SPON’S
ARCHITECTS’
AND BUILDERS’
PRICE BOOK
2025

EDITED BY
AECOM

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150TH EDITION
Spon’s Architects’ and Builders’ Price Book

Edited by AECOM

2025

One hundred and fiftieth edition
Contents

Preface to the One Hundred and Fiftieth Edition vii
Special Acknowledgements xi
Acknowledgements xiii
How to use this Book xxi

PART 1: GENERAL
Market Update 3
Capital Allowances 7
Value Added Tax 15
The Aggregates Levy 23
Land Remediation 27
Building Regulations 37
Research & Development (R&D) Tax Relief 43
Building Costs Indices, Tender Price Indices and Location Factors 49

PART 2: RATES OF WAGES AND LABOUR
CIJC Basic Rates of Pay 59
Building and Allied Trades JIC Rates of Pay 60
Plumbing and Mechanical Engineering Services Industry Rates of Pay 61
Labour Rate Calculations 63
CIJC Labour Categories 68

PART 3: APPROXIMATE ESTIMATING
Building Prices per Functional Unit 75
Building Prices per Square Metre 79
Building Cost Models 89
Retail Distribution Unit 90
London Fringe Office 97
Car Dealership 100
Higher Education Refurbishment 104
School Refurbishment 107
Primary Care Health Centre 111
Primary Care Health Centre Fit-Out 116
Mental Health Facility 121
Palliative Care Unit 126
Multiplex Cinema 130
Apartments – Private Rented Sector 134
Preliminaries Build-up Example 145
Approximate Estimating Rates 149
1 Substructure
1.1 Substructure 150
8 External Works
2 Superstructure
2.1 Frame 154
2.2 Upper Floors 157
2.3 Roof 157
2.4 Stairs and Ramps 162
2.5 External Walls 163
2.6 Windows and External Doors 168
2.7 Internal Walls and Partitions 171
2.8 Internal Doors 174
3 Internal Finishes
9.2 Main Contractor’s Preliminaries 196
PART 4: PRICES FOR MEASURED WORKS

Introduction
03 Demolitions
04 Alterations, repairs and conservation
05 Excavate and filling
07 Piling
08 Underpinning
09 Diaphragm walls and embedded retaining walls
10 Crib walls, gabion and reinforced earth
11 In situ concrete works
12 Precast/composite concrete
13 Precast concrete
14 Masonry
15 Structural metalwork
16 Carpentry
17 Sheet roof coverings
18 Tile and slate roof and wall coverings
19 Waterproofing
20 Proprietary linings and partitions

21 Cladding and covering
22 General joinery
23 Windows, screens and lights
24 Doors, shutters and hatches
25 Stairs, walkways and balustrades
27 Glazing
28 Floor, wall, ceiling and roof finishes
29 Decoration
30 Suspended ceilings
31 Insulation, fire stopping and fire protection
32 Furniture, fittings and equipment
34 Drainage below ground
35 Site work
36 Fencing
37 Soft landscaping
39 Electrical services
41 Builder’s work in connection with services

201 21 400
205 22 408
210 23 419
219 24 432
229 25 480
233 27 486
238 28 490
239 29 518
240 30 532
263 31 537
266 32 545
268 33 558
307 34 573
315 35 598
334 36 611
359 37 614
373 39 616
378 41 617

PART 5: FEES FOR PROFESSIONAL SERVICES

Quantity Surveyors’ Fees
Architects’ Fees
Consulting Engineers’ Fees
The Town and Country Planning Application Fees
The Building (Local Authority Charges) Regulations

625
626
629
630
630

PART 6: DAYWORK AND PRIME COST

Standard Industry Daywork Allowances

633

PART 7: USEFUL ADDRESSES FOR FURTHER INFORMATION

Useful Addresses for Further Information

657

PART 8: TABLES AND MEMORANDA

Conversion Tables
Geometry
Formulae
Typical Thermal Conductivity of Building Materials
Earthwork
Concrete Work
Reinforcement
Formwork
Masonry
Timber
Roofing

Glazing
Metal
Kerbs, Paving, etc.
Seeding/Turfing and Planting
Fencing and Gates
Drainage
Electrical Supply/Power/Lighting Systems
Rail Tracks
Fractions, Decimals and Millimetre Equivalents
Imperial Standard Wire Gauge (SWG)
Pipes, Water, Storage, Insulation

669 705
673 706
677 724
678 731
679 734
685 739
690 746
692 747
693 750
696 751
701 752

INDEX
Preface to the One Hundred and Fiftieth Edition

The global supply chain has largely returned to pre-pandemic conditions. Construction activity and demand are more likely to be limited now by inflation and the cost of borrowing, resulting in potentially challenging market conditions. Input costs are levelling off, in terms of materials at least, but as new orders become patchier, market competition is rising and the pressure is on.

The Labour Market

Labour has now replaced materials as the main industry cost driver in 2024. The combination of labour shortages with high inflation is likely to result in higher wages over the next two years. The likely knock-on effect of this could be outputs, as the quality of resources available may not achieve the desired productivity levels, and a limiting factor on growth, peaking at 8.3% in 1Q 2024 according to recent Building Cost Information Service (BCIS) data. Construction average weekly earnings continue to rise in 2024, and according to the ONS, construction wages were up 5.6% in February 2024 in the year-on-year, three-month average series. Although wages have increased, prices are relatively stable.

The current labour market tightness has resulted from people leaving the industry consistently since Q1 2019. There are two main reasons, which have been exacerbated by the global pandemic: firstly, workers leaving through retirement, ill health, and migration from the UK; and secondly, the number of younger people joining through apprenticeships, both of which have kept pressure on pricing trends. The labour workforce can be summarized in terms of impacting pressures:

- Downside pressures on workforce: supply and demand dynamics, national and local markets, and supply/demand mismatch.
- Upside pressures on workforce: labour constraints, labour market tightness, migration trends from the UK by EU/UK/rest of world citizens.

Source ONS
Preface

The labour and skills shortages are greater than ever, something the Construction Leadership Council (CLC) highlighted at the start of the year, with real concerns around a lack of qualified staff to support the transition to more sustainable technologies and products. Research by the CITB emphasized that the construction industry requires an ‘increase of just under 45,000 [extra workers] per year…over the next five years to meet expected output’ (source: Construction Skills Network (CSN) Five Year Outlook – 2023–2027). Large scale infrastructure projects such as Hinkley Point C, HS2 and several offshore wind farm developments will provide employment opportunities, as well as Northern Powerhouse Rail, Sizewell C and the Lower Thames Crossing, the pipeline of infrastructure work remains resilient.

Focus on Materials

Materials price inflation has caught the headlines over the past few years, challenging project feasibility and creating doubt for clients and contractors in the construction sector. The cost inflation of materials has slowed, despite materials cost increases being at their highest since the 1970s. The availability of materials and products is now back to pre-pandemic levels, as product supply continues to return. The BCIS have also suggested materials prices have cooled compared to where prices have been in recent years.

Some builders merchants have reported backlogs of project work, together with tighter deadlines, which could signal future increased demand and potential availability issues. New housebuilding has been restrained by high interest rates, but is tipped to return to pre-pandemic levels if base rates fall, which will lead to a rise in demand for building materials. The CLC highlighted that brick manufacturers adjusted supply capacity early on in the year to meet anticipated demand. Aggregates suppliers have reported a steady demand with sufficient stock levels until 2025. Steel supplies remain plentiful, following a downturn in demand, and seemingly not yet affected by any disruption from the Red Sea and other global conflicts.

Industry Impacts

While total construction output can be seen to be stagnating according to the BCIS, future demand is forecast to soften and likely to remain subdued over the next five years. There are still several major UK construction and infrastructure projects which may affect demand for labour and availability of material resources over the next 5 to 10 years, and beyond, as previously mentioned.

There is also the recent and relatively unknown impact of reinforced autoclaved aerated concrete (RAAC), a lightweight material developed as an alternative to traditional concrete, used heavily in the construction of school buildings from the 1950s through to the 1990s. Published data suggests 174 schools are likely to be affected, but there are unknown building variables such as size and condition. If work to remediate, refurbish, or replace all starts at once then demand could be inflationary, with resulting labour capacity issues to deal with demand. One potential ‘flipside’ from the forecast slowdown in the housing sector might be the ability of the construction industry to swap over to support what is likely to be a huge and high-profile task.

Despite a relatively strong start to 2024, it may be a year of ifs and buts – possible interest rate reductions, an economy on the verge of recession, generally low growth, stagnant industry sectors, an election year, inflation relatively under control – to highlight the most obvious!

Book Price Level

The prices in Spon’s Architects’ & Builders’ 2025 are reflective of a Q3 2024, Outer London price basis. For the purposes of understanding movement since the last publication, the book has been indexed at 168 (2015=100). This index is a measure of movement specific to the rates within this volume, arrived at by pricing our usual tender price models with prices taken from the book. Therefore, the value does not directly align with any particular date in the indices presented in the Building Costs Indices; Tender Price Indices and Location Factors section. However, this does not preclude the prices from being adjusted using those indices.

Profits and Overheads

The 2025 edition includes a 3% allowance main contractor’s overheads and profit.

NOTE:

- Preliminaries are not included within the main Prices for Measured Works or in the Approximate Estimating Rates sections of the book.
- Preliminaries are included in the rates within Building Prices per Functional Unit and Building Prices per Square Metre sections.
Prices included within this edition do not include for VAT, professional fees etc. which must be added if appropriate.

PARTS OF THIS BOOK

Part 1: General
This section contains advice on various construction specialisms; capital allowances; legislation; taxes; insurances; building cost and tender price indices and regional price variations.

Part 2: Rates of Wages and Labour
Book labour rates are based on the CIJC Working Rule Agreement.

Part 3: Approximate Estimating
This section contains distinct areas:

- *Building Prices per Functional Unit; Building Prices per Square Metre and Building Cost Models.* It should be noted that these sections all include site preliminaries. The only occasion this happens within the book.
- *Approximate Estimating Rates* shows typical composite built-up rates organized by building elements. Please note these rates do not include for any site preliminaries.

There is also a section where we show typical preliminaries build-up for a project valued at approximately £4,000,000. This is intended for guidance only and should not be used as part of any tender submission.

Part 4: Prices for Measured Works
These sections contain Prices for Measured Works organized using the NRM2 Work Sections for building works.

*NOTE: All prices in Part 4 exclude the main contractor’s preliminaries costs.*

Part 5: Fees for Professional Services
This section contains guidance on fee levels for professional services; Quantity Surveyors; Architects’; and Consulting Engineers. Readers should always obtain fee proposals for their project prior to commencement as there are many factors that influence fee submissions.

*NOTE: Professional fees are not included in any rates in the book.*

Part 6: Daywork and Prime Cost
This section contains Daywork and Prime Cost allowances issued by the Royal Institute of Chartered Surveyors.

Part 7: Useful Addresses for Further Information
A list of useful trade associations, professional bodies, contact details.

Part 8: Tables and Memoranda
This section contains general formulae, weights and quantities of materials, other design criteria and useful memoranda associated with each trade.

While every effort is made to ensure the accuracy of the information given in this publication, readers are reminded of the merit of independently verifying any rates contained in this book prior to taking any decisions of material significance (commercial or otherwise) based on such data. The Editors and Publishers of the book shall not accept, to the maximum extent permitted under the law, any liability for any losses which result from the user placing reliance on information contained herein.

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www.securitydirectuk.com
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How to use this Book

First time users of Spon's Architects' and Builders' Price Book (Spon's A & B) and others who may not be familiar with the way in which prices are compiled may find it helpful to read this section before starting to calculate the costs of building work. The level of information on a scheme and availability of detailed specifications will determine which section of the book and which level of prices users should refer to.

We have rebased our TENDER PRICE INDEX to 2015 = 100 (from 1976 = 100).

Prices in the book do not necessarily and are not intended to represent the lowest possible prices achievable but are intended as a guide to expected price levels for the items described. AECOM cost a series of building models using current Spon's rates to calculate a book Tender Price Index (TPI).

**For this edition of the book TPI has been calculated at 168 (2015 = 100).**

Rates in the book include overhead and recovery margins but do not include main contractors' preliminaries: except for two sections:

- *Building Prices per Functional Units and*
- *Building Prices per Square Metre which are both within Part 3 Approximate Estimating.*

**New Rules of Measurement (NRM)**

The NRM suite covers the life cycle of cost management and means that, at any point in a building's life, quantity surveyors will have a set of rules for measuring and capturing cost data. In addition, the BCIS Standard Form of Cost Analysis (SFCA) 4th edition has been updated so that it is aligned with the NRM suite. This book is intended for use with NRM1 and NRM2.

The three volumes of the NRM are as follows.

- NRM1 – Order of cost estimating and cost planning for capital building works.
- NRM2 – Detailed measurement for building works.
- NRM3 – Order of cost estimating and cost planning for building maintenance works.

**APPROXIMATE ESTIMATING**

For preliminary estimates/indicative costs before drawings are prepared or very little information is available, users are advised to refer to the average overall Building Prices per Functional Unit and multiply this by the proposed number of units to be contained within the building (i.e. number of bedrooms etc.) or Building Prices per Square Metre rates and multiply this by the gross internal floor area of the building (the sum of all floor areas measured within external walls) to arrive at an overall initial Order of Cost Estimate. These rates include preliminaries but make no allowance for the cost of external works, VAT, or fees for provisional services.

Where preliminary drawings are available, one should be able to measure approximate quantities for all the major components of a building and multiply these by individual rates contained in the Building Cost Models or Approximate Estimating Rates sections to produce an Elementary Cost Plan. This should produce a more accurate estimate of cost than simply using overall prices per square metre. Labour and other incidental associated items, although normally measured separately within Bills of Quantities, are deemed included within approximate estimating rates. These rates do not include preliminaries or fees for professional services.

**MEASURED WORKS**

For more detailed estimates or documents such as Bills of Quantities (Quantities of supplied and fixed components in a building, measured from drawings), use rates from Prices for Measured Works. Depending upon the overall value of the contract, readers may want to adjust the value and we have added a simple chart which shows typical adjustments that could be applied as shown later in this chapter. Items within the Measured Works sections are made up of many components: the
cost of the material or product; any additional materials needed to carry out the work; plant required; and the labour involved in unloading and fixing, etc.

**Measured Works Rates**

These components are usually broken down into:

**Labour**

This figure covers the cost of the operation and is calculated on the gang wage rate (skilled or unskilled) and the time needed for the job. A full explanation and build-up is provided. Large regular or continuous areas of work are more economical to install than smaller complex areas.

**Plant**

Plant covers the use of machinery ranging from excavators and dumpers to static plant and includes running costs such as fuel, water supply, electricity and waste disposal. Small hand-held plant costs are not included.

