



RIDERS DIGEST 2017

UNITED KINGDOM
EDITION

ONE THE ELEPHANT
LONDON, UK

Creating a new London neighbourhood



RIDERS DIGEST 2017 EDITION

© Rider Levett Bucknall

Riders Digest is a compendium of cost data and related information on the construction industry.

For further information and feedback contact:

Rider Levett Bucknall UK Ltd
60 New Broad Street
London
EC2M 1JJ

Tel: +44 (0) 207 398 8300

Website: RLB.com

Email: marketing@uk.rlb.com

Rider Levett Bucknall UK Limited, Registered Number - 465 3580;
Registered in England; Registered Office - 15 Colmore Row,
Birmingham B3 2BH

While Rider Levett Bucknall UK ("RLB") has endeavoured to ensure the accuracy of the information and materials in this publication (the "Materials"), it does not warrant its accuracy, adequacy, completeness or reasonableness and expressly disclaims liability for any errors in, or omissions from, the Materials.

RLB shall not be liable for any damages, losses, expenses or costs whatsoever arising out of or in connection with the use or reliance on the Materials. The Materials are provided for general information only and should not be construed as costing, legal, tax, or any other professional advice.

Professional advice should be sought when utilising any information in this publication to verify its applicability to their specific circumstances. The Materials may not, in any medium, be reproduced, published, adapted, altered or otherwise used in whole or in part in any manner without the prior written consent of RLB.

Cost information in this publication is indicative and for general guidance only. All prices and rates are as at 1st Quarter 2017 and expressed in British Pounds unless otherwise stated. References to legislative provisions and regulations are as at 1st Quarter 2017. Changes after this period will not be reflected.

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

Photo credit: Lendlease

CONTENTS

| | |
|---|------|
| INTRODUCTION | |
| Foreword | vi |
| Market Outlook - A disrupted market | viii |
| UK CONSTRUCTION TRENDS | |
| Indices and UK Construction Output Comparison | 2 |
| UK Construction Output by Sector | 4 |
| UK Construction Materials Annual Average Price Index | 6 |
| UK CONSTRUCTION COST DATA | |
| Building Costs | 10 |
| Average Construction Payment Drawdown | 14 |
| Construction Elements | 16 |
| ESTIMATING DATA | |
| Definition of Office Fit-out Categories | 22 |
| Reinforcement Ratios | 23 |
| Methods of Measurement of Building Areas | 24 |
| CONSTRUCTION INSIGHTS | |
| RIBA Outline Plan of Work | 42 |
| OJEU Process | 44 |
| Procurement Options | 46 |
| RLB Insight: Specification is the Guardian of Quality | 54 |
| Building Information Modelling (BIM) | 56 |
| Government Soft Landings (GSL) | 59 |
| Costing Structural Timber | 60 |
| RLB Insight: Older Persons' Housing | 62 |
| Estate Rationalisation | 64 |
| RLB Insight: Efficiency & the NHS | 66 |
| Sustainability | 68 |
| SKA Rating | 70 |
| BREEAM | 72 |
| Energy Performance Certificates (EPC) | 73 |
| Display Energy Certificates (DEC) | 74 |
| Minimum Energy Efficiency Standard (MEES) | 76 |
| Energy Savings Opportunity Scheme (ESOS) | 77 |
| Renewable Technologies: Application and Cost Data | 78 |
| Party Wall Advice | 81 |
| Dilapidations | 82 |
| Project Monitoring | 84 |
| RLB Field | 85 |
| Apprenticeship Levy | 86 |
| Gender Pay Gap Reporting | 87 |
| Wellness in the Built Environment | 88 |
| RLB Insight: Back to (FM) Basics | 90 |
| ABOUT RLB | |
| Introduction | 94 |
| Our Services | 96 |
| Our Sectors | 116 |
| Our People | 117 |
| RLB Euro Alliance | 118 |
| INTERNATIONAL OFFICES | |
| Europe | 122 |
| Africa | 124 |
| Americas | 124 |
| Asia | 126 |
| Middle East | 129 |
| Oceania | 129 |
| MISCELLANEOUS | |
| Conversion Factors | 134 |
| Calculation Formulae | 136 |
| Sources | 137 |
| Notes | 138 |

Welcome to the 2017 edition of the Riders Digest; the essential guide to the UK Construction Industry.



2017 sees Rider Levett Bucknall celebrate 10 years since Rider Hunt, Levett & Bailey, and Bucknall Austin came together to form RLB, allowing us to offer our independent advice on a truly global scale.

Our global presence was reinforced in 2017 with continued success in the WA100; where RLB was voted the #1 preferred cost consultant partner for architects worldwide for the second year running. We would like to thank all our partners and look forward to bringing imagination to life in the future, through inspiring projects across the globe.

On a local level, we are committed to understanding our industry and collaborating with our suppliers and contractors. The RLB round table series continued with a look at our supply chain, speaking to experts in everything from demolition to facades about their concerns and suggestions for the industry.

The launch of our sector strategy at the start of 2016 was complemented by the appointment of new service leads for 2017. Working across our sectors, the service leads offer an integrated approach; allowing us to ensure our services

of Cost Management, Project & Programme Management, Building Surveying, Health & Safety and Advisory are applied consistently and to our exacting high standards.

Long standing associates Schumann Consult officially merged with RLB in 2016, introducing Design Management and Specification Consultancy to RLB's suite of services. Contact details for all our sector and service leads can be found at the back of this year's Digest.

Finally, we are very proud that our commitment to our staff has been recognised by being named as a Top Employer for 2017 by the Top Employers Institute; receiving the award for the 8th time. In addition we've maintained our Investors in People Gold Status for the 7th year running. Rider Levett Bucknall is an employee-owned company, which we believe is key to our success and fundamental to providing an independent perspective.

We hope you enjoy the Riders Digest 2017. If you have any feedback, please get in touch.

Ann Bentley
Global Chair

Rider Levett Bucknall





In post-Brexit Britain “uncertainty” remains a buzzword. Whilst we know that construction will play a vital role when the UK withdraws from Europe, exactly what that role will look like in the longer term is not quite clear.

We have already felt the impact of Brexit through exchange rate fluctuations (compounded by the US election result), increasing project costs and delayed or stalled project programmes. We can speculate that withdrawing from the single market will continue to expose the construction industry to swinging exchange rates, as well as new challenges around procurement, access to foreign labour, the sourcing of goods and services, and foreign investment.

It is clear that the UK Government has a plan for post-Brexit Britain, which includes their modern industrial strategy, providing an opportunity for the construction sector to negotiate a deal with government.

The construction industry will need to work with government to improve performance. The 2016 Farmer Review examined the current and future condition of the industry and provided recommendations for change. Some of the challenges laid out for the industry to deliver include investing in training, improving collaboration and increasing innovation. For

more on the Farmer review, visit <https://www.gov.uk/government/publications/construction-labour-market-in-the-uk-farmer-review>.

The industry will need to take action to implement change and there are already initiatives in place to support this. Digital Built Britain is promoting a digitised construction sector through advancements in BIM: <http://digital-built-britain.com/>. The Construction Leadership Council (CLC) draws together business leaders from across the sector to promote solutions to the Government’s Construction 2025 ambition. The CLC is currently considering the impact that digital technology, manufacturing and whole-life performance will have on the sector. RLB’s Global Chair Ann Bentley leads the Supply Chain and Business Models work-stream within the CLC – looking at how client actions influence the construction process and how greater alignment can be achieved within the sector.

