Evans, Head of Sustainability Consultancy
E: heather.evans@uk.rlb.com

One of the biggest challenges facing our industry is how we build for the future, integrating wellbeing, economic and environmental impact into the built environment. Wider sustainability considerations, driven by regulation and stakeholder expectations, are transforming what we build, where we build and how we build it. RLB's sustainability service is based on fostering a culture of continuous improvement, integrating ESG (Environmental, Social, Governance) alongside traditional drivers of time, cost and quality.

Our approach covers all aspects of the sustainability agenda — from carbon reduction, enhancing wellbeing, energy management and estate rationalisation, through to ethical, legislative and economic pressures.

RLB's service is tailored around sustainable project delivery, with expert knowledge provided at every stage of the project life cycle. Our sustainability credentials are supported by our market leading position as environmental assessors and our industry engagement, working towards collaborative sustainability advancement through initiatives such as ConstructZero. RLB are a founding partner of the Royal Institute of Chartered Surveyor's SKA environmental assessment tool for fit-out and refurbishment projects, introduced as a benchmark for sustainability.

We continue to upskill those in the construction industry to consider sustainable measures when building, and to design for a longer life. Our sustainability team offers a range of services encompassing strategic level through to project level sustainability, including bespoke sustainability solutions as well as integrated sustainability within our other services.

- Sustainability strategies
- Decarbonisation and net zero strategies
- ESG consultancy
- Carbon consultancy including embodied carbon, carbon footprints
- Climate change strategies
- Accreditations including SKA Rating, BREEAM, LEED, WELL and Fitwel.

Whole Life Carbon

Contact: Eddie Visscher, Partner — Major Projects
E: eddie.visscher@uk.rlb.com

RLB undertakes a holistic long-term approach to carbon management with a view to reducing carbon and associated greenhouse gases considering the commercial realities of balancing capital expenditure, whole life cost and carbon. Our carbon calculations consider the embodied carbon within a building (during construction), the operational carbon and the carbon during life cycle replacement of components/assets.

RLB's carbon calculator assesses the embodied carbon at element or component level allowing design optioneering to consider the different aspects of carbon, allowing trade-off to be made with other competing aspects of the projects and can aid our clients to work towards net zero carbon targets.

Our carbon calculations can be used to support achieving the required credits towards assessments such as BREEAM.

Social Value Consultancy

Contact: Jiten Chauhan, Partner
E: jiten.chauhan@uk.rlb.com

As a global construction consultancy, we never underestimate the responsibility of supporting the economic, social and environmental wellbeing of the areas in which we work. The specific challenges and opportunities vary hugely. Implementing and measuring the impact of Social Value is a fundamental part of procuring and delivering a sustainable project. We ensure that social value principles are integrated within the total development, so that the benefits outlive the contract.

RLB's Social Value service integrates sound principles within project development, from business case to completion. This ensures that the economic, social and wellbeing benefits outlive the contract and can be felt in communities and measured over the long-term. We produce forecasts and evaluations of the Social, Economic and Environmental Impact at a

SPECIALIST SOLUTIONS

Corporate, Framework and Project level. This helps our clients understand the social, economic and environmental impact of each project, and illustrates to stakeholders the value for people, communities, businesses and economies.

- Strategic Social Value consultancy
- Social Value definition
- Social Value baseline measurement/design comparisons
- Social Value procurement, measuring / monitoring
- ESG consultancy

Contract Advisory and Strategic Procurement

Contact: Aziz Methajee, Partner — Head of Dispute Resolution

E: aziz.methajee@uk.rlb.com

Setting up and managing construction contracts can be a complex process, subject to numerous and changing regulatory requirements. It's important to understand the obligations a contract imposes and the associated risks. We support clients in the successful delivery of their projects during every stage, from drafting and developing bespoke contracts, to providing expert advice during the delivery phase and assisting if problems arise. Our dedicated procurement and contractual advisory team guides clients throughout the project process, providing technical support in specialist areas such as expert witness and dispute avoidance and resolution.

Our team includes claims preparation and defence experts who, working alongside each represented parties' lawyers, can provide strategic advice, management, negotiation and resolution of claims through adjudication or alternative dispute resolution. With our global expertise across public and private sectors, and our knowledge of varying forms of contracts, we can provide considered advice, from individual projects to large—scale programmes of work.