**Materials**

Material prices include the cost of any ancillary materials, nails, screws, waste, etc., which may be needed in association with the main material product/s. If the material being priced varies from a standard measured rate, then identify the difference between the original Prime Cost (PC – see below) price and the material price and add this to an alternative material price before adding to the labour cost to produce a new overall total rate. Alternative material prices, where given, are largely based upon list prices, before the deduction of quantity discounts etc., and therefore require discount adjustment before they can be substituted in place of PC figures given for Measured Work items.

**Prime Cost**

Commonly known as the PC: Prime Cost is the actual price of the material such as bricks, blocks, tiles or paint, as sold by suppliers. Prime Cost may be given as per square metre, per 100 bags or each according to the way the supplier sells the product. Unless otherwise stated, prices in *Spon’s Architects’ & Builders’ are deemed to be delivered to site (in which case transport costs will be included), and take account of trade and quantity discounts. Part loads generally cost more than whole loads but, unless otherwise stated, Prime Cost figures are based on average prices for full loads delivered to a hypothetical site in Acton, West London. Actual prices for live projects will vary depending on the contractor, supplier, the distance from the supplier to the site, the accessibility of the site, whether the whole quantity ordered is to be supplied in one delivery or at specified dates and market conditions prevailing at the time. Prime Cost figures for commonly used alternative materials are supplied in listed form at the beginning of some work sections.

Where a PC rate is entered alongside an item rate then the cost allowed for that item is in the overall material cost. For instance, bricks need mortar; paving needs sand bedding, so the PC cost is simply for the cost of bricks or paving, thus allowing the user to simply substitute an alternative product cost if desired.

**Example:**

<table>
<thead>
<tr>
<th>Item (NB example data only)</th>
<th>PC £</th>
<th>Labour £</th>
<th>Material £</th>
<th>Unit</th>
<th>Total Rate £</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half brick wall in common bricks</td>
<td>380.00</td>
<td>18.05</td>
<td>27.14</td>
<td>m²</td>
<td>45.19</td>
</tr>
<tr>
<td>Replace with Forterra Brick; Breken Grey @</td>
<td>480.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculation: (PC) £480.00 – £380.00 = £100 + 3% (OHP) = £103.00
add £1.75/m² to materials rate of £27.14 = £28.89

Therefore, Breken Grey bricks = 480.00 18.05 28.89 m² 46.94
Unit
The Unit is generally based upon measurement guidelines laid out in the New Rules of Measurement – Detailed measurement for building works (NRM2).

Total Rate
Prices in the Total Rate column generally include for the supply and fix of items, unless otherwise described.

Overheads and Profit
The general overheads of the Main Contractor's business – the head office overheads and any profit sought on capital and turnover employed, is usually covered under a general item of overheads and profit which is applied either to all measured rates as a percentage, or alternatively added to the tender summary or included within Preliminaries for site specific overhead costs.

Within this edition we are including an allowance of 3% for overheads and profit on built-up labour rates and material prices.

Preliminaries
Site specific Main Contractor's overheads on a contract, such as insurances, site accommodation, security, temporary roads and the statutory health and welfare of the labour force, are not directly assignable to individual items so they are generally added as a percentage or calculated allowances after all building component items have been costed and totalled. Preliminaries will vary from project to project according to the type of construction, difficulties of the site, labour shortage, or involvement with other contractors, etc. The overall addition for a scheme should be adjusted to allow for these factors.

Sub/Specialist Contractor's Costs
For the purpose of this book, these are deemed to include all the above costs, and assume a 2.5% main contractor's discount.

With the exclusion of main contractor’s preliminaries, the above items combine to form item rates in the Prices for Measured Works sections. It should be appreciated that a variation in any one item in any group will affect the final measured work price. Any cost variation must be weighed against the total cost of the contract, and a small variation in Prime Cost where the items are ordered in thousands may have more effect on the total cost than a large variation on a few items, while a change in design which introduces the need to use, for example earth moving equipment, which must be brought to the site for that one task, will cause a dramatic rise in the contract cost. Similarly, a small saving on multiple items could provide a useful reserve to cover unforeseen extras.
COST PLANNING

Order of Cost Estimate

The purpose of an Order of Cost Estimate is to establish if the proposed building project is affordable and, if affordable, to establish a realistic cost limit for the project. The cost limit is the maximum expenditure that the employer is prepared to make in relation to the completed building project, which will be managed by the project team.

An Order of Cost Estimate is produced as an intrinsic part of RIBA Work Stages A: Appraisal and B: Design Brief or OGC Gateways 1 (Business Justification) and 2 (Delivery Strategy).

There are comprehensive guidelines within the NRM documentation and readers are recommended to read the relevant sections of the NRM where more detailed explanations and examples can be found.

At this early stage, for the estimate to be representative of the proposed design solution, the key variables that a designer needs to have developed to an appropriate degree of certainty are:

- The floor areas upon which the estimate is based
- Proposed elevations
- The implied level of specification

Rates will need to be updated to current estimate base date by the amount of inflation occurring from the base date of the cost data to the current estimate base date. The percentage addition can be calculated using published indices (i.e. tender price indices (TPI)).

Example 1:

New secondary school

*Note: example data only*

Gross Internal Floor Area (GIFA) = 15,000 m²

Cost plan prepared with a TPI = 124

Start on site TPI, say = 128.4 (actual index to be selected from current published TPI)

Location: North West adjustment, say = 0.88

From *Building Prices per Square Metre*

Assume rate of say £1,800 per m²

<table>
<thead>
<tr>
<th>School rate, say</th>
<th>£1,800 /m² × 15,000 m² =</th>
<th>Cost (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust for inflation to start date</td>
<td>(128.4/124) say +3.5%</td>
<td>945,000</td>
</tr>
<tr>
<td>subtotal</td>
<td></td>
<td>27,945,000</td>
</tr>
<tr>
<td>Adjust for location</td>
<td>-12%, say</td>
<td>-3,353,400</td>
</tr>
<tr>
<td>subtotal</td>
<td></td>
<td>24,591,600</td>
</tr>
<tr>
<td>Allow for contingencies</td>
<td>say 10%</td>
<td>2,459,160</td>
</tr>
<tr>
<td>Total Order of Cost Estimate</td>
<td></td>
<td>27,050,760</td>
</tr>
</tbody>
</table>

Main contractor’s preliminaries, overheads and profit need not be added to the cost of building works as they are included within the Spon’s building prices per square metre rates, but further additions would be needed for professional fees and other enabling works costs such as site clearance, demolition, external works, car parking, bringing services to site etc.
Elemental Cost Planning

Elemental cost plans are produced as an intrinsic part of RIBA Work Stages C: Concept, D: Design Development, E: Technical Design and F: Production Information; or when the OGC Gateway Process is used, Gateways 3A (Design Brief and Concept Approval) and 3B (Detailed Design Approval).

Cost Models can be used to quickly extract £/m² of GIFA:

Example 2:

Health Centre

*Note: example data only*

Gross Internal Floor Area = 1,000 m²

Cost plan prepared with TPI = 124

Start on site TPI, say = 128.4 (actual index to be selected from current published TPI)

Location: South West (adjustment, say = 0.91)

<table>
<thead>
<tr>
<th>Element</th>
<th>Rate (£/m²)</th>
<th>Cost (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructures</td>
<td>106.53</td>
<td>106,530</td>
</tr>
<tr>
<td>Frame and upper floors</td>
<td>160</td>
<td>160,000</td>
</tr>
<tr>
<td>Roof</td>
<td>24</td>
<td>24,000</td>
</tr>
<tr>
<td>And so on for each element to give a total of</td>
<td>1,300.56</td>
<td>1,300,560</td>
</tr>
<tr>
<td>Contractors preliminaries, overheads and profit</td>
<td>say 15%</td>
<td>195,000</td>
</tr>
<tr>
<td>Adjust for inflation to start date</td>
<td>subtotal</td>
<td>1,495,560</td>
</tr>
<tr>
<td>(128.4/124) say +3.5%</td>
<td></td>
<td>52,000</td>
</tr>
<tr>
<td>Adjust for location</td>
<td>subtotal</td>
<td>1,495,560</td>
</tr>
<tr>
<td>say -9%</td>
<td></td>
<td>-134,600</td>
</tr>
<tr>
<td>Allow for contingencies</td>
<td>subtotal</td>
<td>1,360,960</td>
</tr>
<tr>
<td>say 5%</td>
<td></td>
<td>68,048</td>
</tr>
</tbody>
</table>

**Total Elemental Cost Plan** 1,429,008

Other allowances such as consultants' fees, design fee, VAT, risk allowance, client costs, fixed price adjustment may need to be added to each of the examples above.

Formal Cost Planning Stages

The NRM schedules several formal cost planning stages, which are comparable with the RIBA Design and Pre-Construction Work Stages and OGC Gateways 3A (Design Brief and Concept Approval) and 3B (Detailed Design Approval) for a building project. The employer is required to ‘approve’ the cost plan on completion of each RIBA Work Stage before authorizing commencement of the next RIBA Work Stage.

<table>
<thead>
<tr>
<th>Formal Cost Plan</th>
<th>RIBA Work Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1] Concept design</td>
</tr>
<tr>
<td>2</td>
<td>2] Spatial Coordination</td>
</tr>
<tr>
<td>3</td>
<td>3] Technical design</td>
</tr>
</tbody>
</table>
Formal Cost Plan 1 is prepared at a point where the scope of work is fully defined, and key criteria are specified but no detailed design has begun. Formal Cost Plan 1 will provide the frame of reference for Formal Cost Plan 2. Likewise, Formal Cost Plan 2 will provide the frame of reference for Formal Cost Plan 3. Neither Formal Cost Plans 2 nor 3 involve the preparation of a completely new Elemental Cost Plan; they are progressions of the previous cost plans, which are developed through the cost checking of price significant components and cost targets as more design information and further information about the site becomes available.

Cost plans can be developed from Elemental Cost Plans using both Approximate Estimating Rates and/or Prices for Measured Works depending upon the level of information available.

The cost targets within each formal cost plan approved by the employer will be used as the baseline for future cost comparisons. Each subsequent cost plan will require reconciliation with the preceding cost plan and explanations relating to changes made. In view of this, it is essential that records of any transfers made to or from the risk allowances and any adjustments made to cost targets are maintained, so that explanations concerning changes can be provided to both the employer and the project team.

**Adjustment According to Contract Sum Cost**

The construction costs for a project will depend on the size, type of building, standard of finish required, and location, the economic climate of the construction industry, i.e. if there is a shortage of construction work available, firms will reduce their tender in order to try and attract work. If the opposite is the case and there is a lot of work available, firms will increase their tenders, as they will not be too keen to obtain the contract which will stretch their resources unless it is worth their while financially. In a recession, construction firms can literally buy work in order to keep their workforce and to ensure some cash flow.

Building Costs can vary between builders/developers. This can be due to the size or purchasing abilities of a company or the discount that it receives from suppliers.

Adjustments can be made to reflect the value of a project by using the following table.

<table>
<thead>
<tr>
<th>Contract Sum</th>
<th>% adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>£5,000,000</td>
<td>-1%</td>
</tr>
<tr>
<td>£3,500,000</td>
<td>0%</td>
</tr>
<tr>
<td>£2,750,000</td>
<td>1%</td>
</tr>
<tr>
<td>£2,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>£1,250,000</td>
<td>3%</td>
</tr>
<tr>
<td>£1,000,000</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Spon’s Architects’ and Builders’ Price Book* is targeted at new build projects with a value range of approximately £3,000,000 – £5,000,000.

Users should not simply apply percentage adjustments to any project regardless of size. We recommend project values between £2,000,000 and £5,000,000 for rates found in Spon’s A & B could be adjusted according to the above table. This is given only as an indication and users should always remember that there are many factors that affect the overall project costs.

These numbers are only intended as a guide and are not explicit and should be applied to the total project value only, not individual rates.
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Innovative procurement strategy for Nova East development in London’s Victoria

AECOM has been commissioned by Landsec to provide full cost management services for Nova East. The development necessitates a thorough understanding of London Underground Line requirements together with the logistical and construction complexities.

Nova East has significant third-party assets passing directly under the development such as the Victoria Line tunnels and Victoria Station ticket halls. The building also backs onto the Victoria Palace Theatre which has noise restrictions impacting on construction activities.

Landsec’s requirement for the highest quality product, exceeding BCO specification standards, together with maximum programme and cost certainty prior to a start on site led us to develop an innovative procurement strategy to achieve project goals.
Applying a Systems Thinking Approach to the Construction Industry

By Michael Siebert

This book aims to shed light on why it is that so many well-meaning initiatives and government white papers have failed to have their expected impact in transforming the UK construction industry. Using the UK housing sector as a case study, Mike Siebert applies a Systems Thinking approach to tackling some of the shared Wicked Problems faced by an industry which that urgently needs to boost its productivity levels, build more sustainably, and more affordably, and generally improve its working practices.

In an accessible and easy to read style, Siebert challenges the overall decision-making and problem-solving approach adopted by the industry and seeks to put Systems Thinking front and centre to consider the core issues from multiple perspectives. Initially outlining the key stakeholders and the drivers and barriers to change, he then introduces Systems Thinking and explains, using numerous examples of known issues, what this approach could achieve.

His central aim is to show how, if a Systems Thinking approach were to be applied to the UK housing industry’s problems, many of them could be resolved to the benefit of all the parties involved – government, housebuilders, material suppliers, the warranty industry, the design industry, and the so often ignored end users. These are shared problems, and they require shared solutions, but without first understanding these complex problems from the perspectives of all parties that need to benefit from the solutions being proposed, it is unlikely that those solutions will achieve the level of engagement needed for them to successfully meet their objectives.

October 2023: 208 pp
ISBN: 9781032360591

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This part contains the following sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Update</td>
<td>3</td>
</tr>
<tr>
<td>Capital Allowances</td>
<td>7</td>
</tr>
<tr>
<td>Value Added Tax</td>
<td>15</td>
</tr>
<tr>
<td>The Aggregates Levy</td>
<td>23</td>
</tr>
<tr>
<td>Land Remediation</td>
<td>27</td>
</tr>
<tr>
<td>Building Regulations</td>
<td>37</td>
</tr>
<tr>
<td>Research &amp; Development (R&amp;D) Tax Relief</td>
<td>43</td>
</tr>
<tr>
<td>Building Costs Indices, Tender Price Indices and Location Factors</td>
<td>49</td>
</tr>
</tbody>
</table>
The Architect's Legal Handbook is the most widely used reference on the law for practicing architects and the established textbook on law for architectural students.

Since the last edition of this book in 2010, the legal landscape in which architecture is practised has changed significantly: the long-standing procurement model with an architect as contract administrator has been challenged by the growing popularity of design and build contracts, contract notices in place of certificates, and novation of architect’s duties.