There has been a distinct shift in government spending with increased expenditure allocated to significant infrastructure projects and housing. For the government to achieve their target of 1 million new homes by 2020 and the planned major infrastructure projects and upgrades, the industry will require sufficient resources with relevant skill sets (across the trades and professions) and it is possible that restrictions imposed around free movement of labour will put further pressures on delivery.

It is clear that the workforce of the future will need to be technologically savvy, with skills that will support technology use and innovation. The 2017 Spring Budget announced an investment of £270m into a new Industrial Strategy Challenge Fund in 2017/2018 the focus of which is to “kick-start the development of disruptive technologies that have the potential to transform the UK economy”¹. This theme of disruptive technology, the emergence of innovative new technologies and business models that impact or disrupt the market, underpins many of the sectors we operate in and the services we provide.

Modern, connected customers and technological advances are changing the built environment. In the retail sector, the retail versus e-tail debate means that

INTRODUCTION

MARKET OUTLOOK - A DISRUPTED MARKET

many retailers are evaluating and developing a digital presence rather than focusing on a physical store, complicating investment decisions. In the education sector technology is changing how and where people are learning, with a pronounced shift towards remote and virtual learning. Online learning may not be suitable for all faculties, and demand a blended approach of virtual and physical to deliver in particular areas of study.

This blend of digital and physical is also affecting the sports sector. In a sector worth in excess of \$600bn annually, a mix of online and offline experiences are being offered. Consumers are demanding a more interactive event experience. More and more stadia are supplying fast and free Wi-Fi that provides fans with real-time information to help find their seat, provide instant replays from various angles, and purchase food and drink, all from their mobile. The game is now only part of the experience.

We foresee digital transformation, new construction technologies and greater client awareness of the life-time cost of assets, continuing to impact on the construction industry, changing the way we do business and who we do business with.

NATIONAL AUTOMOTIVE
INNOVATION CENTRE
COVENTRY, UK

Engaging future generations of
Engineers and Designers



Image credit: Cullinan Studio
Stakeholders: The University of Warwick, WMG at the
University of Warwick, Jaguar Land Rover,
Tata Motors European Technical Centre



UNIVERSITY HOSPITALS OF
LEICESTER NHS TRUST
LEICESTER, UK

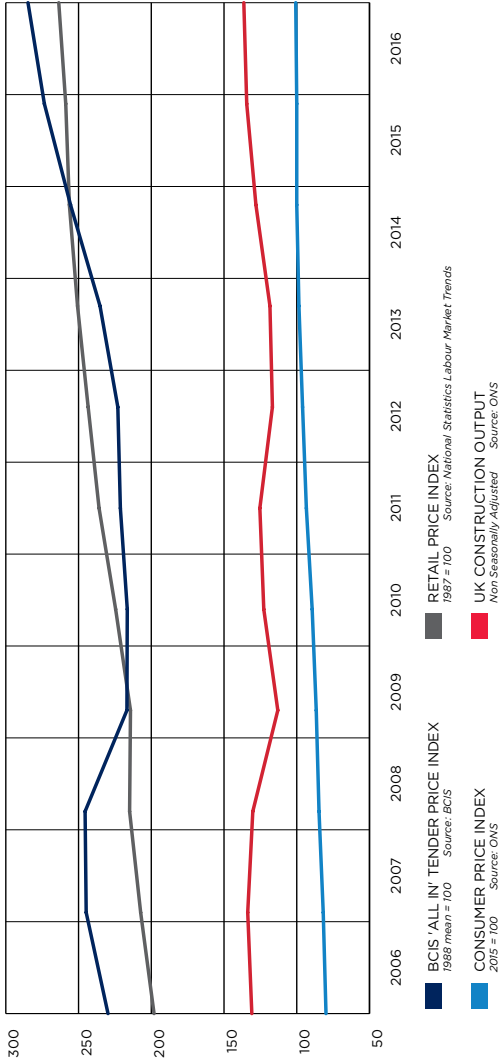
Enabling improved facilities for
tomorrow's healthcare



UK CONSTRUCTION TRENDS

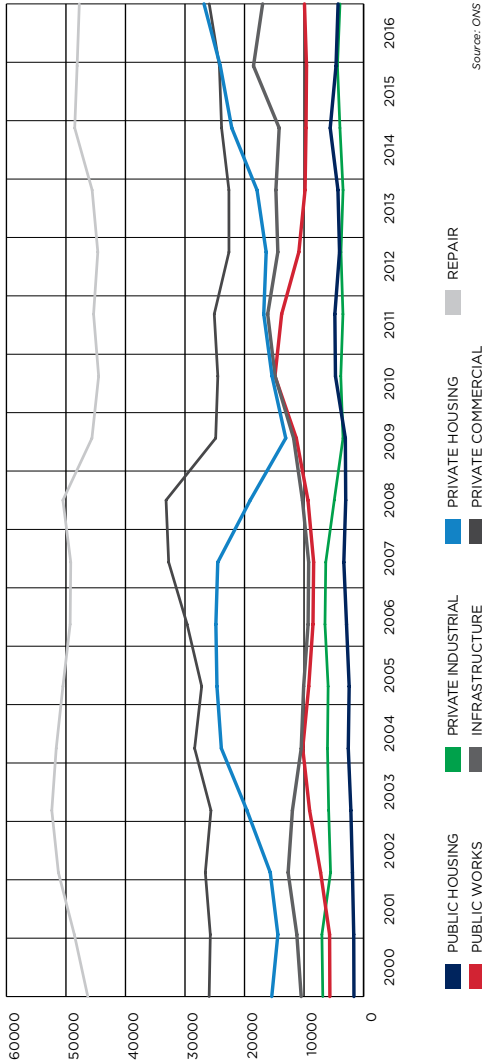
- 2 Indices and UK Construction Output Comparison
- 4 UK Construction Output by Sector
- 6 UK Construction Materials Monthly Average Price Index

INDICES AND UK CONSTRUCTION OUTPUT COMPARISON



| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|------|------|------|------|------|------|------|------|------|------|------|
| BCS 'All in' Tender Price Index | 230 | 245 | 246 | 217 | 217 | 221 | 223 | 235 | 256 | 274 | 285 |
| Consumer Price Index | 80 | 82 | 85 | 87 | 89 | 93 | 96 | 99 | 100 | 100 | 101 |
| Retail Price Index (RPI) | 198 | 207 | 215 | 214 | 224 | 236 | 243 | 251 | 256 | 259 | 264 |
| UK Construction Output (£ Thousand Million) | 131 | 134 | 130 | 113 | 123 | 125 | 117 | 118 | 128 | 134 | 136 |