- Claims avoidance – live programme / project advice
- Contract assurance
- Contract management
- Dispute resolution — prepare / analysis / response to claims
- Expert commissions – quantum and time
- Procurement and contract strategies
- Strategic procurement and contractual advice
- Contract negotiations
- Framework procurement
- Public procurement
- Project assurance.

Programme Management / Strategic Programme Integrator

Contact: Julian King, Head of Programme Management

E: julian.king@uk.rlb.com

We create an environment for our clients and their supply chains to deliver successful programme outcomes.

The traditional view of programme management is an extension of project management where multiple projects are managed in a coordinated way to deliver a set outcome. However, where project management is typically focused on performance, in terms of quality, cost and time, programme management operates more on a strategic level to create synergies and deliver a package of benefits through the coordinated management of multiple workstreams.

A collaborative approach between programme and project management enables effective stakeholder management, the coordination and adaptation of the programme to business changes as well as adjusting to risks and issues as they arise. These aspects, where managed effectively, will positively contribute to the performance of the programme and the delivery of the business case benefits. Programme management requires an approach that takes a broader strategic perspective and full advantage of modern digital tools to deliver the synergies that come from end—to—end programme visibility.

SPECIALIST SOLUTIONS

Our expert team specialises in designing and delivering end-to-end programmes within the built environment. We can assess and overhaul distressed programmes, conducting programme assurance reviews to ensure that benefits are delivered, risks are managed effectively and that lessons are learned for the future.

- Programme cost management
- Programme management resource
- Programme office
- Digital
- Programme audit
- Programme management consultancy
- Project controls.

Specification Consultancy

Contact: Meena Sankar, Partner

E: meena.sankar@uk.rlb.com

RLB is a market leader in the field of architectural specifications. Through years of practical project experience, we have learnt and understood the complexities and intricacies of what is required on projects, ensuring that our specifications reflect the complex world of procurement and adhere to local specification formats and standards. We provide clients with a range of specification solutions to meet individual requirements. Our expertise extends across all sectors, and our global reach means that we can offer the following range of specification related solutions to suit global requirements.

Specification Production

Our expert consultants will prepare architectural specifications on behalf of architects and developers such that it conveys exactly what is required to procure and build a development including information related to process, quality, performance, standards and materials. We provide our clients with flexible solutions across a range of globally recognised formats to suit BIM workflow and environments.

Specification Peer/Technical Reviews

Our specification review service looks at the content produced in-house by practices. We provide commentary and advice based on our experience and core ethos covering areas of risk, design responsibility, procurement and scope.

Specification Business Consultancy

Our business consultancy service focuses on offering clients high level strategic advice by assessing existing tools and methods to provide solutions that will enhance business requirements. Our experts will work with business leaders to ascertain how specifications are currently prepared, how content is managed and the QAQC process adopted. We provide feedback and implement new procedures and principles to help improve the specification process within practices.

Health & Safety

Contact: Samantha Mepham, National Head of Health & Safety

E: samantha.mepham@uk.rlb.com

We provide a comprehensive range of Health and Safety (H&S) consultancy services. Our team of H&S professionals give clients advice and assistance to help achieve compliance with their statutory duties under existing H&S legislation for construction projects, maintenance and repair works, occupation and operations.

Our service is designed to ensure 100% legislative compliance and provides added value through our specialist expertise in design development, construction safety and occupational and operational safety. Our service is quality assured, with corporate recognition from the Association of Project Safety, CHAS, Safety Systems in Procurement and Safe Contractor approved.

Principal Designer / Construction Design Management Services

Contact: Samantha Mepham, National Head of Health & Safety

E: samantha.mepham@uk.rlb.com

The areas of Principal Design and Construction Design and Management (CDM) services are included in our work. We were heavily involved in the drafting of the 2007 and 2015 CDM Regulations, so whether the role is principal designer, principal design advisor or independent client advisor, we provide professional advice, detailed recommendations and encourage coordinated solutions for successful implementation.

DATA AND DIGITAL SOLUTIONS

RLB Digital is a team of hands-on digital experts, who harness data and technology to guide clients through their complex challenges.