The tenth edition features all the latest developments in the law which affect an architect's work, as well as providing comprehensive coverage of relevant UK law topics. Key highlights of this edition include:

- an overview of the legal environment, including contract, tort, and land law;
- analysis of the statutory framework, including planning law, health and safety, construction legislation, and building regulations in the post-Grenfell legal landscape;
- procurement and the major industry construction contract forms;
- building dispute resolution, including litigation, arbitration, adjudication, and mediation;
- key fields for the architect in practice, including architects’ registration and professional conduct, contracts with clients and collateral warranties, liability in negligence, and insurance;
- entirely new chapters on various standard form contracts, architects’ responsibility for the work of others, disciplinary proceedings, and data protection;
- tables of cases, legislation, statutes, and statutory instruments give a full overview of references cited in the text.

The Architect's Legal Handbook is the essential legal reference work for all architects and students of architecture.

January 2021: 434 pp
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Market Update

Construction output has been falling steadily as high interest rates have sapped demand. Repair and maintenance has been propping up the sector, and uncertainty around the election could further stymie demand. The wider economy has shown signs of a slowdown, and while the worst of the impact appears to be diminishing, the housing market continues to drag, labour costs have increased, and CPI remained above target at the start of 2024.

Output and new orders

Construction new work output fell by 9.1% on a yearly basis in the final quarter of 2023. More recent data from the Office for National Statistics indicates a 7% fall to January 2024 when compared with the same month a year earlier. On a much more positive note, repair and maintenance output rose by 13.4% across the same period, which helped to make the overall output volume broadly similar to that in January 2023. Without the contribution from repair and maintenance workload, the industry would be attracting significantly more negative headlines and attention. At face value then, total industry workload has not fallen into a trough, as repair and maintenance activity pushes near to 45% of overall industry volume from around 34% in 2019.

Annualized recent new work output data highlights the changing fortunes for the industry compared to the post-pandemic bounce. Subsector trends also underscore the change in speed of activity from those of recent years, where all subsectors were moving along with good momentum. However, private housebuilding’s precipitous fall from its recent historic high notably impacts the overall new work volume measure. As it propelled the total industry workload on the way up, so it has an outsize influence on the way down. The other subsectors with heft are also sagging or not contributing enough new work to soak up the slack developing across the remaining industry subsectors. Visibly weaker output trends across most industry subsectors
are not helped by sluggish new orders data. The preceding new orders trends throughout last year will have implications for output and activity in 2024.

**Construction new work orders (£m)**

Activity indicators

Construction sentiment indicators steadied over the final quarter of 2023 and the early months of 2024. After steadily weaker trends posted through 2023, sentiment rallied in the new year although numerous surveys appear to have levelled out lower than long-run averages. This suggests that construction is still an industry with a certain amount of uneasiness for what 2024 holds. The general sentiment of the industry is not overly pessimistic though, and an industry with constrained capacity contributes to maintaining a feel of bustle. A range of issues ails both the broader economy and the construction sector, yet it is the interest rate environment that is the current issue sapping demand. Elevated rates of inflation largely dissipated over the second half of 2023 and with it any downside risk to demand. However, it is interest rates – and more specifically their reduction – that will be the trigger to spur future construction demand.

Building costs

Construction AECOM’s building cost index – a composite measure of materials and labour costs – increased at an annual rate of broadly 2% up to February 2024. This is a slight uptick in the rate of cost inflation recorded in the final months of 2023. The increase reflects a larger number of categories beginning to rise in cost again when measured on a yearly change basis. At the start of 2024, a greater number of materials categories recorded an increase in their yearly rate inflation, although a majority remain below 5%. Some of these rises may simply be scheduled new year price increases taking effect. Additional costs from current shipping disruption in the Middle East is also likely a factor. Overwhelmingly though, it is still the metals-based materials categories exhibiting deflationary trends. Continuing the trend towards the end of 2023, many of the categories with the highest current rates of cost inflation are finishes trades.

Wage inflation for construction trades typically still runs ahead of the rate of materials cost inflation. This trend was evident throughout much of 2023. An aggregate measure of construction labour rates of approximately 4% is a response to a tight labour market and higher general inflation, even though new work output has weakened. A similar picture is evident across the whole economy measure for average weekly earnings, where inflation trends are still elevated at 6.1% in the three months to January, despite a technical recession announced by the Office for National Statistics. Wage inflation is currently one of the most closely watched inflation measures for signals on the future path of monetary policy decisions.
Tender prices
AECOM’s tender price inflation index provisionally recorded a 2.3% change from Q4 2022 to Q4 2023. Tellingly, if the frame of reference is narrowed to H2 2023 only, the rate of change in tender prices largely came to a standstill over this period. The slowing of price inflation over this period is a direct response to faltering new work output, lower input cost inflation and higher levels of market competition. However, market capacity constraints and wage inflation currently place a floor underneath the slowing rate of price inflation, especially where the supply chain often determines the direction and speed of unit rate pricing. An industry with large amounts of excess capacity would probably deliver different emerging price trends at the moment. However, the speed of halt in price inflation over Q3 and Q4 2023 is a notable marker and signals a clear shift in market pricing.

Analysis of tender returns and its components highlights the increasing competition in the marketplace. Whilst this might alert construction clients of the adjustment in tender price inflation dynamics, it merely acts to reapply pressure on the supply chain where finances continue to be stretched or underperforming. The level of construction insolvencies over the last two years is a scar on the industry. The total number of insolvent firms in 2023 was over 4000, an increase of 8% over 2022. Although this now appears to have slowed, specialists have been affected more, in particular M&E firms who did not have means to diversify, becoming specialists trapped in their sector. Any prolonged uptick in the rate of cost inflation will only compound this situation unfortunately, with a likely continuation of the cycle of commercial pressure, insolvencies and, ultimately, reduced market capacity.

Outlook
To maintain technical recession for the UK economy was confirmed by the Office for National Statistics at the end of 2023. This was followed by a very small expansion in GDP for January 2024, aided by the services and construction sectors. Both positive and negative angles can be taken to these events, yet neither of them detracts from the objective assessment of an anaemic UK economy with evident structural problems. This trend has been in place for an extended period now, and there is no imminent change despite January’s negligible improvement. The ONS’s latest GDP data release merely extends this problematic trend for the UK economy.

Spring brought optimistic talk about ‘green shoots’ in the economy, a recovery in 2024, or the prospect of a ‘bounce-back’ this year. The reality is that pallid economic trends will continue all the while interest rates remain elevated. A durable economic rebound is proving elusive. Consumer spending, as one example, shows the fragility of any present economic momentum. Current effects stem from only part of the bank rate rises – in other words, there are impacts still to come from the final few bank rate increases that took the overall level to 5.25%. The longer rates are held at their current levels, which seems increasingly probable from comments by Bank of England rate setters and accompanying monitored inflation measures, only increases the likelihood of an extended period of flattening economic activity. Somewhat problematically though, inflation is not back at the level it needs to be for bank rates to begin any descent from this peak. The latest ‘no change’ position from the Bank of England was entirely expected.

The higher bank rate environment directly affects the construction sector. It is sapping demand for new work output across many construction subsectors because lending is more costly. Capital expenditure in buildings for example becomes more of a marginal decision versus protecting or securing ongoing operations and profitability. Construction demand therefore suffers, which is now clearly evident in the construction output data releases. All new work construction subsectors are affected, with overall output falling as a result. The only exception is public housing activity. Nonetheless, this troubling backdrop is not universal and watertight projects – well planned, well procured, and with realistic expectations for all stakeholders – will still get started on site.

Meanwhile, repair and maintenance activity has continued to increase, with the bulk of new industry activity in this subsector. Repair and maintenance activity is affected to a lesser extent by the higher interest rate environment, if budgets are not reliant on lending for example, and because of the typically lower capital costs required for R&M work. Nevertheless, that repairing buildings and infrastructure is contributing a proportionally larger amount to overall industry activity is both revealing and concerning in equal measure. New orders data remains weak – especially so when compared historically. The confluence of an extended period of high inflation, current interest rate conditions, and pre-existing weakness in the economy have contributed directly to a notable fall in new orders for construction work. Although the speed of drop in new orders data is slowing, the preceding data to this point will introduce a chill to the output data in 2024 when it is eventually published. A saving grace is that total industry output has been at a high nominal level of activity over the last two years and there are still reasonable levels of work for the industry’s overall capacity. As the debate ebbs and flows around the UK’s future monetary policy path, one factor that directly influences this issue, in an almost circular fashion is the inflationary pressure from wage growth.
Restrictive monetary policy conditions are set to remain elevated, even with two or three bank rate cuts this year that markets are currently pricing in. Some Bank of England policymakers still do not see inflation data to justify their conditions for bank rate cuts, with others vocally pushing back against present market views. In parallel, financial markets have trimmed slightly their more bullish views of late last year around the number and size of interest rate cuts. A shift in expectations appears to have occurred on the speed and quantum of quarter percentage points cuts that the Bank of England is forecast to make.

Amid the less welcome news around construction output, new orders and interest rates is the evidence that chronic construction materials inflation has broadly receded to levels more typical for the industry. This is not to say that costs are lower, only that the elevated rate of increases has mostly subsided. These inflationary trends impaired the flow and overall level of construction activity since 2022. Nevertheless, output has continued to increase steadily in the face of these inflationary pressures.

Acute inflation trends introduce lagged effects to output, eventually acting as a drag on demand. Unfortunately, the delayed effects of higher costs from inflation met and merged with the significant demand impacts of much higher interest rates. Changes in borrowing costs typically have a shorter and quicker flowthrough effect on to activity and output trends.

AECOM’s baseline forecast for tender prices is a one % increase from Q1 2024 to Q1 2025, and a 2% increase from Q1 2025 to Q1 2026. The balance of risks to tender price forecasts remain to the downside over the first 12 month forecast period, and also slightly to the downside across the following period. Industry activity – primarily new work output – will continue to slow over the first half of 2024 as risks around the economy generally and an upcoming election introduce hesitancy and stymie demand somewhat. Work that is tendered will exhibit pricing that reflects higher market competition this year. Repair and maintenance work will not slow to the same degree, which sustains the demand and consequent pressure on workforce constraints.
Capital Allowances

Introduction
Capital Allowances provide tax relief by prescribing a statutory rate of depreciation for tax purposes in place of that used for accounting purposes. They are utilized by government to provide an incentive to invest in capital equipment, including assets within commercial property, by allowing taxpayers a deduction from taxable profits for certain types of capital expenditure, thereby reducing, or deferring, tax liabilities.

The capital allowances most commonly applicable to real estate are those given for plant and machinery in all buildings, other than residential dwellings, except for common areas and Structures and Buildings Allowances (SBA) for the residual construction spend on non-residential property.

Enterprise Zone Allowances are also available for capital expenditure within designated areas only where there is a focus on high value manufacturing. Enhanced rates of allowances were also available on certain types of energy and water saving plant and machinery assets, until their withdrawal from April 2020.

Freeports, introduced in 2020, are specifically designed to incentivize investment and job creation by including lower customs duties, simplified planning rules and tax breaks, such as an enhanced level of capital allowances, suspension of SDLT, business rates, customs and NIC obligations which was extended from a five-year to a ten-year period until September 2031, as announced within the 2023 Autumn Statement.

The Act
The primary legislation is contained in the Capital Allowances Act 2001. Major changes to the system were introduced in 2008, 2014, 2018 and 2020 affecting the treatment of tax relief to include plant and machinery allowances, SBA and the incentivized tax relief for the newly introduced Freeports.

Plant and Machinery
Qualifying expenditure on plant and machinery is allocated to either the main pool, or special rate pool, which provide for different rates of recovery and these are set out later.

Various legislative changes and case law precedents in recent years have introduced major changes to the availability of Capital Allowances on property expenditure. The Capital Allowances Act 2001 excludes expenditure on the provision of a building from qualifying for plant and machinery, with prescribed exceptions.

List A in Section 21 of the 2001 Act sets out those assets treated as parts of buildings:

- Walls, floors, ceilings, doors, gates, shutters, windows and stairs.
- Mains services, and systems, for water, electricity and gas.
- Waste disposal systems.
- Sewerage and drainage systems.
- Shafts, or other structures, in which lifts, hoists, escalators and moving walkways are installed.
- Fire safety systems.

Similarly, List B in Section 22 identifies excluded structures and other assets.
Both sections are, however, subject to Section 23. This section sets out expenditure, which, although being part of a building, may still be expenditure on the provision of Plant and Machinery.

List C in Section 23 is reproduced below:

**Sections 21 and 22 do not affect the question whether expenditure on any item in List C is expenditure on the provision of Plant or Machinery**

1. Machinery (including devices for providing motive power) not within any other item in this list.
2. Gas and sewerage systems provided mainly –
   a. to meet the particular requirements of the qualifying activity, or
   b. to serve particular plant or machinery used for the purposes of the qualifying activity.
3. Omitted.
4. Manufacturing or processing equipment; storage equipment (including cold rooms); display equipment; and counters, checkouts and similar equipment.
5. Cookers, washing machines, dishwashers, refrigerators and similar equipment; washbasins, sinks, baths, showers, sanitary ware and similar equipment; and furniture and furnishings.
7. Sound insulation provided mainly to meet the particular requirements of the qualifying activity.
8. Computer, telecommunication and surveillance systems (including their wiring or other links).
9. Refrigeration or cooling equipment.
10. Fire alarm systems; sprinkler and other equipment for extinguishing or containing fires.
11. Burglar alarm systems.
12. Strong rooms in bank or building society premises; safes.
13. Partition walls, where moveable and intended to be moved in the course of the qualifying activity.
14. Decorative assets provided for the enjoyment of the public in hotel, restaurant or similar trades.
15. Advertising hoardings; signs, displays and similar assets.
16. Swimming pools (including diving boards, slides & structures on which such boards or slides are mounted).
17. Any glasshouse constructed so that the required environment (namely, air, heat, light, irrigation and temperature) for the growing of plants is provided automatically by means of devices forming an integral part of its structure.
18. Cold stores.
19. Caravans provided mainly for holiday lettings.
20. Buildings provided for testing aircraft engines run within the buildings.
21. Moveable buildings intended to be moved in the course of the qualifying activity.
22. The alteration of land for the purpose only of installing Plant or Machinery.
23. The provision of dry docks.
24. The provision of any jetty or similar structure provided mainly to carry Plant or Machinery.
25. The provision of pipelines or underground ducts or tunnels with a primary purpose of carrying utility conduits.
26. The provision of towers to support floodlights.
27. The provision of –
   a. any reservoir incorporated into a water treatment works, or
   b. any service reservoir of treated water for supply within any housing estate or other particular locality.
28. The provision of –
   a. silos provided for temporary storage, or
   b. storage tanks.
29. The provision of slurry pits or silage clamps.
30. The provision of fish tanks or fish ponds.
31. The provision of rails, sleepers and ballast for a railway or tramway.
32. The provision of structures and other assets for providing the setting for any ride at an amusement park or exhibition.
33. The provision of fixed zoo cages.