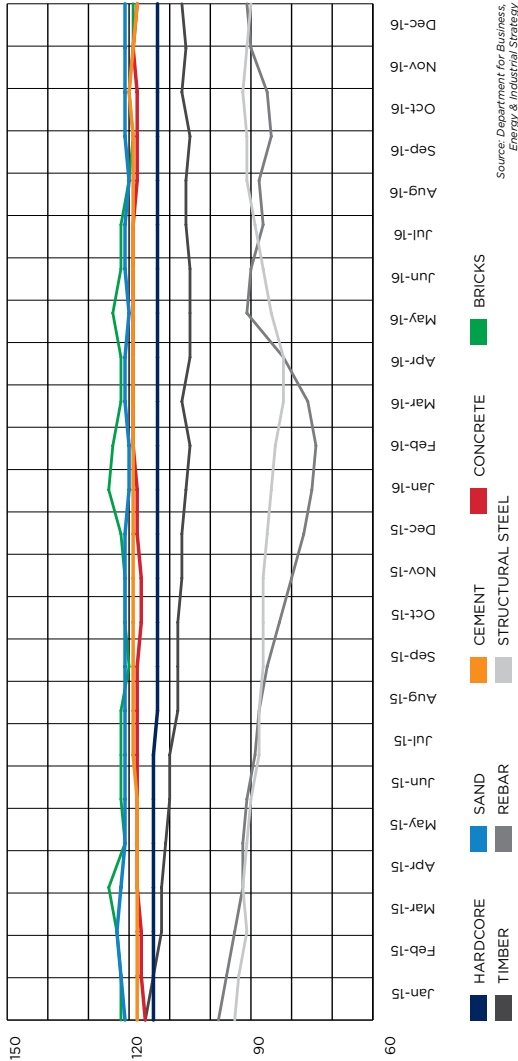
UK CONSTRUCTION OUTPUT BY SECTOR



| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Public Housing | 1614 | 1651 | 1868 | 2130 | 2567 | 2418 | 2862 | 3314 | 2998 | 3059 | 4720 | 4823 | 4037 | 4303 | 5603 | 4627 | 4281 |
| Private Housing | 15423 | 14397 | 15677 | 19590 | 23892 | 24630 | 24811 | 24496 | 19040 | 13074 | 15377 | 16768 | 16363 | 17902 | 22140 | 24069 | 26905 |
| Infrastructure | 10476 | 1121 | 12675 | 11955 | 10475 | 10064 | 9317 | 9221 | 10266 | 11753 | 14865 | 16107 | 14403 | 14728 | 14178 | 18494 | 16596 |
| Public Works | 5657 | 5708 | 7215 | 9065 | 10219 | 9208 | 8497 | 8384 | 9340 | 11297 | 14886 | 13761 | 10873 | 9830 | 9665 | 9582 | 9928 |
| Private Industrial | 6851 | 6998 | 5545 | 5863 | 6061 | 5953 | 6481 | 6350 | 4920 | 3451 | 3825 | 3464 | 3794 | 3445 | 3965 | 4384 | 3961 |
| Private Commercial | 25941 | 25746 | 26583 | 25640 | 28381 | 27197 | 29643 | 32743 | 33183 | 24845 | 24486 | 25082 | 22614 | 22621 | 23853 | 24221 | 25927 |
| Repair | 46330 | 48592 | 51273 | 52376 | 51635 | 50508 | 49296 | 49194 | 50512 | 45634 | 44507 | 45359 | 44648 | 45600 | 48529 | 48124 | 47755 |

UK CONSTRUCTION TRENDS

UK CONSTRUCTION MATERIALS MONTHLY AVERAGE PRICE INDEX



UK CONSTRUCTION TRENDS

| | 2015 | | | | | | | | | | | | 2016 | | | | | | | | | | | |
|------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 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 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| Sand | 121 | 122 | 123 | 122 | 121 | 121 | 121 | 121 | 121 | 121 | 121 | 121 | 120 | 120 | 121 | 121 | 120 | 121 | 121 | 120 | 121 | 121 | 121 | 121 |
| Cement | 118 | 118 | 118 | 118 | 118 | 118 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 118 |
| Concrete | 116 | 117 | 117 | 118 | 118 | 118 | 118 | 118 | 118 | 117 | 117 | 118 | 118 | 119 | 119 | 119 | 119 | 119 | 119 | 118 | 118 | 118 | 119 | 118 |
| Bricks | 122 | 122 | 123 | 123 | 125 | 122 | 122 | 122 | 120 | 121 | 121 | 122 | 125 | 124 | 124 | 122 | 122 | 122 | 122 | 120 | 119 | 120 | 119 | 119 |
| Timber | 116 | 114 | 112 | 112 | 111 | 110 | 110 | 108 | 108 | 108 | 107 | 107 | 106 | 105 | 107 | 105 | 105 | 105 | 106 | 106 | 105 | 107 | 106 | 107 |
| Structural Steel | 94 | 93 | 91 | 92 | 91 | 90 | 88 | 88 | 87 | 87 | 87 | 86 | 85 | 84 | 82 | 82 | 85 | 87 | 89 | 91 | 91 | 92 | 91 | 90 |
| Rebar | 99 | 96 | 94 | 92 | 92 | 91 | 89 | 88 | 86 | 85 | 80 | 77 | 75 | 74 | 76 | 82 | 82 | 91 | 90 | 87 | 88 | 85 | 86 | 90 |



VERMILION
LONDON, UK

Enabling the regeneration of a local area

UK CONSTRUCTION COST DATA

- 10 Building Costs
- 14 Average Construction Payment Drawdown
- 16 Construction Elements