We provide practical, actionable recommendations and solutions as we know the sector inside out, delivering tangible impacts today.

The team helps clients to:

- Navigate the new digital landscape, identify opportunities and train client teams on new ways of working
- Optimise their construction and real estate projects and the built environment
- Build bespoke tools that solve unique challenges.

RLB Digital services include:

- Digital and data strategy and architecture
- IT/digital procurement and project management
- IT/digital business analysis
- BIM advisory
- Data analytics – RLB Focus
- Whole lifecycle asset management
- App development
- Digital twin
- Common data environment.



Matt Sharp
Partner — Chief Digital Officer
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OPPORTUNITIES AT RLB

It is our people who make RLB unique, and their combined expertise, skills, and experience inspire confidence in our clients. RLB has become a leading independent consultant in project and programme management, asset optimisation, and specialist advisory services by attracting, developing, and retaining exceptional people. If you share our vision of creating a better tomorrow, and want to be part of a diverse workforce embracing new ideas, the next step in your career journey could be with RLB.

RLB's Experienced Professionals Programme:

- Qualified professionals
- Experienced professionals
- Associates
- Partners

Reach Your Potential

We offer a range of career opportunities to suit you, whatever your stage of career or specialty.

- **Graduate:** RLB's graduate recruitment and training programme, offering first-class structured professional training programmes to support achievement of your professional qualification
- **Placement / year out:** Opportunities to work with our teams throughout the UK across a range of sectors
- **Apprenticeships:** While learning on—the—job, you'll also gain an academic and professional qualification
- **Internships and work placements:** We offer flexible placements for undergraduates and graduates across all disciplines.



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RLB's Business Services Professionals:

- Our business services teams work at the heart of our business, playing a key role in delivering for our clients
- Opportunities in business services include: Finance, Front—of—house, Human Resources, IT, Legal, Sales & Marketing, Secretarial and Administration.

If you are interested in joining our team, please visit RLB.com or email recruitment@uk.rlb.com



FUTURE PROFESSIONALS EVENT 2022



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RLB EUROPE



RLB Europe delivers outcomes to meet our clients' bespoke needs, with a proven track record in delivering sustainable solutions at a project, portfolio and programme level. We develop flexible spaces, integrate advanced technology to reduce spend and carbon footprint, and our strong connections to the supply chain mean we're at the forefront of strategic procurement, manufacturing scenarios and logistical delivery.

Our sector expertise spans data centres, commercial, residential, sports, logistics and manufacturing, retail, hospitality, life sciences and energy.

In a world of project complexity, our approach is simple. We focus on whole—life performance, ensure we deliver value, anticipate opportunities and challenges from the outset, and resolve issues before they have an impact.

By harnessing local knowledge and expertise drawn from over 30 countries across Europe through our regional hubs and euro alliance partners, we are strategically positioned to adapt to dynamic markets and regulatory standards. Combining our global reach and valuable local insights means we bring specialist knowledge and a fresh perspective.

EURO ALLIANCE

The RLB Euro Alliance is a formally established network of partner organisations across Europe each committed to delivering high quality services at a local level, utilising extensive knowledge and experience regionally as part of the RLB global network.

At a Glance

- 16 partner organisations
- 1500 employees across UK & Europe
- Operating across 22 countries