**Case Law**

The fact that an item appears in List C does not automatically mean that it will qualify for capital allowances. It only means that it may potentially qualify.
Guidance about what can qualify as plant is found in case law dating back to 1887 (Yarmouth v France). The case of Wimpy International Ltd and Associated Restaurants Ltd v Warland in the late 1980s is one of the most important case law references for determining what can qualify as plant.

The Judge in that case applied three tests when considering whether, or not, an item is plant.

1. Is the item stock in trade? If the answer is yes, then the item is not plant.
2. Is the item used for carrying on the business? In order to pass the business use test the item must be employed in carrying on the business; it is not enough for the asset to be simply used in the business. For example, product display lighting in a retail store may be plant but general lighting in a warehouse would fail the test. (Please note, this case law relates to the pre-Integral Feature Legislation, which introduced lighting as an eligible asset.)
3. Is the item the business premises, or part of the business premises? An item cannot be plant if it fails the premises test, i.e. if the business use is the premises itself, or part of the premises, or a place in which the business is conducted. The meaning of ‘part of the premises’ in this context should not be confused with real property law. HMRC’s internal manuals suggest there are four general factors to be considered, each of which is a question of fact and degree:
   - Does the item appear visually to retain a separate identity?
   - With what degree of permanence has it been attached to the building?
   - To what extent is the structure complete without it?
   - To what extent is it intended to be permanent, or alternatively, is it likely to be replaced within a short period?

Certain assets will qualify as plant in most cases. However, many others need to be considered on a case-by-case basis. For example, decorative assets in a hotel restaurant may be plant, but similar assets in an office reception area may be ineligible.

**Main Pool Plant and Machinery**

Capital Allowances on main pool plant and machinery are currently given in the form of writing down allowances at the current rate of 18% per annum on a reducing balance basis. For every £100 of qualifying expenditure £18 is claimable in year 1, £14.76 in year 2 and so on until either all of the allowances have been claimed, or the asset is sold.

**Special Rate Pool Plant and Machinery**

Capital Allowances on special rate pool plant and machinery are currently given in the form of writing down allowances at the current rate of 6% per annum on a reducing balance basis. For every £100 of qualifying expenditure £6 is claimable in year 1, £5.64 in year 2 and so on until either all of the allowances have been claimed, or the asset is sold.

The special rate pool specifically covers expenditure on integral features, thermal insulation, solar panels and long-life assets.

**Integral Features**

The category of qualifying expenditure on ‘integral features’ was introduced with effect from April 2008. The following items are integral features:

- An electrical system (including a lighting system)
- A cold water system
- A space or water heating system, a powered system of ventilation, air cooling or air purification, and any floor or ceiling comprised in such a system
- A lift, an escalator or a moving walkway
- External solar shading

**Thermal Insulation**

The installation of thermal insulation to buildings is allowable where it is provided to an existing building owned or occupied by the taxpayer. The allowance is not available for expenditure incurred on dwellings.
Long-Life Assets
A long-life asset is defined as plant and machinery that has an expected useful economic life of at least 25 years. The useful economic life is taken as the period from of first use until it is likely to cease to be used as a fixed asset of any business. It is important to note that this is likely to be a shorter period than an asset’s physical life.

Plant and machinery provided for use in a building used wholly, or mainly, as a dwelling house, showroom, hotel, office, retail shop, or similar premises, or for purposes ancillary to such use, cannot be classified as a long-life asset.

In contrast certain plant and machinery assets in buildings such as factories, cinemas, hospitals, etc. could potentially be treated as long-life assets.

Full Expensing and Enhanced First Year Allowance for Plant and Machinery Assets
The 2023 Autumn Statement made permanent the temporary measures introduced to stimulate investment in new and unused plant and machinery. These measures, ‘full expensing’ and a 50% first year allowance, replaced previous temporary enhanced reliefs, including the ‘super deduction’ that were introduced under Finance Act 2021.

These reliefs apply to capital expenditure incurred by companies within the charge to UK corporation tax from 1 April 2023 onwards.

These allowances apply as follows:

- 100% ‘full expensing’ for main pool plant and machinery (currently 18% per annum on a reducing balance basis). This replaces the 130% ‘super deduction’ for expenditure incurred between 1 April 2021 and 31 March 2023, where contracted after 3 March 2021; and
- 50% first year allowance for special rate plant and machinery. This is an extension of the 50% ‘special rate allowance’ introduced under Finance Act 2021.

In addition, unincorporated businesses will not benefit because qualifying expenditure must be incurred by a company within the charge to corporation tax.

Refurbishment Schemes
Building refurbishment projects will typically be a mixture of capital costs and revenue expenses, unless the works are so extensive that they are more appropriately classified as a redevelopment. A straightforward repair or a ‘like for like’ replacement of part of an asset would be a revenue expense, meaning that the entire amount can be deducted from taxable profits in the same year.

Where capital expenditure is incurred which is incidental to the installation of plant or machinery then Section 25 of the Capital Allowances Act 2001 allows it to be treated as part of the expenditure on the qualifying item. Incidental expenditure will often include parts of the building that would be otherwise disallowed, as shown in the Lists reproduced above. For example, the cost of forming a lift shaft inside an existing building would be deemed to be part of the expenditure on the provision of the new lift.

The extent of the application of section 25 was reviewed for the first time by the Special Commissioners in the case of JD Wetherspoon. The key areas of expenditure considered were overheads and preliminaries where it was held that such costs could be allocated on a pro-rata basis; decorative timber panelling which was found to be part of the premises and so ineligible for allowances; toilet lighting which was considered to provide an attractive ambience and qualified for allowances; and incidental building alterations of which enclosing walls to toilets and kitchens and floor finishes did not qualify except for tiled splashbacks, bespoke toilet cubicles and drainage did qualify, along with the related sanitary fittings and kitchen equipment.

Structures and Building Allowances
The 2018 Autumn Budget introduced the Structures and Buildings Allowance (SBA) for expenditure incurred on non-residential structures and buildings.
Initially, the SBA was available at a flat rate of 2% per annum over a 50-year period, but this increased to 3% per annum over a 33½-year period from April 2020. This relates to expenditure incurred on new commercial structures and buildings, including costs for new conversions and renovations, applicable where contracts, for the main construction works, were entered into on, or after 29 October 2018. A temporary 10% rate (over 10 years) applies for freeports between 1 April 2021 and 30 September 2026, as noted earlier.

The SBA extends to qualifying expenditure incurred under capital contributions – for example, a landlord contributing towards a tenant's fitting out costs.

The relief will be available when the building, or structure, first comes into qualifying use and is available for both UK and overseas assets, provided the business is within the charge to UK tax. This relief is not applicable for expenditure on assets used for residential purposes but does include nursing and care homes.

The SBA expenditure will not qualify for the Annual Investment Allowance (AIA).

The relief will cease to be available if the building, or structure, is brought into residential use, or if it is demolished. However, SBA continues to be available for periods of temporary disuse.

If the building, or structure, is sold, the new owner would benefit from the unutilized residue of the SBA for the remaining period, via an Allowances Statement in accordance with s170IA CAA2001.

The costs of construction will include only the net direct costs related to the construction expenditure of the building, or structure, after any discounts, refunds, or other adjustments. This will include demolition costs, or any land alterations necessary for construction and direct costs required to bring the building, or structure, into existence. Excluded from the above expenditure are indirect costs not associated with the physical construction, such as finance, planning, legal and marketing costs, landscaping, etc.

SBA qualifying expenditure will also be applicable to purchases of new and second-hand buildings, or structures. The basis of claim will be dependent upon the vendor's holding structure and whether the property has been used, or unused, at the time of acquisition, as well as being entitled to claim this tax relief.

Where a building, or structure, is acquired and subsequently altered, or renovated, this will trigger a new SBA qualification period. Similar additional expenditure on existing properties will also trigger new SBA streams of qualifying expenditure.

It is important to note that expenditure on plant and machinery does not qualify for SBA. A purchaser will be unable to reclassify expenditure on plant and machinery previously claimed as SBA to plant and machinery at a later date.

Expenditure on qualifying land remediation will also not qualify for SBA.

**Annual Investment Allowance**

The AIA is available to all businesses of any size and allows a deduction for the whole AIA of qualifying expenditure on plant and machinery, including integral features and long-life assets. The AIA rates have fluctuated over the years:

- 1 April 2014 to 31 December 2015 – £500,000
- 1 January 2016 to 31 December 2018 – £200,000
- Since 1 January 2019 – £1,000,000.

For accounting periods less, or greater than, 12 months, or if claiming in periods where the rates have changed, time apportionment rules will apply to calculate hybrid rates applicable to the period of claim.

**Enterprise Zones**

Enterprise zones benefit from a number of reliefs, including a 100% first year allowance for new and unused non-leased plant and machinery assets, where there is a focus on high-value manufacturing.
Freeports
Following a government bid process launched late in 2020, the first eight freeports in England were confirmed as follows:

- East Midlands Airport
- Felixstowe and Harwich
- Humber
- Liverpool City
- Plymouth and South Devon
- Solent
- Teesside
- Thames

In January 2023 the Scottish government announced two Green Freeports:

- Inverness and Cromarty Firth
- Firth of Forth

In March 2023 two freeports were announced for Wales:

- Anglesey
- Port Talbot and Milford Haven

Further sites are expected to follow including Northern Ireland.

Dedicated ‘tax sites’ in freeports will benefit from generous tax allowances to 30 September 2026 including:

- An enhanced 10% rate of SBA, meaning that the relief can be claimed over 10 years, rather than the current 33½ years;
- An enhanced capital allowance of 100% for plant and machinery allowances, providing a full deduction, rather than the current rates of 18% (MP) and 6% (SRP) on a reducing balance basis. The allowance is only available to occupiers and not property owners or developers leasing premises;
- Full relief from Stamp Duty Land Tax (SDLT) on land and property purchased for a qualifying commercial purpose;
- Full Business Rates relief for new businesses and existing businesses that expand operations;
- Relief against employer National Insurance contributions, subject to Parliamentary process and approval.

Research and Development Allowances
Research and Development Allowance (RDA) gives relief for capital expenditure incurred on R&D by a business.

RDA is only due if the research and development expenditure is related to the trade being carried on or about to be carried on. Qualifying RDA expenditure is capital expenditure that a business incurs for providing facilities for carrying out R&D, for example, a laboratory in which to carry on R&D. RDA is only available to traders and is not available to a person carrying on a profession or vocation.

The rate of RDA is 100% of the qualifying expenditure. However, if a disposal value is brought into account on expenditure in a chargeable period in which an RDA is made, the RDA is 100% of the expenditure less the disposal value. RDA is made in the chargeable period in which the qualifying expenditure was incurred unless it was incurred before the trade began, in which case RDA is made in the chargeable period in which trade began.

Other Capital Allowances
Other types of allowances include those available for capital expenditure on Mineral Extraction, Know-How, Patents, Dredging and Assured Tenancy.
International Tax Depreciation

The UK is not the only tax regime offering investors, owners and occupiers valuable incentives to invest in plant and machinery and environmentally friendly equipment. Ireland, Australia, Malaysia, Hong Kong and Singapore also have capital allowances regimes which are broadly similar to the UK and provide comparable levels of tax relief to businesses.

Many other overseas countries have tax depreciation regimes based on accounting treatment, instead of capital allowances. Some use a systematic basis over the useful life of the asset and others have prescribed methods spreading the cost over a statutory period, not always equating to the asset's useful life. Some regimes have prescribed statutory rates, whilst others have rates which have become acceptable to the tax authorities through practice.

Contact

For further information or assistance, please contact one of the Fiscal Incentives team:

help.capitalallowances@aecom.com
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Value Added Tax

Introduction


VAT Notice 708: Buildings and construction (January 2024) provides HMRC’s interpretation of the VAT law in connection with construction works, however, the UK VAT legislation should always be referred to in conjunction with the publication. Recent VAT tribunals and court decisions since the date of this publication will affect the application of the VAT law in certain instances. The Notice is available on HM Revenue & Customs website at www.gov.uk/guidance/buildings-and-construction-vat-notice-708.

The Scope of VAT

VAT is payable on:

- Supplies of goods and services made in the UK;
- By a taxable person;
- In the course or furtherance of business; and
- Which are not specifically exempted or zero-rated.

Rates of VAT

There are three rates of VAT:

- A standard rate, currently 20%;
- A reduced rate, currently 5%; and
- A zero rate of 0%.

Additionally some supplies are exempt from VAT and others are considered outside the scope of VAT.

Recovery of VAT

When a taxpayer makes taxable supplies he must account for VAT, known as output VAT, at the appropriate rate of either 20%, 5% or 0%. Any VAT due then has to be declared and submitted on a VAT submission to HM Revenue & Customs and will normally be charged to the taxpayer’s customers.

As a VAT registered person, the taxpayer is entitled to reclaim from HM Revenue & Customs, commonly referred to as input VAT, the VAT incurred on their purchases and expenses directly related to its business activities in respect of standard-rated, reduced-rated and zero-rated supplies. A taxable person cannot, however, reclaim VAT that relates to any non-business activities (but see below) or, depending on the amount of exempt supplies they made, input VAT may be restricted or not recoverable.

At predetermined intervals the taxpayer will pay to HM Revenue & Customs the excess of VAT collected over the VAT they can reclaim. However, if the VAT reclaimed is more than the VAT collected, the taxpayer, who will be in a net repayment position, can reclaim the difference from HM Revenue & Customs.
Example

X Ltd constructs a block of flats. It sells long leases to buyers for a premium. X Ltd has constructed a new building designed as a dwelling and will have granted a long lease. This first sale of a long lease is a VAT zero-rated supply. This means any VAT incurred in connection with the development, which X Ltd will have properly paid (e.g. payments for consultants and certain preliminary services) will be recoverable. For reasons detailed below, the contractor employed by X Ltd will have charged VAT on his construction services at the zero rate of VAT.

Use for Business and Non-Business Activities

Where a supply relates partly to business use and partly to non-business use, then the basic rule is that it must be apportioned on a fair and reasonable basis so that only the business element is potentially recoverable. In some cases, VAT on land, buildings and certain construction services, purchased for both business and non-business use, could be recovered in full by applying what is known as 'Lennartz' accounting, to reclaim VAT relating to the non-business use and account for VAT on the non-business use over a maximum period of 10 years. Following an ECJ case restricting the scope of this approach, its application to immovable property was removed completely in January 2011 by HMRC (business brief 53/10), when UK VAT law was amended to comply with EU Directive 2009/162/EU.