UK CONSTRUCTION COST DATA

BUILDING COSTS

| Work Type | Description | Unit | Belfast | | Birmingham | | Bristol | | Cardiff | | Edinburgh | | London | | Manchester | | Sheffield | |
|-------------------------------|------------------------------------|--------------------|---------|---------|------------|---------|---------|---------|---------|---------|-----------|---------|---------|---------|------------|---------|-----------|---------|
| | | | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| Offices: Office Type CBD | 10-25 Storeys | GBP/m ² | 1325 | 1867 | 1860 | 2700 | 1930 | 2800 | 1657 | 2334 | 1744 | 2457 | 2602 | 3398 | 2045 | 2662 | 1844 | 2431 |
| Offices: Investment | up to 10 Storeys | GBP/m ² | 1153 | 1537 | 1500 | 2100 | 1600 | 2300 | 1441 | 1921 | 1516 | 2022 | 2145 | 3341 | 1767 | 2651 | 1565 | 2085 |
| Offices: Investment | 10-25 Storeys | GBP/m ² | 1245 | 1871 | 1800 | 2700 | 1800 | 2800 | 1556 | 2339 | 1638 | 2462 | 2567 | 3341 | 2012 | 2649 | 1720 | 2482 |
| Offices: Hotels: Multi-Storey | 1-3 Storeys | GBP/m ² | 922 | 1168 | 1400 | 1850 | 1200 | 1800 | 1183 | 1460 | 1213 | 1537 | 1337 | 2239 | 1051 | 1756 | 980 | 1640 |
| Offices: Hotels: Multi-Storey | Five Star Rating | GBP/m ² | 1548 | 2113 | 2100 | 3000 | 2300 | 3100 | 1335 | 2641 | 2037 | 2780 | 2743 | 3692 | 2192 | 2998 | 2025 | 2780 |
| Offices: Hotels: Multi-Storey | Four Star Rating | GBP/m ² | 1091 | 1713 | 1520 | 2240 | 1900 | 2450 | 1364 | 2142 | 1436 | 2255 | 2063 | 3271 | 1644 | 2573 | 1500 | 2395 |
| Offices: Hotels: Multi-Storey | Three Star Rating | GBP/m ² | 976 | 1427 | 1260 | 1970 | 1330 | 1800 | 1220 | 1796 | 1284 | 1891 | 1853 | 2379 | 1387 | 1845 | 1255 | 1675 |
| Offices: Hotels: Multi-Storey | Five Star Rating | GBP/Bedroom | 109,106 | 277,828 | 147,800 | 309,000 | 150,000 | 336,832 | 272,283 | 410,519 | 205,259 | 433,560 | 286,615 | 410,519 | 163,571 | 326,571 | 149,600 | 299,000 |
| Offices: Hotels: Multi-Storey | Four Star Rating | GBP/Bedroom | 62,236 | 93,355 | 76,200 | 154,300 | 90,000 | 145,000 | 77,796 | 116,035 | 86,830 | 122,855 | 117,119 | 173,074 | 93,305 | 139,962 | 85,450 | 128,000 |
| Offices: Hotels: Multi-Storey | Three Star Rating | GBP/Bedroom | 31,502 | 66,310 | 41,400 | 89,300 | 49,600 | 95,000 | 39,378 | 81,637 | 41,451 | 85,934 | 61,578 | 132,814 | 47,229 | 97,912 | 42,300 | 87,700 |
| Offices: Car Park | Open Deck: Multi-Storey | GBP/m ² | 246 | 488 | 350 | 675 | 400 | 800 | 307 | 610 | 324 | 642 | 445 | 890 | 347 | 693 | 324 | 649 |
| Offices: Car Park | Basement CBD | GBP/m ² | 615 | 1059 | 800 | 1375 | 950 | 1500 | 768 | 1321 | 809 | 1390 | 1184 | 1911 | 939 | 1498 | 850 | 1391 |
| Offices: Car Park | Basement Other Than CBD | GBP/m ² | 469 | 934 | 650 | 1280 | 850 | 1200 | 586 | 1167 | 617 | 1228 | 1161 | 1817 | 966 | 1408 | 639 | 1288 |
| Offices: Car Park | Undercroft: Other Than CBD | GBP/m ² | 311 | 780 | 420 | 1100 | 500 | 1100 | 389 | 975 | 409 | 1026 | 574 | 1454 | 470 | 1173 | 423 | 1061 |
| Offices: Car Park | Undercroft: Multi-Storey | GBP/Car | 5839 | 11679 | 8050 | 16,800 | 10,000 | 18,000 | 7399 | 14,599 | 7684 | 15,367 | 10,867 | 21,723 | 8750 | 17,500 | 7931 | 15,862 |
| Offices: Car Park | Basement: Other | GBP/Car | 18,559 | 27,276 | 21,000 | 38,000 | 22,000 | 32,000 | 19,449 | 34,096 | 20,473 | 30,890 | 28,978 | 51,986 | 23,331 | 40,867 | 21,115 | 37,080 |
| Offices: Car Park | Basement: Other Than CBD | GBP/Car | 11,679 | 23,435 | 18,000 | 32,000 | 20,000 | 30,000 | 14,519 | 29,933 | 15,367 | 30,635 | 21,733 | 43,467 | 17,500 | 35,112 | 15,862 | 31,827 |
| Offices: Car Park | Undercroft: Other Than CBD | GBP/Car | 7799 | 13,254 | 10,480 | 18,200 | 11,500 | 22,000 | 9748 | 16,568 | 10,262 | 17,440 | 14,489 | 25,356 | 11,689 | 19,779 | 10,609 | 18,025 |
| Industrial: Trains | 4.50-6.0m fl. Area: Metal Cladding | GBP/m ² | 269 | 488 | 400 | 560 | 400 | 630 | 336 | 610 | 354 | 642 | 481 | 868 | 360 | 693 | 370 | 680 |

UK CONSTRUCTION COST DATA

| Work Type | Description | Unit | Belfast | | Birmingham | | Bristol | | Cardiff | | Edinburgh | | London | | Manchester | | Sheffield | |
|--|---|--------------------|---------|-------|------------|-------|---------|-------|---------|-------|-----------|-------|--------|-------|------------|-------|-----------|-------|
| | | | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| Industrial: att: 200m ² | 200m ² | GBP/m ² | 622 | 1091 | 915 | 1,450 | 900 | 1,550 | 778 | 1,364 | 89 | 1,436 | 1,184 | 2,053 | 939 | 1,644 | 870 | 1,525 |
| Industrial: att: 400m ² | 400m ² | GBP/m ² | 546 | 1,010 | 840 | 1,400 | 800 | 1,500 | 682 | 1,283 | 78 | 1,329 | 1,032 | 1,934 | 827 | 1,501 | 770 | 1,420 |
| Industrial: att: 400m ² | Single Storey facility | GBP/m ² | 934 | 1,402 | 1,260 | 1,930 | 1,500 | 2,200 | 1,263 | 1,828 | 1,845 | 1,698 | 2,544 | 4,208 | 2,101 | 3,138 | 1,985 | 2,905 |
| Industrial: att: 400m ² | Multi Storey facility | GBP/m ² | 1,053 | 1,556 | 1,420 | 2,140 | 1,650 | 2,500 | 1,316 | 1,945 | 1,385 | 2,047 | 1,911 | 2,814 | 1,587 | 2,336 | 1,481 | 2,205 |
| Private: low rise: 45-60m ² floor area | 45-60m ² floor area per bed | GBP/m ² | 1,402 | 1,790 | 2,025 | 2,450 | 2,000 | 2,650 | 1,753 | 2,238 | 1,845 | 2,336 | 2,544 | 3,247 | 2,101 | 2,682 | 1,979 | 2,541 |
| Private: 55-80m ² floor area per bed: Major Operating Theatre | 55-80m ² floor area per bed: Major Operating Theatre | GBP/m ² | 1,556 | 2,343 | 2,250 | 3,300 | 2,500 | 3,500 | 1,945 | 2,929 | 2,047 | 3,084 | 2,814 | 4,244 | 2,336 | 3,520 | 2,205 | 3,308 |
| Regional: Retail: Centre | Department Store | GBP/m ² | 1,325 | 2,343 | 1,785 | 3,150 | 1,850 | 3,400 | 1,657 | 2,929 | 1,744 | 3,084 | 2,403 | 4,244 | 1,991 | 3,523 | 1,820 | 3,215 |
| Regional: Retail: Shopping Centres | Supermarket / Variety store | GBP/m ² | 934 | 1,402 | 1,260 | 1,900 | 1,350 | 2,000 | 1,167 | 1,753 | 1,228 | 1,845 | 1,698 | 2,544 | 1,409 | 2,103 | 1,280 | 1,925 |
| Regional: Retail: Shopping Centres | Discount Department store | GBP/m ² | 1,091 | 1,633 | 1,470 | 2,200 | 1,570 | 2,350 | 1,384 | 2,041 | 1,436 | 2,148 | 1,981 | 2,966 | 1,644 | 2,449 | 1,500 | 2,245 |
| Regional: Retail: Shopping Centres | Malls | GBP/m ² | 2,032 | 2,843 | 2,750 | 3,980 | 2,750 | 3,890 | 2,540 | 3,554 | 2,674 | 3,741 | 3,469 | 4,877 | 2,874 | 4,038 | 2,670 | 3,755 |
| Regional: Retail: Shopping Centres | Specialty Shops | GBP/m ² | 1,168 | 1,713 | 1,600 | 2,400 | 1,670 | 2,450 | 1,460 | 2,142 | 1,537 | 2,255 | 2,122 | 3,107 | 1,756 | 2,573 | 1,600 | 2,355 |
| Regional: Retail: General | Small shops and Showers | GBP/m ² | 645 | 1,214 | 870 | 1,670 | 870 | 1,650 | 807 | 1,517 | 849 | 1,597 | 1,114 | 2,087 | 97 | 1,733 | 615 | 1,600 |
| Regional: Retail: General | General Retail: Double Storey | GBP/m ² | 594 | 780 | 800 | 1,200 | 960 | 1,300 | 730 | 975 | 768 | 1,026 | 1,350 | 1,615 | 883 | 1,173 | 801 | 1,066 |
| Residential: General | 1 b. 3 storey units: 85 -120m ² per unit | GBP/m ² | 699 | 934 | 920 | 1,300 | 1,050 | 1,350 | 874 | 1,167 | 920 | 1,228 | 1,325 | 1,990 | 1,051 | 1,409 | 970 | 1,280 |