William Carr—Miles

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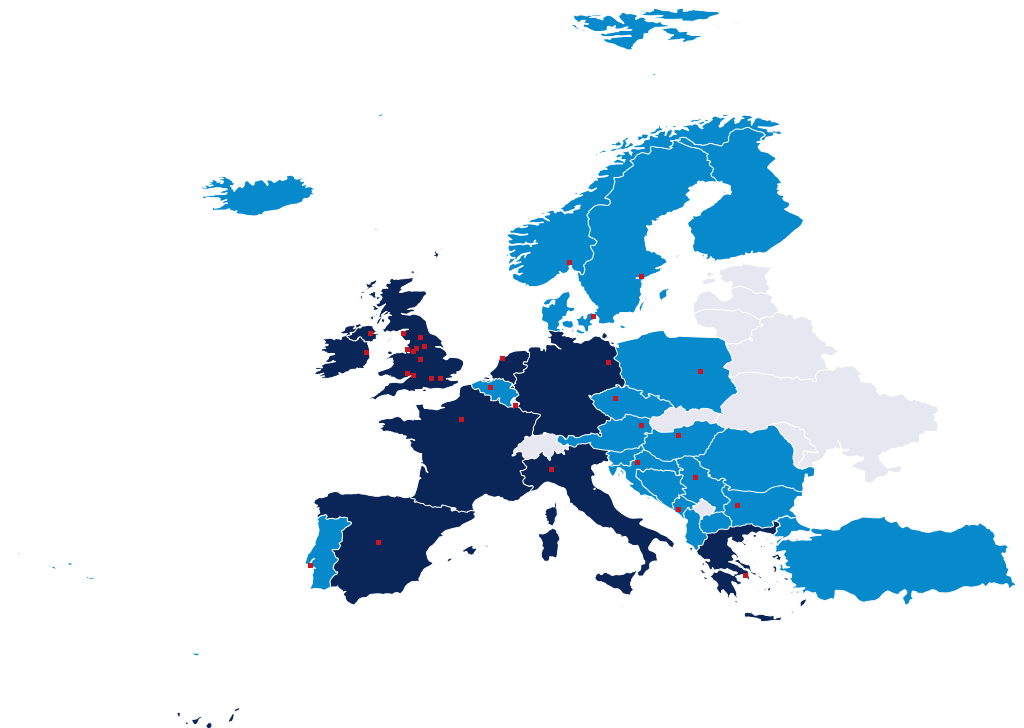
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France, Germany, Greece, Ireland, Italy, Netherlands, Spain, United Kingdom

Project experience via local EuroAlliance Affiliates and Partners

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MIDDLE EAST

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MISCELLANEOUS

Conversion Factors
Calculation Formulae

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CONVERSION FACTORS

To convert	Multiply by
Area	
Square inches into square millimetres	645.16
Square inches into square centimetres	6.4516
Square feet into square centimetre	929.0304
Square feet into square metres	0.092903
Square yards into square feet	9.00
Square yards into square metres	0.836127
Square metres into square feet	10.7639
Square metres into square yards	1.19599
Square yards into acres	0.000206612
Acres into square metres	4046.8564
Acres into square yards	4840
Acres into hectares	0.4046856
Hectares into acres	2.47105
Hectares into square metres	10000
Square kilometres into hectares	100
Square miles into square kilometres	2.589988
Square miles into acres	640
Square kilometres into square miles	0.386102
Volume and Capacity	
Cubic inches into cubic centimetres	16.387064
Cubic inches into litres	0.0163871
Cubic feet into cubic metres	0.0283168
Cubic feet into litres	28.316847

To convert	Multiply by
UK pints into litres	0.5682613
US pints into litres	0.473176
UK litres into pints	1.75975
UK litres into gallons	0.219969
US litres into gallons	0.26417
US litres into pints	2.1134
Cubic yards into cubic metres	0.7645549
UK gallons into litres	4.54609
US gallons into litres	3.78541
UK gallons into cubic metres	0.00454609
UK fluid ounces into cubic centimetres	28.413063
Mass	
Grains into metric carats	0.323995
Grams into ounces	0.035274
Ounces into grams	28.349523
Ounces into kilograms	0.0283495
Pounds into kilograms	0.4535924
Kilograms into pounds	2.20462
UK tonnes into kilograms	1016.0469
UK tonnes into metric tonnes	1.01605
Tonnes into pounds	2,240
UK tonnes into US tons	1.01605
US tons into UK tonnes	0.907185

To convert	Multiply by
Length	
Milli—inches into micrometres	25.4
Inches into millimetres	25.4
Inches into centimetres	2.54
Inches into metres	0.0254
Centimetres into inches	0.393401
Feet into millimetres	304.8
Feet into centimetres	30.48
Feet into metres	0.3048
Yards into metres	0.9144
Fathoms into metres	1.8288
Chains into metres	20.1168
Furlongs into metres	201.168
Miles, statute into kilometres	1.609344
Miles, nautical into kilometres	1.852
Temperature	
Degree Celsius to Degree Fahrenheit	$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32$
Degree Fahrenheit to Degree Celsius	$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9$

CALCULATION FORMULAE

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



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