Taxable Persons

A taxable person is an individual, firm, company, etc., who is required to be registered for VAT. A person who makes taxable supplies above certain turnover limits is compulsorily required to be VAT registered. The current registration limit (since 1 April 2024), known as the VAT threshold, is £90,000. If the threshold is exceeded in any 12 month rolling period, or there is an expectation that the value of the taxable supplies in a single 30 day period, or goods are received into the UK from the EU worth more than the £90,000, then registration for UK VAT is compulsory.

A person who makes taxable supplies below the limit is still entitled to be registered on a voluntary basis if they wish, for example, in order to recover input VAT incurred in relation to those taxable supplies, however output VAT will then become due on the sales and must be accounted for.

VAT Exempt Supplies

Where a supply is exempt from VAT this means that no output VAT is payable – but equally the person making the exempt supply cannot normally recover any of the input VAT on their own costs relating to that exempt supply.

Generally commercial property transactions such as leasing of land and buildings are exempt unless a landlord chooses to standard-rate its interest in the property by applying for an option to tax. This means that VAT is added to rental income and also that VAT incurred, on say, an expensive refurbishment, is recoverable.

Supplies outside the scope of VAT

Supplies are outside the scope of VAT if they are:

- Made by someone who is not a taxable person;
- Made outside the UK; or
- Not made in the course or furtherance of business.

In course or furtherance of business

VAT must be accounted for on all taxable supplies made in the course or furtherance of business, with the corresponding recovery of VAT on expenditure incurred.

If a taxpayer also carries out non-business activities, then VAT incurred in relation to such supplies is generally not recoverable.
In VAT terms, business means any activity continuously performed which is mainly concerned with making supplies for a consideration. This includes:

- Anyone carrying on a trade, vocation or profession;
- The provision of membership benefits by clubs, associations and similar bodies in return for a subscription or other consideration; and
- Admission to premises for a charge.

It may also include the activities of other bodies including charities and non-profit making organizations.

Examples of non-business activities are:

- Providing free services or information;
- Maintaining some museums or particular historic sites;
- Publishing religious or political views.

**Construction Services**

In general the provision of construction services by a contractor will be VAT standard rated at 20%, however, there are a number of exceptions for construction services provided in relation to certain relevant residential properties and charitable buildings.

The supply of building materials is VAT standard rated at 20%, however, where these materials are supplied and installed as part of the construction services, the VAT liability of those materials follows that of the construction services supplied.

**Zero-Rated Construction Services**

The following construction services are VAT zero-rated, including the supply of related building materials.

**The construction of new dwellings**

The supply of services in the course of the construction of a new building designed for use as a dwelling or number of dwellings is zero-rated, other than the services of an architect, surveyor or any other person acting as a consultant or in a supervisory capacity.

The following basic conditions must ALL be satisfied in order for the works to qualify for zero-rating:

1. A qualifying building has been, is being, or will be constructed;
2. Services are made ‘in the course of the construction’ of that building;
3. Where necessary, you hold a valid certificate; and
4. Your services are not specifically excluded from zero-rating.

**The construction of a new building for ‘relevant residential or charitable’ use**

The supply of services in the course of the construction of a building designed for use as a relevant residential Purpose (RRP), or relevant charitable purpose (RCP), is zero-rated, other than the services of an architect, surveyor or any other person acting as a consultant or in a supervisory capacity.

A ‘relevant residential’ use building means:

1. A home or other institution providing residential accommodation for children;
2. A home or other institution providing residential accommodation with personal care for persons in need of personal care by reason of old age, disablement, past or present dependence on alcohol or drugs or past or present mental disorder;
3. A hospice;
4. Residential accommodation for students or school pupils;
5. Residential accommodation for members of any of the armed forces;
6. A monastery, nunnery, or similar establishment; or
7. An institution which is the sole or main residence of at least 90% of its residents.

A ‘relevant residential’ purpose building does not include use as a hospital, a prison, or similar institution, or as a hotel, inn, or similar establishment.

A ‘relevant charitable’ purpose means use by a charity in either, or both of the following ways:

1. Otherwise than in the course or furtherance of a business; or
2. As a village hall, or similarly in providing social or recreational facilities for a local community.

Non-qualifying use, which is not expected to exceed 10% of the time the building is normally available for use, can be ignored. The calculation of business use can be based on time, floor area, or head count, subject to approval being acquired from HM Revenue & Customs.

The construction services can only be zero-rated if a certificate is given by the end user to the contractor carrying out the works, confirming that the building is to be used for a qualifying purpose, i.e. for a ‘relevant residential or charitable’ purpose. It follows that such services can only be zero-rated when supplied to the end user and, unlike supplies relating to dwellings, supplies by subcontractors cannot be zero-rated.

**The construction of an annex used for a ‘relevant charitable’ purpose**

Construction services provided in the course of construction of an annexe for use entirely, or partly for a ‘relevant charitable’ purpose, can be zero-rated.

In order to qualify, the annexe must:

1. Be capable of functioning independently from the existing building;
2. Have its own main entrance; and
3. Be covered by a qualifying use certificate.

**The conversion of a non-residential building into dwellings, or the conversion of a building from non-residential use to ‘relevant residential’ use, where the supply is to a ‘relevant’ housing association**

The supply to a ‘relevant’ housing association in the course of conversion of a non-residential building, or non-residential part of a building, into:

1. A new eligible dwelling designed as a dwelling, or number of dwellings; or
2. A building, or part of a building, for use solely for a relevant residential purpose.

Any services related to the conversion, other than the services of an architect, surveyor or any person acting as a consultant or in a supervisory capacity, are zero-rated.

A ‘relevant’ housing association is defined as:

1. A private registered provider of social housing;
2. A registered social landlord within the meaning of Part I of the Housing Act 1996 (Welsh registered social landlords);
3. A registered social landlord within the meaning of the Housing (Scotland) Act 2001 (Scottish registered social landlords); or
4. A registered housing association within the meaning of Part II of the Housing (Northern Ireland) Order 1992 (Northern Irish registered housing associations).
If the building is to be used for a ‘relevant residential’ purpose, the housing association should issue a qualifying use certificate to the contractor completing the works. Subcontractors’ services that are not made directly to a relevant housing association are standard-rated.

**The development of a residential caravan park**

The supply in the course of the construction of any civil engineering work ‘necessary for’ the development of a permanent park for residential caravans, and any services related to the construction, other than the services of an architect, surveyor or any person acting as a consultant or in a supervisory capacity, are zero-rated when a new permanent park is being developed, the civil engineering works are necessary for the development of the park and the services are not specifically excluded from zero-rating. This includes access roads, paths, drainage, sewerage and the installation of mains water, power and gas supplies.

**Certain building alterations for ‘disabled’ persons**

Certain goods and services supplied to a ‘disabled’ person, or a charity making these items and services available to ‘disabled’ persons, can be zero-rated. The recipient of these goods or services needs to give the supplier an appropriate written declaration that they are entitled to benefit from zero rating.

The following services (amongst others) are zero-rated:

1. The installation of specialist lifts and hoists and their repair and maintenance;
2. The construction of ramps, widening doorways or passageways including any preparatory work and making good work;
3. The provision, extension and adaptation of a bathroom, washroom or lavatory; and
4. Emergency alarm call systems.

**Sale of reconstructed buildings**

A protected building is not to be regarded as substantially reconstructed unless, when the reconstruction is completed, the reconstructed building incorporates no more of the original building than the external walls, together with other external features of architectural or historical interest.

**DIY builders and converters**

Private individuals who decide to construct their own home are able to reclaim VAT they pay on goods they use to construct their home by use of a special refund mechanism made by way of an application to HM Revenue & Customs. This also applies to goods provided in the conversion of an existing non-residential building to form a new dwelling.

The scheme is meant to ensure that private individuals do not suffer the burden of VAT if they decide to construct their own home.

Charities may also qualify for a refund on the purchase of materials incorporated into a building used for non-business purposes where they provide their own free labour for the construction of a ‘relevant charitable’ use building.

**Installation of energy saving materials (ESM) to domestic properties**

A temporary zero rate applies for the supply and installation of certain energy saving materials including insulation, draught stripping, central heating, hot water controls and solar panels in a residential building. The temporary zero rate runs from 1 April 2022 until 31 March 2027. From 1 April 2027, ESM will revert to the reduced rate.

The scope of ESM also includes wind and water turbines, which had previously been excluded.

**Reduced-Rated Construction Services**

The following construction services are subject to the reduced rate of VAT of 5%, including the supply of related building materials.
Conversion – changing the number of dwellings

In order to qualify for the 5% rate, there must be a different number of ‘single household dwellings’ within a building than there were before commencement of the conversion works. A ‘single household dwelling’ is defined as a dwelling that is designed for occupation by a single household.

These conversions can be from ‘relevant residential’ purpose buildings, non-residential buildings and houses in multiple occupation.

A house in multiple occupation conversion

This relates to construction services provided in the course of converting a ‘single household dwelling’, a number of ‘single household dwellings’, a non-residential building or a ‘relevant residential’ purpose building into a house for multiple occupation, such as bedsit accommodation.

A special residential conversion

A special residential conversion involves the conversion of a ‘single household dwelling’, a house in multiple occupation, or a non-residential building into a ‘relevant residential’ purpose building, such as student accommodation or a care home.

Renovation of derelict dwellings

The provision of renovation services in connection with a dwelling or ‘relevant residential’ purpose building that has been empty for two or more years prior to the date of commencement of construction works can be carried out at a reduced rate of VAT of 5%.

Installation of energy saving materials

As stated above, ESM installed in domestic properties are subject to a zero rate until 31 March 2027, after which they will revert to the reduced rate of VAT.

Buildings that are used by charities for non-business purposes, and/or as village halls, are not eligible for the reduced rate for the supply of energy saving materials.

Grant-funded installation of heating equipment or connection of a gas supply

The grant-funded supply and installation of heating appliances, connection of a mains gas supply, supply, installation, maintenance and repair of central heating systems, and supply and installation of renewable source heating systems, to qualifying persons. A qualifying person is someone aged 60 or over or is in receipt of various specified benefits.

Grant-funded installation of security goods

The grant-funded supply and installation of security goods to a qualifying person.

Housing alterations for the elderly

Certain home adaptations that support the needs of elderly people are reduced rated.

Building Contracts

Design and build contracts

If a contractor provides a design and build service relating to works to which the reduced or zero rate of VAT is applicable, then any design costs incurred by the contractor will follow the VAT liability of the principal supply of construction services.

Management contracts

A management contractor acts as a main contractor for VAT purposes and the VAT liability of his services will follow that of the construction services provided. If the management contractor only provides advice without engaging trade contractors, his services will be VAT standard rated.
Construction Management and Project Management

The project manager or construction manager is appointed by the client to plan, manage and coordinate a construction project. This will involve establishing competitive bids for all the elements of the work and the appointment of trade contractors. The trade contractors are engaged directly by the client for their services. The VAT liability of the trade contractors will be determined by the nature of the construction services they provide and the building being constructed.

The fees of the construction manager or project manager will be VAT standard rated. If the construction manager also provides some construction services, these works may be zero or reduced rated if the works qualify.

Liquidated and Ascertained Damages

Liquidated damages are outside of the scope of VAT as compensation. The employer should not reduce the VAT amount due on a payment under a building contract on account of a deduction of damages. In contrast, an agreed reduction in the contract price will reduce the VAT amount.

Similarly, in certain circumstances, HM Revenue & Customs may agree that a claim by a contractor under a JCT, or other form of contract, is also compensation payment and outside the scope of VAT.

Reverse Charge for Building and Construction Services

A VAT reverse charge was introduced on 1 March 2021 for certain building and construction services. This measure has been introduced to combat missing trader fraud in the construction industry, removing the opportunity for fraudsters to charge VAT and then go missing, before paying it over to the HMRC.

For certain supplies of construction services, the customer will now be liable to account to HMRC for the VAT in respect of those purchases rather than the supplier. This reverse charge will apply through the supply chain where payments are required to be reported through the Construction Industry Scheme (CIS) up to the point where the customer receiving the supply is no longer a business that makes supplies of specified services (end users).

The introduction of a reverse charge does not change the liability of the supply of the specified services: it is the way in which the VAT on those supplies is accounted for. Rather than the supplier charging and accounting for the VAT, the recipient of those supplies accounts for the VAT its return instead of paying the VAT amount to its supplier. It will be able to reclaim that VAT amount as input tax, subject to the normal rules. The supplier will need to issue a VAT invoice that indicates the supplies are subject to the reverse charge.

The types of construction services covered by the reverse charge are based on the definition of ‘construction operations’ used in CIS under section 74 of the Finance Act 2004.

As well as excluding supplies of specified services to end users, the reverse charge does not capture supplies of specified services where the supplier and customer are connected in a particular way, and for supplies between landlords and tenants.

Contact

For further information or assistance, please contact one of the Fiscal Incentives team:

help.vat@aecom.com
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The Aggregates Levy

The Aggregates Levy came into operation on 1 April 2002 in the UK, except for Northern Ireland where it was phased in over five years from 2003.

It was introduced to ensure that the external costs associated with the exploitation of aggregates are reflected in the price of aggregate, and to encourage the use of recycled aggregate. There continues to be strong evidence that the levy is achieving its environmental objectives, with sales of primary aggregate down and production of recycled aggregate up. The Government expects that the rates of the levy will at least keep pace with inflation over time, although it accepts that the levy is still bedding in.

The rate of the levy is £2.03 per tonne from 1 April 2024, increasing to £2.08 per tonne from 1 April 2025, and is levied on anyone considered to be responsible for commercially exploiting ‘virgin’ aggregates in the UK and should naturally be passed by price increase to the ultimate user.

All materials falling within the definition of ‘Aggregates’ are subject to the levy unless specifically exempted.

It does not apply to clay, soil, vegetable or other organic matter.

The intention is that it will:

- Encourage the use of alternative materials that would otherwise be disposed of to landfill sites
- Promote development of new recycling processes, such as using waste tyres and glass
- Promote greater efficiency in the use of virgin aggregates
- Reduce noise and vibration, dust and other emissions to air, visual intrusion, loss of amenity and damage to wildlife habitats

Definitions

‘Aggregates’ means any rock, gravel or sand which is extracted or dredged in the UK for aggregates use. It includes whatever substances are for the time being incorporated in it, or naturally occur mixed with it.

‘Exploitation’ is defined as involving any one or a combination of any of the following:

- Being removed from its original site, a connected site which is registered under the same name as the originating site or a site where it had been intended to apply an exempt process to it, but this process was not applied
- Becoming subject to a contract or other agreement to supply to any person
- Being used for construction purposes
- Being mixed with any material or substance other than water, except in permitted circumstances

The definition of ‘aggregate being used for construction purposes’ is when it is:

- Used as material or support in the construction or improvement of any structure
- Mixed with anything as part of a process of producing mortar, concrete, tarmacadam, coated roadstone or any similar construction material

Incidence

It is a tax on primary aggregates production – i.e. ‘virgin’ aggregates won from a source and used in a location within the UK territorial boundaries (land or sea). The tax is not levied on aggregates which are exported or on aggregates imported from outside the UK territorial boundaries.