UK CONSTRUCTION COST DATA

BUILDING COSTS

| Work Type | Description | Belfast | | Birmingham | | Bristol | | Cardiff | | Edinburgh | | London | | Manchester | | Sheffield | |
|---------------------------------|--|---------|---------|------------|---------|---------|---------|---------|---------|-----------|---------|---------|---------|------------|---------|-----------|---------|
| | | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| Residential: 30 Storey per Unit | Townhouses: 30 Storey per Unit | 780 | 1,014 | 940 | 1,350 | 1,100 | 1,400 | 975 | 1,268 | 1,026 | 1,335 | 1,250 | 1,850 | 1,174 | 1,520 | 1,070 | 1,395 |
| Residential: General | 1 to 3 storey units, 85 GBP/Unit | 3,49180 | 50,711 | 48,000 | 70,000 | 68,000 | 90,000 | 43,700 | 63,389 | 46,000 | 66,725 | 121,000 | 140,000 | 52,378 | 7,568 | 47,944 | 69,524 |
| Residential: General | 1 to 3 storey units, 85 GBP/Unit | 58,395 | 109,106 | 78,000 | 160,000 | 85,000 | 165,000 | 72,932 | 136,322 | 76,835 | 143,560 | 153,000 | 190,000 | 87,545 | 163,571 | 80,000 | 150,000 |
| Residential: General | 1 to 3 storey units, 120m ² per unit | 66,078 | 116,789 | 85,000 | 165,000 | 96,000 | 165,000 | 82,588 | 145,987 | 86,945 | 153,670 | 145,000 | 212,000 | 94,054 | 175,091 | 90,600 | 160,000 |
| Residential: 10 Storey Units | Up to 10 Storeys, with lift: 60-70m ² per unit | 1,222 | 1,325 | 1,575 | 1,975 | 1,700 | 2,000 | 1,527 | 1,657 | 1,607 | 1,744 | 2,475 | 4,305 | 1,756 | 1,999 | 1,600 | 1,820 |
| Residential: 10 Storey Units | Up to 10 Storeys, with lift: 90-120m ² per unit | 1,325 | 1,715 | 1,600 | 2,270 | 1,800 | 2,450 | 1,657 | 2,142 | 1,744 | 2,255 | 2,450 | 4,000 | 1,991 | 2,460 | 1,855 | 2,290 |
| Residential: 10 Storey Units | Up to 10 Storeys, with lift: 90-120m ² per unit | 70,074 | 93,555 | 106,600 | 153,000 | 105,000 | 170,000 | 87,392 | 116,935 | 92,302 | 122,855 | 206,000 | 358,000 | 105,058 | 139,982 | 96,000 | 128,000 |
| Residential: Multi-Storey Units | Up to 10 Storeys, with lift: 90-120m ² per unit | 116,789 | 195,038 | 170,500 | 315,000 | 170,000 | 300,000 | 145,987 | 243,798 | 153,670 | 256,629 | 321,000 | 536,000 | 175,091 | 294,405 | 163,000 | 270,000 |
| Office Fit-Out | Insurance Offices: Government, Private, Open Planned | 269 | 392 | 340 | 510 | 395 | 550 | 336 | 490 | 354 | 516 | 551 | 776 | 414 | 592 | 375 | 545 |
| Office Fit-Out | Major Companies: Private, Open Planned | 423 | 768 | 550 | 1,200 | 550 | 900 | 528 | 960 | 556 | 1,011 | 688 | 1,032 | 536 | 827 | 489 | 762 |
| Office Fit-Out | Solicitors, Financials: Open Planned | 488 | 998 | 670 | 1,370 | 550 | 800 | 624 | 1,249 | 657 | 1,314 | 668 | 1,090 | 536 | 827 | 489 | 762 |
| Office Fit-Out | Hotels: Open Planned | 538 | 1,153 | 730 | 1,600 | 700 | 1,100 | 672 | 1,441 | 708 | 1,516 | 914 | 1,454 | 704 | 1,173 | 659 | 1,107 |
| Workstations | Workstations: 2,728 GBP/Floor | 2,728 | 3,889 | 3,700 | 5,400 | 3,900 | 5,560 | 3,410 | 4,874 | 3,589 | 5,131 | 4,946 | 7,057 | 4,000 | 5,845 | 3,780 | 5,402 |
| Workstations | Technical Staff: 4,284 GBP/Floor | 4,284 | 5,455 | 5,800 | 7,500 | 6,100 | 7,775 | 5,354 | 6,819 | 5,636 | 7,178 | 7,760 | 9,882 | 6,426 | 8,180 | 5,938 | 7,555 |
| Workstations | Executive: 4,668 GBP/Floor | 4,668 | 9,374 | 6,200 | 12,900 | 6,200 | 13,000 | 5,835 | 11,717 | 6,142 | 12,334 | 8,452 | 16,974 | 6,996 | 14,047 | 6,468 | 21,258 |
| Hotel FF&E | Five Star Rating: 15,559 GBP/Bedroom | 15,559 | 62,236 | 21,000 | 87,500 | 22,500 | 90,000 | 19,449 | 77,796 | 20,473 | 81,890 | 30,185 | 120,741 | 23,331 | 94,233 | 21,369 | 86,394 |
| Hotel FF&E | Four Star Rating: 9,335 GBP/Bedroom | 9,335 | 15,559 | 12,600 | 21,291 | 13,300 | 22,150 | 11,669 | 19,449 | 12,284 | 20,473 | 18,111 | 30,185 | 15,991 | 23,331 | 12,556 | 20,925 |