It is levied at the point of sale.
Exemption from Tax

An ‘aggregate’ is exempt from the levy if it is:

- Material which has previously been used for construction purposes
- Aggregate that has already been subject to a charge to the Aggregates Levy
- Aggregate which was previously removed from its originating site before the start date of the levy
- Aggregate which is moved between sites under the same Aggregates Levy Registration
- Aggregate which is removed to a registered site to have an exempt process applied to it
- Aggregate which is removed to any premises where china clay or ball clay will be extracted from the aggregate
- Aggregate which is being returned to the land from which it was won provided that it is not mixed with any material other than water
- Aggregate won from a farm land or forest where used on that farm or forest
- Rock which has not been subjected to an industrial crushing process
- Aggregate won by being removed from the ground on the site of any building or proposed building in the course of excavations carried out in connection with the modification or erection of the building and exclusively for the purpose of laying foundations or of laying any pipe or cable (until 30 September 2023)
- Aggregate won by being removed from the bed of any river, canal or watercourse or channel in or approach to any port or harbour (natural or artificial), in the course of carrying out any dredging exclusively for the purpose of creating, restoring, improving or maintaining that body of water
- Aggregate won by being removed from the ground along the line of any highway or proposed highway in the course of excavations for improving, maintaining or constructing the highway otherwise than purely to extract the aggregate (until 30 September 2023)
- Drill cuttings from petroleum operations on land and on the seabed
- Aggregate resulting from works carried out in exercise of powers under the New Road and Street Works Act 1991, the Roads (Northern Ireland) Order 1993 or the Street Works (Northern Ireland) Order 1995 (until 30 September 2023)
- Aggregate removed for the purpose of cutting of rock to produce dimension stone, or the production of lime or cement from limestone
- Aggregate arising as a waste material during the processing of the following industrial minerals:
  - anhydrite
  - ball clay
  - barites
  - calcite
  - china clay
  - clay, coal, lignite and slate
  - feldspar
  - flint
  - fluorspar
  - fuller's earth
  - gems and semi-precious stones
  - gypsum
  - any metal or the ore of any metal
  - muscovite
  - perlite
  - potash
  - pumice
  - rock phosphates
  - sodium chloride
  - talc
  - vermiculite
- Spoil from the separation of the above industrial minerals from other rock after extraction
- Material that is mainly but not wholly the spoil, waste or other by-product of any industrial combustion process or the smelting or refining of metal
Anything that consists ‘wholly or mainly’ of the following is exempt from the levy (note that ‘wholly’ is defined as 100% but ‘mainly’ as more than 50%, thus exempting any contained aggregates amounting to less than 50% of the original volumes:

- clay, soil, vegetable or other organic matter
- drill cuttings from oil exploration in UK waters
- material arising from utility works, if carried out under the New Roads and Street Works Act 1991

However, when ground that is more than half clay is mixed with any substance (for example, cement or lime) for the purpose of creating a firm base for construction, the clay becomes liable to Aggregates Levy because it has been mixed with another substance for the purpose of construction.

Anything that consists completely of the following substances is exempt from the levy:

- Spoil, waste or other by-products from any industrial combustion process or the melting or refining of metal – for example, industrial slag, pulverized fuel ash and used foundry sand. If the material consists completely of these substances at the time it is produced it is exempt from the levy, regardless of any subsequent mixing
- Aggregate necessarily arising from navigation dredging

Relief from the levy either in the form of credit or repayment is obtainable where:

- it is subsequently exported from the UK in the form of aggregate
- it is used in an exempt process
- where it is used in a prescribed industrial or agricultural process
- it is waste aggregate disposed of by dumping or otherwise, e.g. sent to landfill or returned to the originating site

With effect from 1 October 2023 (Finance Bill (No. 2) 2023 contains a prospective s.17(3)(g)), aggregate is exempt if it is excavated:

- (other than in order to obtain aggregate), from the site of any structure or infrastructure (or any proposed structure or infrastructure) provided it is in connection with, and necessary for, the construction, modification, maintenance or improvement of the structure or infrastructure.

Until 30 September 2023 (s.17(b), (d) & (da)), aggregate is exempt if it is unavoidable aggregate resulting from:

- laying foundations, pipes or cables on the site of a building or proposed building;
- building or improving a highway;
- building or improving a railway, tramway or monorail; or
- street works carried out under specified legislation.

Discounts

Water which is added to the aggregate after the aggregate has been won (washing, dust dampening, etc.) may be discounted from the tax calculations. There are two accepted options by which the added water content can be calculated.

The first is to use HMRC’s standard added water percentage discounts listed below:

- washed sand 7%
- washed gravel 3.5%
- washed rock/aggregate 4%

Alternatively a more exact percentage can be agreed for dust dampening of aggregates.

Whichever option is adopted, it must be agreed in writing in advance with HMRC.
Impact

The British Aggregates Association has suggested that the additional cost imposed by quarries will be considerably more than the base rate of the levy on mainstream products, applying an above average rate on these in order that by-products and low grade waste products can be held at competitive rates, as well as making some allowance for administration and increased finance charges.

With many gravel aggregates costing in the region of £40.00 per tonne, there is a significant impact on construction costs.

Avoidance

An alternative to using new aggregates in filling operations is to crush and screen rubble which may become available during the process of demolition and site clearance as well as removal of obstacles during the excavation processes.

More detailed information can be found on the HMRC website (www.hmrc.gov.uk) and in the HMRC Aggregates Levy Guidance published 5 February 2024.

Contact

For further information or assistance, please contact one of AECOM’s Fiscal Incentives team:

help.fiscalincentives@aecom.com
Land Remediation

The purpose of this section is to review the general background of ground contamination, the cost implications of current legislation, to consider the various remedial measures and to present helpful guidance on the cost of Land Remediation.

It must be emphasized that the cost advice given is an average and that costs can vary considerably from contract to contract depending on individual Contractors, site conditions, type and extent of contamination, methods of working and various other factors as diverse as difficulty of site access and distance from approved tips.

We have structured this Unit Cost section to cover as many aspects of Land Remediation works as possible.

The introduction of the Landfill Directive in July 2004 has had a considerable impact on the cost of Remediation works in general, and particularly on the practice of Dig and Dump. The number of Landfill sites licensed to accept Hazardous Waste has drastically reduced, and inevitably this has led to increased costs.

Market forces will determine future increases in cost resulting from the introduction of the Landfill Directive and the cost guidance given within this section will require review in light of these factors.

Statutory Framework

In July 1999 new contaminated land provisions, contained in Part IIA of the Environmental Protection Act 1990 were introduced. Primary objectives of the measures included a legal definition of Contaminated Land and a framework for identifying liability, underpinned by a ‘polluter pays’ principle, meaning that remediation should be paid for by the party (or parties) responsible for the contamination. A secondary, and indirect, objective of Part IIA is to provide the legislative context for remediation carried out as part of development activity which is controlled through the planning system. This is the domain where other related objectives, such as encouraging the recycling of brownfield land, are relevant.

Under the Act action to remediate land is required only where there are unacceptable actual or ‘significant possibility of significant harm’ to health, controlled waters or the environment. Only Local Authorities have the power to determine a site as Contaminated Land and enforce remediation. Sites that have been polluted from previous land use may not need remediating until the land use is changed; this is referred to as ‘land affected by contamination’. This is a risk-based assessment on the site specifics in the context of future end uses. As part of planning controls, the aim is to ensure that a site is incapable of meeting the legal definition of Contaminated Land post-development activity. In addition, it may be necessary to take action only where there are appropriate, cost-effective remediation processes that take the use of the site into account.

The Environment Act 1995 amended the Environment Protection Act 1990 by introducing a new regime designed to deal with the remediation of sites which have been seriously contaminated by historic activities. The regime became operational on 1 April 2000. Local authorities and/or the Environment Agency regulate seriously contaminated sites which are known as ‘special sites’. The risks involved in the purchase of potentially contaminated sites are high, particularly considering that a transaction can result in the transfer of liability for historic contamination from the vendor to the purchaser.

The contaminated land provisions of the Environmental Protection Act 1990 are only one element of a series of statutory measures dealing with pollution and land remediation that have been and are to be introduced. Others include:

- Groundwater regulations, including pollution prevention measures
- An integrated prevention and control regime for pollution
- Sections of the Water Resources Act 1991, which deals with works notices for site controls, restoration and clean up

April 2012 saw the first revision of the accompanying Part IIA Statutory Guidance. This has introduced a new categorization scheme for assessing sites under Part IIA. Category 1 is land which definitely is Contaminated Land and Category 4 is for land which definitely is not Contaminated Land. This is intended to assist prioritization of sites which pose the greatest risk.
Still included in the statutory guidance are matters of inspection, definition, remediation, apportionment of liabilities and recovery of costs of remediation. The measures are to be applied in accordance with the following criteria:

- the planning system
- the standard of remediation should relate to the present use
- the costs of remediation should be reasonable in relation to the seriousness of the potential harm
- the proposals should be practical in relation to the availability of remediation technology, impact of site constraints and the effectiveness of the proposed clean-up method

Liability for the costs of remediation rests with either the party that ‘caused or knowingly permitted’ contamination, or with the current owners or occupiers of the land.

Apportionment of liability, where shared, is determined by the local authority. Although owners or occupiers become liable only if the polluter cannot be identified, the liability for contamination is commonly passed on when land is sold.

If neither the polluter nor owner can be found, the clean up is funded from public resources.

The ability to forecast the extent and cost of remedial measures is essential for both parties, so that they can be accurately reflected in the price of the land.

At the end of March 2012, the National Planning Policy Framework replaced relevant planning guidance relating to remediation, most significantly PPS 23 Planning and Pollution Control. This has been replaced by a need to investigate and assess land contamination, which must be carried out by a competent person.

The EU Landfill Directive

The Landfill (England and Wales) Regulations 2002 came into force on 15 June 2002 followed by Amendments in 2004 and 2005. These new regulations implement the Landfill Directive (Council Directive 1999/31/EC), which aims to prevent, or to reduce as far as possible, the negative environmental effects of landfill. These regulations have had a major impact on waste regulation and the waste management industry in the UK.


In summary, the Directive requires that:

- Sites are to be classified into one of three categories: hazardous, non-hazardous or inert, according to the type of waste they will receive
- Higher engineering and operating standards will be followed
- Biodegradable waste will be progressively diverted away from landfills
- Certain hazardous and other wastes, including liquids, explosive waste and tyres will be prohibited from landfills
- Pretreatment of wastes prior to landfilling will become a requirement

On 15 July 2004 the co-disposal of hazardous and non-hazardous waste in the same landfill site ended and in July 2005 new waste acceptance criteria (WAC) were introduced which also prevents the disposal of materials contaminated by coal tar.

The effect of this Directive has been to dramatically reduce the hazardous disposal capacity post July 2004, resulting in a significant increase in remediating costs. This has significantly increased travelling distance and cost for disposal to landfill. The increase in operating expenses incurred by the landfill operators has also resulted in higher tipping costs.

However, there is now a growing number of opportunities to dispose of hazardous waste to other facilities such as soil treatment centres, often associated with registered landfills potentially eliminating landfill tax. Equally, improvements in on-site treatment technologies are helping to reduce the costs of disposal by reducing the hazardous properties of materials going off site.
All hazardous materials designated for disposal off site are subject to WAC tests. Samples of these materials are taken from site to laboratories in order to classify the nature of the contaminants. These tests, which cost approximately £250 each, have resulted in increased costs for site investigations and as the results may take up to 3 weeks this can have a detrimental effect on programme.

As from 1 July 2008 the WAC derogations which have allowed oil contaminated wastes to be disposed in landfills with other inert substances were withdrawn. As a result the cost of disposing oil contaminated solids has increased.

There has been a marked slowdown in brownfield development in the UK with higher remediation costs, longer clean-up programmes and a lack of viable treatment options for some wastes.

The UK Government established the Hazardous Waste Forum in December 2002 to bring together key stakeholders to advise on the way forward on the management of hazardous waste.

**Effect on Disposal Costs**

Although most landfills are reluctant to commit to future tipping prices, tipping costs have generally stabilized. However, there are significant geographical variances, with landfill tip costs in the North of England typically being less than their counterparts in the Southern regions.

For most projects to remain viable there is an increasing need to treat soil in situ by bioremediation, soil washing or other alternative long-term remediation measures. Waste untreatable on site such as coal tar remains a problem. Development costs and programmes need to reflect this change in methodology.

**Types of Hazardous Waste**

- Sludges, acids and contaminated wastes from the oil and gas industry
- Acids and toxic chemicals from chemical and electronics industries
- Pesticides from the agrochemical industry
- Solvents, dyes and sludges from leather and textile industries
- Hazardous compounds from metal industries
- Oil, oil filters and brake fluids from vehicles and machines
- Mercury-contaminated waste from crematoria
- Explosives from old ammunition, fireworks and airbags
- Lead, nickel, cadmium and mercury from batteries
- Asbestos from the building industry
- Amalgam from dentists
- Veterinary medicines

[Source: Sepa]

Foam insulation materials containing ODP (Ozone Depletant Potential) are also considered as hazardous waste under the EC Regulation 2037/2000.

**Land Remediation Techniques**

There are two principal approaches to remediation – dealing with the contamination in situ or ex situ. The selection of the approach will be influenced by factors such as: initial and long-term cost, timeframe for remediation, types of contamination present, depth and distribution of contamination, the existing and planned topography, adjacent land uses, patterns of surface drainage, the location of existing on-site services, depth of excavation necessary for foundations and below-ground services, environmental impact and safety, interaction with geotechnical performance, prospects for future changes in land use and long-term monitoring and maintenance of in situ treatment.

On most sites, contamination can be restricted to the top couple of metres, although gasholder foundations for example can go down 10 to 15 metres. Underground structures can interfere with the normal water regime and trap water pockets.

There could be a problem if contaminants get into fissures in bedrock.
In situ techniques

A range of in situ techniques is available for dealing with contaminants, including:

- **Clean cover** – a layer of clean soil is used to segregate contamination from receptor. This technique is best suited to sites with widely dispersed contamination. Costs will vary according to the need for barrier layers to prevent migration of the contaminant.
- **On-site encapsulation** – the physical containment of contaminants using barriers such as slurry trench cut-off walls. The cost of on-site encapsulation varies in relation to the type and extent of barriers required, the costs of which range from £50/m² to more than £175/m².