UK CONSTRUCTION COST DATA

| Work Type | Description | Belfast | | Birmingham | | Bristol | | Cardiff | | Edinburgh | | London | | Manchester | | Sheffield | |
|-------------------------|--|---------|--------|------------|---------|---------|---------|---------|---------|-----------|---------|--------|---------|------------|---------|-----------|---------|
| | | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| Office Refurbment | Hotel FF&E: 6,224 GBP/Bedroom | 6,224 | 9,412 | 8,353 | 12,880 | 8,000 | 13,400 | 7,780 | 11,765 | 8,189 | 12,385 | 12,074 | 18,111 | 9,331 | 14,103 | 8,369 | 12,658 |
| Recreational Facilities | Office: 234 GBP/Seat | 234 | 780 | 300 | 1,200 | 330 | 1,100 | 293 | 975 | 308 | 1,026 | 457 | 1,454 | 357 | 1,173 | 335 | 1,087 |
| Recreational Facilities | Regional stadium: 2,500 GBP/Seat | 2,500 | 2,600 | 1,650 | 2,700 | 1,600 | 2,600 | 1,600 | 2,600 | 1,600 | 2,600 | 1,680 | 2,730 | 1,664 | 2,704 | 1,600 | 2,600 |
| Recreational Facilities | Regional football stadium | 2,500 | 4,600 | 2,400 | 4,950 | 2,300 | 4,800 | 2,300 | 4,800 | 2,300 | 4,800 | 2,415 | 5,040 | 2,392 | 4,992 | 2,300 | 4,800 |
| Recreational Facilities | National iconic stadium | 4,200 | 7,700 | 4,200 | 8,100 | 4,200 | 7,700 | 4,200 | 7,700 | 4,400 | 8,085 | 4,368 | 8,008 | 4,200 | 7,700 | 4,200 | 7,700 |
| Recreational Facilities | Indoor Arena: 6,400 GBP/Seat | 6,400 | 8,300 | 6,400 | 8,400 | 6,400 | 8,300 | 6,400 | 8,300 | 6,400 | 8,300 | 6,720 | 8,715 | 6,656 | 8,652 | 6,400 | 8,300 |
| Recreational Facilities | Indoor sports (including dry sports facilities): 3,200 GBP/Hectare | 3,200 | 4,500 | 3,250 | 4,520 | 3,200 | 4,500 | 3,200 | 4,500 | 3,200 | 4,500 | 3,160 | 4,725 | 3,328 | 4,680 | 3,200 | 4,500 |
| Site Works | Landscape, Light, Drainage, Internal planting: 23,415 GBP/Hectare | 23,415 | 93,355 | 32,000 | 135,000 | 51,000 | 152,000 | 29,293 | 116,938 | 30,855 | 122,835 | 42,259 | 175,074 | 35,12 | 139,895 | 31,827 | 126,772 |
| Site Works | Landscape, Dense planting: 15 GBP/m ² | 15 | 31 | 21 | 44 | 30 | 50 | 19 | 38 | 20 | 40 | 35 | 71 | 33 | 56 | 21 | 41 |
| Site Works | Large areas, topsoil, lowing, treeing: 4 GBP/m ² | 4 | 8 | 5 | 11 | 10 | 20 | 5 | 10 | 5 | 10 | 12 | 24 | 11 | 23 | 5 | 10 |
| Site Works | Light Duty Paving: 699 GBP/Cm | 699 | 1,168 | 950 | 1,700 | 1,250 | 1,850 | 874 | 1,460 | 920 | 1,537 | 1,337 | 2,181 | 1,050 | 1,755 | 953 | 1,586 |
| Site Works | Car Parks on Ground: 1,168 GBP/Cm | 1,168 | 1,940 | 1,450 | 2,700 | 2,050 | 3,050 | 1,460 | 2,425 | 1,537 | 2,553 | 2,189 | 3,623 | 1,755 | 2,997 | 1,586 | 2,637 |
| Site Works | Car Parks on Ground: 699 GBP/Cm | 699 | 1,168 | 950 | 1,700 | 1,250 | 1,850 | 874 | 1,460 | 920 | 1,537 | 1,337 | 2,239 | 1,050 | 1,755 | 953 | 1,586 |
| Site Works | Roads, asphalt and drainage and kerbs, 6.8m wide: 546 GBP/m | 546 | 1,168 | 735 | 1,700 | 875 | 1,800 | 682 | 1,460 | 718 | 1,537 | 1,032 | 2,239 | 827 | 1,755 | 742 | 1,586 |
| Site Works | Roads, asphalt and kerbs, 10.4m wide: 780 GBP/m | 780 | 1,556 | 1,075 | 2,300 | 1,250 | 2,450 | 975 | 1,945 | 1,026 | 2,047 | 1,454 | 2,907 | 1,173 | 2,336 | 1,061 | 2,112 |

AVERAGE CONSTRUCTION PAYMENT DRAWDOWN

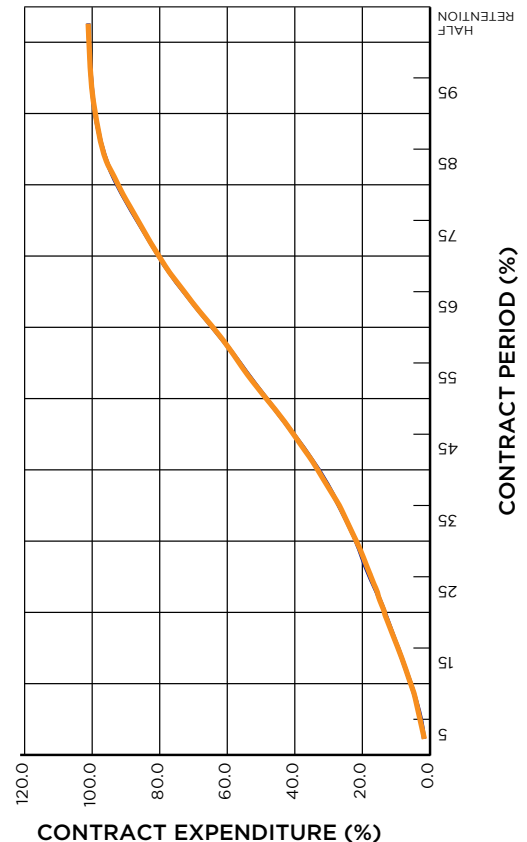
The tabulation below is derived from the statistical average of a series of case histories, which will give an indication of the anticipated rate of expenditure when used for specific project types for preliminary budgetary purposes.

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 to be released at the end of the defects period and is excluded from the figures.

| Contract Period % | Contract Expenditure % |
|--|------------------------|
| 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 | 78.0 |
| 75 | 84.4 |
| 80 | 89.5 |
| 85 | 93.6 |
| 90 | 96.5 |
| 95 | 98.0 |
| 100 | 98.5 |
| Half retention (1.5%) released after end of defects period | 100 |



UK CONSTRUCTION COST DATA

CONSTRUCTION ELEMENTS

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

| Item | £ | | Unit |
|--|-------|---------|----------------|
| SUB-STRUCTURE | | | |
| - Reinforced concrete pad footing (Grade 35) | 465 | - 560 | m ² |
| - Reinforced concrete slab on ground (Grade 35) | 410 | - 510 | m ² |
| COLUMNS | | | |
| - Reinforced Concrete (600 x 600mm Grade 35) | 200 | - 260 | m |
| - Reinforced Concrete (900 x 900mm Grade 35) | 408 | - 510 | m |
| UPPER FLOORS (EXCLUDING BEAMS) | | | |
| - 150mm reinforced concrete suspended floor slab (Grade 35) on holorib permanent formwork | 60 | - 85 | m ² |
| - 150mm precast concrete slab or beam and block floor with reinforced in situ concrete screed structural topping | 85 | - 105 | m ² |
| - 200mm reinforced concrete suspended slab with high quality formwork for exposed finish | 95 | - 145 | m ² |
| STAIRCASES | | | |
| - 1050mm wide reinforced concrete stair with painted steel tube balustrade (average rise 3.70m) including two flights and one half space landing | 3,050 | - 4,050 | Rise |