There are also in situ techniques for treating more specific contaminants, including:

- **Bioremediation** – for removal of oily, organic contaminants through natural digestion by microorganisms. Most bioremediation is ex situ, i.e. it is dug out and then treated on site in biopiles. The process can be slow, taking up to three years depending upon the scale of the problem, but is particularly effective for the long-term improvement of a site, prior to a change of use.
- **Phytoremediation** – the use of plants that mitigate the environmental problem without the need to excavate the contaminant and dispose of it elsewhere. Phytoremediation consists of mitigating pollutant concentrations in contaminated soils, water or air, with plants able to contain, degrade or eliminate metals, pesticides, solvents, explosives, crude oil and its derivatives and various other contaminants from the media that contain them.
- **Vacuum extraction** – involving the extraction of volatile organic compounds (e.g. benzene) from soil and groundwater by vacuum.
- **Thermal treatment** – the incineration of contaminated soils on site. Thermal processes use heat to increase the volatility to burn, decompose, destroy or melt the contaminants. Cleaning soil with thermal methods may take only a few months to several years.
- **Stabilization** – cement or lime, is used to physically or chemically bind oily or metal contaminants to prevent leaching or migration. Stabilization can be used in both in situ and ex situ conditions.
- **Aeration** – if the ground contamination is highly volatile, e.g. fuel oils, then the ground can be ploughed and rotovated to allow the substance to vaporize.
- **Air sparging** – the injection of contaminant-free air into the subsurface enabling a phase transfer of hydrocarbons from a dissolved state to a vapour phase.
- **Chemical oxidation** – the injection of reactive chemical oxidants directly into the soil for the rapid destruction of contaminants.
- **Pumping** – to remove liquid contaminants from boreholes or excavations. Contaminated water can be pumped into holding tanks and allowed to settle; testing may well prove it to be suitable for discharging into the foul sewer subject to payment of a discharge fee to the local authority. It may be necessary to process the water through an approved water treatment system to render it suitable for discharge.

Ex situ techniques

Removal for landfill disposal has, historically, been the most common and cost-effective approach to remediation in the UK, providing a broad spectrum solution by dealing with all contaminants. As mentioned above, the implementation of the Landfill Directive has resulted in other techniques becoming more competitive for the disposal of hazardous waste.

If used in combination with material-handling techniques such as soil washing, the volume of material disposed at landfill sites can be significantly reduced. The disadvantages of these techniques include the fact that the contamination is not destroyed, there are risks of pollution during excavation and transfer; road haulage may also cause a local nuisance. Ex situ techniques include:

- **Soil washing** – involving the separation of a contaminated soil fraction or oily residue through a washing process. This also involves the excavation of the material for washing ex situ. The de-watered contaminant still requires disposal to landfill. In order to be cost effective, 70–90% of soil mass needs to be recovered. It will involve constructing a hard area for the washing, intercepting the now-contaminated water and taking it away in tankers.
- **Thermal treatment** – the incineration of contaminated soils ex situ. The uncontaminated soil residue can be recycled. By-products of incineration can create air pollution and exhaust air treatment may be necessary.
Soil treatment centres are now beginning to be established. These use a combination of treatment technologies to maximize the potential recovery of soils and aggregates and render them suitable for disposal to the landfill. The technologies include:

- Physicochemical treatment – a method which uses the difference in grain size and density of the materials to separate the different fractions by means of screens, hydrocyclones and upstream classification.
- Bioremediation – the aerobic biodegradation of contaminants by naturally occurring microorganisms placed into stockpiles/windrows.
- Stabilization/solidification – a cement or chemical stabilization unit capable of immobilizing persistent leachable components.

**Cost Considerations**

**Cost drivers**

Cost drivers relate to the selected remediation technique, site conditions and the size and location of a project.

The wide variation of indicative costs of land remediation techniques shown below is largely because of differing site conditions.

<table>
<thead>
<tr>
<th>Remediation technique</th>
<th>Unit</th>
<th>Rate (£/unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal – non-hazardous</td>
<td>disposed material (m³)</td>
<td>45–110</td>
</tr>
<tr>
<td>Removal – hazardous</td>
<td>disposed material (m³)</td>
<td>80–210</td>
</tr>
<tr>
<td>Note: excluding any pretreatment of material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean cover</td>
<td>surface area of site (m²)</td>
<td>25–50</td>
</tr>
<tr>
<td>On-site encapsulation</td>
<td>encapsulated material (m³)</td>
<td>35–100</td>
</tr>
<tr>
<td>Bioremediation (in situ)</td>
<td>treated material (m³)</td>
<td>20–50</td>
</tr>
<tr>
<td>Bioremediation (ex situ)</td>
<td>treated material (m³)</td>
<td>25–50</td>
</tr>
<tr>
<td>Chemical oxidation</td>
<td>treated material (m³)</td>
<td>40–90</td>
</tr>
<tr>
<td>Stabilization/solidification</td>
<td>treated material (m³)</td>
<td>25–70</td>
</tr>
<tr>
<td>Vacuum extraction</td>
<td>treated material (m³)</td>
<td>30–80</td>
</tr>
<tr>
<td>Soil washing</td>
<td>treated material (m³)</td>
<td>50–110</td>
</tr>
<tr>
<td>Thermal treatment</td>
<td>treated material (m³)</td>
<td>140–500</td>
</tr>
</tbody>
</table>

Many other on-site techniques deal with the removal of the contaminant from the soil particles and not the wholesale treatment of bulk volumes. Costs for these alternative techniques are very much Engineer designed and site specific.

Factors that need to be considered include:

- waste classification of the material
- underground obstructions, pockets of contamination and live services
- groundwater flows and the requirement for barriers to prevent the migration of contaminants
- health and safety requirements and environmental protection measures
- location, ownership and land use of adjoining sites
- distance from landfill tips, capacity of the tip to accept contaminated materials, and transport restrictions
- the cost of diesel fuel, currently approximately £1.54 per litre (at April 2024 prices)

Other project related variables include size, access to disposal sites and tipping charges; the interaction of these factors can have a substantial impact on overall unit rates.
The tables below set out the costs of remediation using dig-and-dump methods for different sizes of project, differentiated by the disposal of non-hazardous and hazardous material. Variation in site establishment and disposal cost accounts for 60–70% of the range in cost.

**Variation in the costs of land remediation by removal: Non-hazardous Waste**

<table>
<thead>
<tr>
<th>Item</th>
<th>Disposal Volume (less than 3000 m³) (£/m³)</th>
<th>Disposal Volume (3000–10 000 m³) (£/m³)</th>
<th>Disposal Volume (more than 10 000 m³) (£/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General items and site organization costs</td>
<td>55–90</td>
<td>25–40</td>
<td>7–20</td>
</tr>
<tr>
<td>Site investigation and testing</td>
<td>5–12</td>
<td>2–7</td>
<td>2–6</td>
</tr>
<tr>
<td>Excavation and backfill</td>
<td>18–35</td>
<td>12–25</td>
<td>10–20</td>
</tr>
<tr>
<td>Disposal costs (including tipping charges but not landfill tax)</td>
<td>20–35</td>
<td>20–35</td>
<td>20–35</td>
</tr>
<tr>
<td>Haulage</td>
<td>15–35</td>
<td>15–35</td>
<td>15–35</td>
</tr>
<tr>
<td>Total (£/m³)</td>
<td>113–207</td>
<td>74–142</td>
<td>54–116</td>
</tr>
<tr>
<td>Allowance for site abnormalities</td>
<td>0–10 +</td>
<td>0–15 +</td>
<td>0–10 +</td>
</tr>
</tbody>
</table>

**Variation in the costs of land remediation by removal: Hazardous Waste**

<table>
<thead>
<tr>
<th>Item</th>
<th>Disposal Volume (less than 3000 m³) (£/m³)</th>
<th>Disposal Volume (3000–10 000 m³) (£/m³)</th>
<th>Disposal Volume (more than 10 000 m³) (£/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General items and site organization costs</td>
<td>55–90</td>
<td>25–40</td>
<td>7–20</td>
</tr>
<tr>
<td>Site investigation and testing</td>
<td>10–18</td>
<td>5–12</td>
<td>5–12</td>
</tr>
<tr>
<td>Excavation and backfill</td>
<td>18–35</td>
<td>12–25</td>
<td>10–20</td>
</tr>
<tr>
<td>Disposal costs (including tipping charges but not landfill tax)</td>
<td>80–170</td>
<td>80–170</td>
<td>80–170</td>
</tr>
<tr>
<td>Haulage</td>
<td>25–120</td>
<td>25–120</td>
<td>25–120</td>
</tr>
<tr>
<td>Total (£/m³)</td>
<td>188–433</td>
<td>147–367</td>
<td>127–342</td>
</tr>
<tr>
<td>Allowance for site abnormalities</td>
<td>0–10 +</td>
<td>0–15 +</td>
<td>0–10 +</td>
</tr>
</tbody>
</table>

The strict health and safety requirements of remediation can push up the overall costs of site organization to as much as 50% of the overall project cost (see the above tables). A high proportion of these costs are fixed and, as a result, the unit costs of site organization increase disproportionally on smaller projects.

Haulage costs are largely determined by the distances to a licensed tip. Current average haulage rates, based on a return journey, range from £1.95 to £4.50 per mile. Short journeys to tips, which involve proportionally longer standing times, typically incur higher mileage rates, up to £9.00 per mile.
A further source of cost variation relates to tipping charges. The table below summarizes typical tipping charges for 2024, exclusive of landfill tax:

<table>
<thead>
<tr>
<th>Waste classification</th>
<th>Charges (£/tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-hazardous wastes</td>
<td>15–45</td>
</tr>
<tr>
<td>Hazardous wastes</td>
<td>35–90</td>
</tr>
<tr>
<td>Contaminated liquid</td>
<td>40–75</td>
</tr>
<tr>
<td>Contaminated sludge</td>
<td>125–400</td>
</tr>
</tbody>
</table>

Tipping charges fluctuate in relation to the grades of material a tip can accept at any point in time. This fluctuation is a further source of cost risk. Furthermore, tipping charges in the North of England are generally less than other areas of the country.

Prices at licensed tips can vary by as much as 50%. In addition, landfill tips generally charge a tip administration fee of approximately £25 per load, equivalent to £1.25 per tonne. This charge does not apply to non-hazardous wastes.

Landfill Tax, increased on 1 April 2024 to £103.70 a tonne for active waste, is also payable. Exemptions are no longer available for the disposal of historically contaminated material (refer also to ‘Landfill Tax’ section).

**Tax Relief for Remediation of Contaminated Land**

The Finance Act 2001 included provisions that allow companies (but not individuals or partnerships) to claim tax relief on capital and revenue expenditure on the ‘remediation of contaminated land’ in the United Kingdom. The relief is available for expenditure incurred on or after 11 May 2001. From April 2020, non-resident companies are within the scope of UK Corporation Tax and can also claim relief.

From 1 April 2009 there was an increase in the scope of costs that qualify for Land Remediation Relief where they are incurred on long-term derelict land. The list includes costs that the Treasury believe to be primarily responsible for causing dereliction, such as additional costs for removing building foundations and machine bases. However, while there is provision for the list to be extended, the additional condition for the site to have remained derelict since 1998 is likely to render this relief redundant in all but a handful of cases. The other positive change was the fact that Japanese Knotweed removal and treatment (on site only) now qualified for the relief under the existing legislation, thereby allowing companies to make retrospective claims.

A company is able to claim an additional 50% deduction for ‘qualifying land remediation expenditure’ allowed as a deduction in computing taxable profits, and may elect for the same treatment to be applied to qualifying capital expenditure.

With Landfill Tax Exemption (LTE) now phased out, Land Remediation Relief (LRR) for contaminated and derelict land is the Government’s primary tool to create incentives for brownfield development. LRR is available to companies engaged in land remediation that are not responsible for the original contamination.

Over 7 million tonnes of waste each year were being exempted from Landfill Tax in England alone, so this change could have a major impact on the remediation industry. The modified LRR scheme, which provides Corporation Tax relief on any costs incurred on qualifying land remediation expenditure, is in the long run designed to yield benefits roughly equal to those lost through the withdrawal of LTE, although there is some doubt about this stated equity in reality.

However, with much remediation undertaken by polluters or public authorities, who cannot benefit from tax relief benefits, the change could result in a net withdrawal of Treasury support to a vital sector. Lobbying and consultation continues to ensure the Treasury maintains its support for remediation.

While there are no financial penalties for not carrying out remediation, a steep escalator affected the rate of landfill tax for waste material other than inert or inactive wastes, which has increased to £103.70/tonne from 1 April 2024. This means that
for schemes where there is no alternative to dig and dump and no pre-existing LTE, the cost of remediation has risen to prohibitive levels should contaminated material be disposed of offsite to licensed landfills.

Looking forward, tax-relief benefits under LRR could provide a significant cash contribution to remediation. Careful planning is the key to ensure that maximum benefits are realized, with actions taken at the points of purchase, formation of JV arrangements, procurement of the works and formulation of the Final Account (including apportionment of risk premium) all influencing the final value of the claim agreed with HM Revenue & Customs.

**The Relief**

Qualifying expenditure may be deducted at 150% of the actual amount expended in computing profits for the year in which it is incurred.

For example, a property trading company may buy contaminated land for redevelopment and incurs £250,000 on qualifying land remediation expenditure that is an allowable for tax purposes. It can claim an additional deduction of £125,000, making a total deduction of £375,000. Similarly, a company incurring qualifying capital expenditure on a fixed asset of the business is able to claim the same deduction provided it makes the relevant election within 2 years.

**What is Remediation?**

Land remediation is defined as the doing of works including preparatory activities such as condition surveys, to the land in question, any controlled waters affected by the land, or adjoining or adjacent land for the purpose of:

- Preventing or minimizing, or remedying or mitigating the effects of, any relevant harm, or any pollution of controlled waters, by reason of which the land is in a contaminated state.

**Definitions**

Contaminated land is defined as land that, because of substances on or under it, is in such a condition that relevant harm is or has the significant possibility of relevant harm being caused to:

- The health of living organisms
- Ecological systems
- Quality of controlled waters
- Property

Relevant harm is defined as meaning:

- death of living organisms or significant injury or damage to living organisms,
- significant pollution of controlled waters,
- a significant adverse impact on the ecosystem, or
- structural or other significant damage to buildings or other structures or interference with buildings or other structures that significantly compromises their use.

Land includes buildings on the land, and expenditure on asbestos removal is expected to qualify for this tax relief. It should be noted that the definition is not the same as that used in the Environmental Protection Act Part IIA.

Sites with a nuclear license are specifically excluded.

**Conditions**

To be entitled to claim LRR, the general conditions for all sites, which must all be met, are:

- Must be a company (non-resident companies can also claim from April 2020)
- Must be land in the United Kingdom
- Must acquire an interest in the land
• Must not be the polluter or have a relevant connection to the polluter
• Must not be in receipt of a subsidy
• Must not also qualify for Capital Allowances (particular to capital expenditure only)

Additional conditions introduced since 1 April 2009:

• The interest in land must be major – freehold or leasehold longer than 7 years
• Must not be obligated to carry out remediation under a statutory notice

Additional conditions particular to derelict land:

• Must not be in or have been in productive use at any time since at least 1 April 1998
• Must not be able to be in productive use without the removal of buildings or other structures

In order for expenditure to become qualifying, it must relate to substances present at the point of acquisition.