UK CONSTRUCTION COST DATA

| Item | £ | | Unit |
|--|--------|----------|----------------|
| - 1200mm wide reinforced concrete stair with painted steel tube balustrade (average rise 3.70m) including two flights and one half space landing | 4,050 | - 5,050 | Rise |
| - 2000mm wide grand public stair with glass and metal balustrade (4.00m rise) including three flights and two quarter space landings | 12,000 | - 18,000 | Rise |
| ROOF | | | |
| - RC Slab (Grade 35) graded to fall and built-up roofing membrane | 120 | - 165 | m ² |
| - Structural steel, Purlins and insulated metal deck roof 40 - 50 kg/m ² | 100 | - 135 | m ² |
| EXTERNAL WALLS | | | |
| - Cavity wall construction, 102mm stock facing brick outer skin; insulated cavity; 140mm blockwork inner skin | 125 | - 175 | m ² |
| - Double glazed window unit (casement type) | 300 | - 455 | m ² |
| - Glass curtain wall system, capped stick built system | 425 | - 700 | m ² |
| EXTERNAL DOORS (INCLUDING IRONMONGERY) | | | |
| - Single leaf solid core door | 940 | - 1,200 | no. |
| - Double leaf glazed door | 1,350 | - 1,600 | no. |
| - Double leaf automatic operating door | 4,300 | - 7,500 | no. |

UK CONSTRUCTION COST DATA

CONSTRUCTION ELEMENTS

| Item | £ | | Unit |
|--|-----|---------|----------------|
| INTERIOR WALLS | | | |
| - 250mm reinforced concrete wall (Grade 35) | 165 | - 185 | m ² |
| - 100mm block wall | 25 | - 30 | m ² |
| - 140mm block wall | 28 | - 40 | m ² |
| - Plasterboard metal stud wall / single layer each side | 37 | - 50 | m ² |
| INTERNAL DOOR SET (INCLUDING IRONMONGERY) | | | |
| - Single leaf solid core flush door | 455 | - 760 | no. |
| - Single leaf half hour fire door | 505 | - 810 | no. |
| - Single leaf one hour fire door | 605 | - 960 | no. |
| INTERIOR SCREENS | | | |
| - Laminated toilet partition | 840 | - 1,250 | Each |
| - Fully glazed office partition full (2.8m) height, frameless joints | | | |
| Single glazed | 305 | - 500 | m |
| Double glazed | 910 | - 1,115 | m |
| WALL FINISHES | | | |
| - Plaster and emulsion paint | 16 | - 21 | m ² |
| - Plaster and vinyl fabric wallpaper | 21 | - 35 | m ² |
| - Cement render and ceramic tile | 60 | - 95 | m ² |
| - Granite tiles | 100 | - 155 | m ² |

UK CONSTRUCTION COST DATA

| Item | £ | | Unit |
|--|--------|----------|----------------|
| CEILING FINISHES | | | |
| - Metal framed plasterboard ceiling painted | 27 | - 32 | m ² |
| - Exposed grid suspended ceiling with mineral fibre board acoustic ceiling | 26 | - 35 | m ² |
| - Hygienic suspended ceiling system | 30 | - 40 | m ² |
| FLOOR FINISHES | | | |
| - Carpet tile | 18 | - 38 | m ² |
| - Ceramic tile | 45 | - 85 | m ² |
| - Raised Access floors standard duty | 32 | - 45 | m ² |
| SPECIALIST SERVICES SANITARY AND PLUMBING | | | |
| - Average cost per plumbing point including fixture, soil waste and vent; excluding DOC M Pack | 405 | - 510 | no. |
| - Average cost for storm water drains (site area) | 15 | - 18 | |
| VERTICAL TRANSPORTATION | | | |
| - Glass sided escalator (4m rise) | 62,500 | - 78,000 | no. |
| - 13 passenger lift serving 4 floors | 51,000 | - 62,000 | no. |
| - Hydraulic lift serving 2 floors | 25,000 | - 37,000 | no. |



ONE QUEEN CAROLINE STREET

LONDON, UK

A home to businesses that demand the highest standards in the workplace



Photo credit: Landid

ESTIMATING DATA

- 22 Definition of Office Fit-out Categories
- 23 Reinforcement Ratios
- 24 Method of Measurement of Building Areas

ESTIMATING DATA

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 | ✗ | ✗ | ✓ |

ESTIMATING DATA

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.

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.

Note from the 1st January 2016 a RICS Professional Statement (PS)² 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.

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) effective from 1st January 2016 which affects the measurement of offices. Identified changes are highlighted in Red.

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, and the like | Open vehicle parking areas, non-accessible roof terraces, and the like |

METHOD OF MEASUREMENT OF BUILDING AREAS

| ALL BUILDINGS EXCLUDING OFFICES | |
|--|--|
| INCLUDING | EXCLUDING |
| 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 |
| Internal balconies | 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 |
| 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 |
| 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 | |
| Loading bays | |
| Areas with a headroom of less than 1.5m | |
| Pavement vaults | |
| Garages | |
| Conservatories | |

| OFFICES ONLY | |
|--|--|
| 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 |
| | Open light wells upper level voids of an atrium - definition added in PS |
| 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 |
| 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 |
| 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 | |
| Loading bays | |
| Areas with a headroom of less than 1.5m | |
| Pavement vaults | |
| Garages | |
| 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) effective from 1st January 2016 which affects the measurement of offices. Identified changes are highlighted in Red.

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 multifunctional 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**INCLUDING****EXCLUDING**

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

| ALL BUILDINGS EXCLUDING OFFICES | |
|---|--|
| INCLUDING | EXCLUDING |
| 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 |
| | |
| 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 |
| | |
| Internal open-sided balconies, walkways, and the like | Voids over or under structural, raked or stepped floors |
| | |
| | Accessible rooftop terraces - normally excluded |
| 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 |

| OFFICES ONLY | |
|--|--|
| INCLUDING | EXCLUDING |
| 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 | 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 | |
| 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 - 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 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 |
| 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

| ALL BUILDINGS EXCLUDING OFFICES | |
|--|--|
| INCLUDING | EXCLUDING |
| 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 |
| 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 | |
| Projection rooms | |
| Voids over stairwells and lift shafts on upper floors | |
| Loading bays | |
| Areas with a headroom of less than 1.5m | |
| Pavement vaults | |
| Garages | |
| Conservatories | |

| OFFICES ONLY | |
|--|--|
| INCLUDING | EXCLUDING |
| 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 |
| 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 | |
| Projection rooms | |
| Voids over stairwells and lift shafts on upper floors | |
| Loading bays | |
| 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 | |
| Garages | |
| 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 |
| Ramps, sloping areas and steps within usable areas | Permanent circulation areas, corridors and thresholds/ recesses associated with access, but not those parts that are usable areas |

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) effective from 1st January 2016 which affects the measurement of offices. Identified changes are highlighted in Red.

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 |
| Ramps, sloping areas and steps within usable areas | Permanent circulation areas, corridors and thresholds/ recesses associated with access, but not those parts that are usable areas |

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: RICS³

| 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 |



CONSTRUCTION INSIGHTS

| | |
|----|--|
| 42 | RIBA Outline Plan of Work |
| 44 | OJEU Process |
| 46 | Procurement Options |
| 54 | RLB Insight: Specification is the Guardian of Quality |
| 56 | Building Information Modelling (BIM) |
| 59 | Government Soft Landings (GSL) |
| 60 | Costing Structural Timber |
| 62 | RLB Insight: Older Persons' Housing |
| 64 | Estate Rationalisation |
| 66 | RLB Insight: Efficiency & the NHS |
| 68 | Sustainability |
| 70 | <i>SKA Rating</i> |
| 72 | <i>BREEAM</i> |
| 73 | <i>Energy Performance Certificates (EPC)</i> |
| 74 | <i>Display Energy Certificates (DEC)</i> |
| 76 | <i>Minimum Energy Efficiency Standard (MEES)</i> |
| 77 | <i>Energy Savings Opportunity Scheme (ESOS)</i> |
| 78 | <i>Renewable Technologies: Application and Cost Data</i> |
| 81 | Party Wall Advice |
| 82 | Dilapidations |
| 84 | Project Monitoring |
| 85 | RLB Field |
| 86 | Apprenticeship Levy |
| 87 | Gender Pay Gap Reporting |
| 88 | Wellness in the Built Environment |
| 90 | RLB Insight: Back to (FM) Basics |

RIBA OUTLINE PLAN OF WORK

RIBA (Royal Institute of British Architects) Work stages are the stages in which the process of designing building projects and administering building contracts are usually divided.

The RIBA Outline Plan of Work summarises the deliverables required under each RIBA work stage, setting out a logical structure for building projects. The procedures identify the responsibilities of the design team at each stage of design and contract administration.

In 2013, the RIBA undertook a comprehensive review of the RIBA Plan of Work 2007.

The review helped ensure alignment with best practice from all specialists within the integrated construction team, and provided a new framework which helps “to deliver better capital and operational efficiencies, carbon reductions and better briefing and outcomes.” (RIBA)⁴

The 2013 Plan targeted several key issues that had arisen since the last review. These included:

- Integrating sustainable design
- Mapping BIM processes
- Providing flexibility around planning procedures
- Addressing changes in the way building services design is delivered
- Responding to the recommendations of the UK Government Construction Strategy
- Providing straight forward mapping and flexibility for all forms of procurement.



The RIBA Plan of Work 2013 organises the process of briefing, designing, constructing, maintaining, operating and using building projects into eight Work Stages (RIBA).

| RIBA Plan of Work - Core Objectives | |
|-------------------------------------|---|
| 0 Strategic Definition | Identify client's Business Case and Strategic Brief and other core project requirements. |
| 1 Preparation and Brief | Develop Project Objectives, including Quality Objectives and Project Outcomes, Sustainability Aspirations, Project Budget, other parameters or constraints and develop Initial Project Brief. Undertake Feasibility Studies and review of Site Information. |
| 2 Concept Design | Prepare Concept Design, including outline proposals for structural design, building services systems, outline specifications and preliminary Cost Information along with relevant Project Strategies in accordance with Design Programme. Agree alterations to brief and issue Final Project Brief. |
| 3 Developed Design | Prepare Developed Design, including coordinated and updated proposals for structural design, building services systems, outline specifications, Cost Information and Project Strategies in accordance with Design Programme. |
| 4 Technical Design | Prepare Technical Design, in accordance with Design Responsibility Matrix and Project Strategies to include all architectural, structural and building services information, specialist subcontractor design and specifications, in accordance with Design Programme. |
| 5 Construction | Off-site manufacturing and on-site Construction in accordance with Construction Programme and resolution of Design Queries from site as they arise. |
| 6 Handover and Close Out | Handover of building and conclusion of Building Contract. |
| 7 In Use | Undertake In Use services in accordance with Schedule of Services. |

The OJEU is the Official Journal of the European Union.

All contracts from the public sector which are valued above a certain financial threshold according to EU legislation must be published in the OJEU. The legislation covers organisations and projects that receive public money, and includes organisations such as Local Authorities, NHS Trusts, MOD, Central Government Departments and Educational Establishments.

THRESHOLDS

European Directives and UK Regulations set out detailed procedures for contracts whose value equals or exceeds various financial thresholds. These thresholds are set in Euros, and every two years the European Commission publishes the equivalent values in pound sterling.

The current financial thresholds are shown below - these apply from 1st January 2016 until the end of 2017.

| | Supply, Services and Design Contracts | Works Contracts | Social and other specific services |
|-------------------------------|---------------------------------------|--------------------------|------------------------------------|
| Central Government | £106,047 €135,000 | £4,104,394 €5,225,000 | £589,148 €750,000 |
| Other contracting authorities | £164,176 €209,000 | £4,104,394 €5,225,000 | £589,148 €750,000 |
| Small Lots | £62,842 €84,000 | £785,530 €1,000,000 | N/A |

OJEU⁵

GUIDE TO THE REGULATIONS

The Public Contract Regulations 2015 came into effect on 26 February 2015.

There are five types of contract award procedure:

- Open
- Restricted
- Competitive Dialogue
- Competitive with Negotiation
- Innovation Partnership

There are no restrictions on the use of the open and restricted procedures. However, the competitive dialogue, competitive with negotiation and innovation partnership procedures can only be used in certain circumstances.

CHOOSING A PROCEDURE

OPEN

- this is suitable for straightforward procurements where requirements are clearly defined
- there is no pre-qualification of bidders so anyone can submit a tender

RESTRICTED

- this is a two stage procedure used to pre-qualify bidders based on financial standing and technical/professional capability
- this will narrow the number of bidders who can submit a tender

COMPETITIVE DIALOGUE AND COMPETITIVE WITH NEGOTIATION

- used for more complex procurements, where:
 - needs cannot be met without adaptation of readily available solutions;
 - requirements include design or innovative solutions;
 - the contract cannot be awarded without prior negotiation;
 - the technical specifications cannot be established with sufficient precision;
 - open/restricted procedure procurement has been run but only irregular or unacceptable tenders were submitted

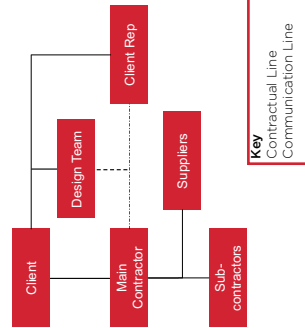
INNOVATION PARTNERSHIP

- allows for the R&D and purchase within the same procurement process

Selecting the correct procurement route for a project is fundamental to its success, and will affect its cost, programme, quality and team relationships for the lifespan of the project. Procurement strategy should be considered fully at the earliest opportunity and consideration should be given to the hierarchy of client and project requirements.

We can advise on an appropriate route to best meet these requirements, and we have highlighted some of the main features of the more common routes available on the following pages.

TRADITIONAL LUMP SUM



Key Features

- Design complete prior to tender
- Contractor takes price and time risk for works as tendered
- Client controls design
- Two stage / negotiation can be accommodated as an alternative

Advantages

- Competitive fairness - all tenders like for like
- Cost certainty at outset of contract
- Established / tried and tested
- Minor changes can be implemented
- Established method of valuation
- Capable of conversion to a guaranteed maximum price (GMP)
- Contractor designed elements can be accommodated.

Concerns / Considerations

- Time required to complete full design prior to tender
- Full design not always achievable - e.g. specialist areas subject to contractor design
- Client takes time and cost risk for changes in design
- Client takes design risk
- Contractual / adversarial approach

Sequence