Furthermore, it must be demonstrated that the expenditure would not have been incurred had those substances not been present.

Contact

For further information or assistance, please contact one of the Fiscal Incentives team:

help.landremediationrelief@aecom.com
Building Materials, Health and Indoor Air Quality: Volume 2

By Tom Woolley

In Building Materials, Health and Indoor Air Quality: Volume 2 Tom Woolley uses new research to continue to advocate for limiting the use of hazardous materials in construction and raise awareness of the links between pollutants found in building materials, poor indoor air quality and health problems. Chapters in this volume reinforce previous arguments and present new ones covering:

- Further evidence of the health impacts of hazardous emissions from materials
- Hazardous materials to be avoided and why
- Fire and smoke toxicity – the Lakanal House and Grenfell Tower legacy
- Sub-standard retrofits leading to damp and mould in previously sound houses
- A critical review of recent reports from UK Government and others on air quality and health problems including policy changes on flame retardants
- Growing evidence of cancer risks and the failure of cancer research organisations to address these issues
- A critical review of recent climate change and zero carbon policies and a discussion on whether extreme energy efficiency is a good thing

This book asks some important and, for some, uncomfortable questions, but in doing so it brings to light important areas for research and provides much needed guidance for architects, engineers, construction professionals, students and researchers on hazardous materials and how to reduce their use and design and build healthier buildings for all occupants.

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Building Regulations

England’s Building Regulations provide an insight into how building design is evolving over time – the key challenges and preoccupations at a given moment. As a template for what a safe, healthy building should be, they are also an important indicator of the direction of travel government wants building design and the wider construction industry to move in.

These changes are reflective of a time where cutting carbon and creating well-ventilated spaces are paramount. Introduced by the Department for Levelling-Up, Housing and Communities (DLUHC), the new regulations are primarily driven by the pursuit of the UK’s legally binding net zero 2050 goal and reflects the global need to decarbonize.

While 2050 may seem a long-distance target, buildings increasingly will need to meet stringent carbon emission standards if the UK is to meet its goal.

The updated rules have also been influenced by the Coronavirus pandemic. This has made clear the need for effective ventilation in buildings, particularly in high density shared spaces such as offices. Furthermore, office tenants are more aware than ever of a building’s health elements.

Perhaps one of the most important things to recognize is that these updates are setting the stage for larger changes in two years’ time. These uplifts are an interim – and preparatory – measure ahead of the much wider-reaching Future Homes Standard and Future Buildings Standard, which are due in 2025 and will apply to new homes and new non-domestic buildings respectively. The building regulations are dynamic – the Approved Documents that make up the Building Regulations often evolve as housing policy does, and in June 2022 changes were introduced which were intended to help make the transition to the more stringent new standards easier for the industry.

Current situation in the sector

The affected regulations are Part L and Part F. Broadly speaking, Part L addresses carbon emissions and energy efficiency, while Part F is concerned with delivering good indoor air quality by delivering sufficient ventilation and minimizing the ingress of external pollutants. The change also introduces a new regulation, Part O. This regulation is about reducing the risk of overheating, primarily in domestic buildings.

The previous major revision to UK building regulations was in 2013. Under the June 2022 updates, a key focus is on improving the building fabric and building services to make them more energy efficient. The headline element is the requirement for a 27% average cut in operational carbon for new non-domestic buildings (with a 31% average cut for new domestic buildings).

Two new Approved Documents were also introduced to promote advancements in the reduction of carbon emissions: Part O and Part S. Part O ensures that buildings do not overheat, and Part S details how buildings can provide infrastructure for electric vehicles. Starting from June 2022, all new residences must include provisions for charging for electric vehicles.

Thanks to increasing recognition of the need to reduce carbon emissions, some parts of the industry are already well prepared for the changes. Some developers are already designing buildings in ways that the new regulations will encourage. This is particularly true in London, as the Greater London Authority has been requiring higher standards for several years. The London Plan, for example, means that similar requirements to many of the changes introduced by the 2022 regulations are already in force. In the capital, it may well feel like business as usual for developers.

Design implications

Setting an effective regulatory environment, which incentivizes positive changes while minimizing the risk of unintended consequences, is extremely challenging given the technical complexity of the built environment and wide range of externalities faced on individual projects. A flexible approach is essential to ensure the most effective solutions are found based on individual project constraints.

In England, the notional building sits at the heart of the standard-setting process. It is used to set a feasible target across different building types. The CO₂ emissions and primary energy of the proposed building should be equal to or lower than that
of the notional building, which has the same size and shape as the proposed building, but built to a standard recipe of U-values and building service efficiencies.

The specifications used to define the notional building are tougher this time, typically demonstrating a 27% improvement in operational carbon performance compared with its 2013 counterpart. This includes introducing the use of renewable technologies into the notional building.

The developer has the option to vary the specifications used in the notional building. This means it can relax some parameters relative to the notional specifications (but remaining at least as good as specified backstop values), as long as other parameters are improved beyond the notional specification, so that ultimately the CO₂ emissions and primary energy are as good or as better than the notional building. This is intended to allow for flexibility and choice in design – a ‘mix and match’ approach, enabling certain design choices to be offset by other elements of the building.

**Costs will be impacted – but not to a major degree**

Much has evolved in the time between 2013 when the regulations were last updated, and 2022.

Technological advancements and increases in supply chain capacity for more energy efficient products have eased pressure on the cost of meeting the new regulations. For example, the premium for triple-glazed windows has dropped in recent years as uptake has increased. The difference in cost versus double-glazed units is now approximately £20–£30 per m² – assuming that the same frame can accommodate both double and triple-glazed units. Frames are key to pricing. For some projects there is an uplift on the frame cost, which means that the cost differential per m² can rise to £50–£100 per m².

LED lighting was not widely undertaken as an option nine years ago. Technology has improved, and prices have dropped to make LED lighting a mainstream and accessible choice – in fact, the default option. Similarly, lighting and daylight control systems are now generally a standard feature in commercial office specifications throughout England unlike back in 2013.

Under the new regulations, there is a requirement to monitor indoor air quality in new build offices, and higher risk areas in other new non-domestic buildings, to reduce the transmission of airborne illnesses. Carbon dioxide monitors are expected to be installed to flag if CO₂ has risen beyond acceptable levels and trigger an increase in ventilation. Typically, this can be expected to add around £4 per m² to construction costs. This requirement applies (with a few caveats) to several types of space, including offices, gyms, theatres, nightclubs, pubs and chilled food processing areas.

The attractiveness of electricity as a power and heat source has also changed. The carbon intensity of electricity dropped significantly over the past decade, in large part due to the rapid increase of renewable electricity feeding into the UK energy system. Fossil fuels now account for less than 50% of the total UK electricity generation, making electricity a more attractive source of power from a carbon reduction perspective.

Building regulations previously favoured the use of gas as an alternative to electricity – a situation which the rule change reverses. Heat pumps powered by electricity or even direct sources of electricity for heating water are now favoured over gas-fired boilers or combined heat and power (CHP).

Switching to electric power has clear environmental benefits but there can be cost implications. Electric heat pump technology in lieu of traditional gas fired boilers and chillers can add up to £50 per m² to construction costs. In addition, increasing the electricity supply increases the maximum demand level which can put in pressure on the grid, especially in densely populated urban areas and increase cost. Often local substations are unable to meet demand and connections to larger substations are required which increases complexity and can impact programme length and cost. Early engagement with the distribution network operator (DNO) is the key to minimizing the risk of potential impacts – addressing how loads can be secured and what is the best procurement approach.

**Location and building type will strongly influence compliance choices**

Because developers can choose the means by which their building design meets the requirement to match the operational carbon emission standards of a ‘notional building’ of the same shape and size, there are myriad ways to comply with the 27% average carbon reduction in the new Part L.

One part of a design solution can be to cover a building’s roof in photovoltaic panels. This option, however, is only likely to be suitable for projects with large, simple footprints. In a London office project with a tight footprint, in contrast, it is far more likely that the roof has a terrace event space, or other area, to support occupant wellbeing or increase commercial potential, over installing solar panels. That said, solar panels might be the best choice for a large, out-of-town distribution centre building with swathes of available roof space.
As the public becomes increasingly aware of the shift towards net zero, clear indicators of a building’s efforts to reduce its carbon output can be a selling point for potential tenants. Lighting controls to prevent unnecessary energy use are a good example. Installing solar PV makes a very clear statement of a building’s green credentials – but it is important to note that as the UK’s electricity system decarbonizes, the carbon saved by photovoltaics is reduced.

Less obvious or public-facing carbon cutting choices may derive a better carbon reduction, such as installing a more efficient heat pump. Another solution for an office building for which photovoltaics are not suitable could be to improve the U-value of a building’s walls. The requirements may need to be met by multiple combined improvements. Hence it may need both improved U-value and low carbon heating. In particular, improving the U-value on its own is unlikely to comply with the demands of the new regulations.

There is likely to be a higher cost impact to meet requirements for out-of-London projects compared with those in London. This is because developers are less likely to have already established a policy of incorporating major carbon reduction measures, such as a shift from gas boilers to heat pumps, into their projects. This difference is primarily because planning requirements outside London are generally more relaxed on energy and carbon. One of the many reasons that developments are built in out-of-town locations is because the land is cheaper, and planning is quicker and simpler.

**Ensuring the timing is right**

There is a one-year transition period from June 2022. This is to provide developers with assurance about the standards to which they must build. They should not have to make material amendments to work which is already underway when new regulations come into force.

Effectively, developers have one year from when the regulations come into effect to commence work on each individual building on site if they still wish to adopt the current (2013) regulations. To do so, developers would also have needed to submit a building or initial notice or deposit plans.

**Looking to the future**

We have looked at three standard building types with basic specifications. In particular for larger, more complex projects we advise that developers should go through the regulations in close detail and commission indicative, early-stage modelling to identify appropriate solutions in order to build a picture of relative costs and benefits.

The most important takeaway is that the new regulations are part of a wider shift towards highly efficient buildings where low levels of carbon – both from emissions and an embodied carbon perspective – is the rule, rather than the exception. In adapting to the new regulations, our key advice is:

- Timing is important. The rules do not change overnight – this year, developers will need to assess whether they will fall under the old regulations or must comply with the new.
- If developing a project that falls under the new Part L then it is vital that the impact of this is considered at the earliest opportunity.
- Our analysis suggests that Greater London Authority-compliant buildings may not need to change very much to meet the new regulations, but this is not a blanket rule.
- The regulations are likely to drive a national shift away from fossil fuelled heating towards heat pumps and other low carbon sources.

In the coming years, standards for carbon reduction and building efficiencies will only become higher. With the far more ambitious Future Homes and Future Buildings Standards set to be introduced in 2025, the industry needs to aim as high as possible when designing out carbon, and to drive up efficiencies and invest in innovation in order to remain compliant. As ever, it is best to be ahead of the curve rather than behind it.

The amendments to Approved Document B were released on 29 March 2024 by the UK government and are due to take effect on 30 September 2026. The updates regarding Part B of the building regulations are primarily focussed on Volume 1 which provides guidance on residential buildings. Additional guidance has been implemented which requires greater access to means of egress, additional ventilation within areas crucial for safe evacuation of residencies, the inclusion of secure information boxes which contain critical information for the fire and rescue service and the ban on combustible materials being used on external facades including metal composites.

Within residential buildings of floor height greater than 18 m, additional requirements have been implemented in the 2024 amendments, including the provision of an additional escape stair and evacuation lifts along with additional ventilation
requirements within spaces essential to the means of egress within a building such as common corridors, common lobbies and common stairs.

Within the Greater London area, some of the requirements, such as the inclusion of evacuation lifts and additional escape stairs, are already in place thanks to The London Plan.

New challenges and adaptability
The covid pandemic started whilst work was already underway to revise the building regulations Parts L and F. As the ways the virus was spread became better understood, steps were taken to incorporate some of this learning into the regulations so that the impacts of future outbreaks might be managed more easily.

Part F is particularly relevant to this as it is concerned with the ventilation of buildings. Several changes have been made to this part of the regulations; some of these changes seek to future-proof some building types where the spread of air-borne viruses might be reduced through improved ventilation standards.

For example there is a new requirement relating to recirculating ventilation systems in offices:

Recirculation of air within ventilation systems in offices 1.37 Ventilation systems that, under normal operation, recirculate air between more than one space, room or zone should also be able to operate in a mode that reduces the risk of the transmission of airborne infection. This can be achieved by one or more of the following. a. Systems capable of providing 100% outdoor air to the levels specified in paragraphs 1.32 to 1.34 to all occupable rooms and common spaces, without recirculating air. b. Systems incorporating a UV-C germicidal irradiation system that is able to disinfect the air that is being recirculated. This type of system is commonly located within the heating, ventilation and air conditioning (HVAC) system or ductwork. c. Systems designed so that they can incorporate HEPA filters, if required, which are able to provide filtration of the recirculated air. Note: For some system types some recirculation is necessary or desirable in normal operation. Use of any full outdoor air mode, UV-C germicidal irradiation of HEPA filtration may not be necessary under normal conditions of operation.

Source: Statutory guidance. Ventilation: Approved Document F. Department for Levelling Up, Housing and Communities

Recirculating ventilation systems can be an effective means of reducing energy demands compared with systems that provide 100% fresh air. This new clause in Part F seeks to strike a balance by allowing this system type to be used but requiring the system to have the functionality to mitigate spreading infections. This might be done by switching to a mode with no recirculation or incorporating a means of treating or filtering air before it is recirculated. Some of these features may require a system to be recalibrated or recommissioned when switching to a mode with an increased resistance to the ventilation flow.

New legislation – The Building Safety Act – all buildings
The Building Safety Act is the foundation of the new building safety regime in England, and is one of the biggest fundamental changes to our industry over the last 30 years. It introduces a clear, proportionate framework for the design, construction and management of safer and higher quality buildings for the UK in the years to come, and, as of 1 October 2023, these requirements are now active.

The BSA is not changing the technical requirements of building regulations. What is changing is the building control application process and the level of information required before undertaking building work, when making changes to an approved application, and on completion of building work.

Overview of the new regime
The BSA applies to all buildings and includes additional requirements for Higher-Risk Buildings (HRBs). The Act applies to new-build projects and works to existing buildings including refurbishment, extensions, and alterations. The BSA came into force on 1 October 2023. Transitional arrangements only apply where an initial notice or full plans had been submitted to a local authority before 1 October 2023 and work was sufficiently progressed by 6 April 2024.

Definition of all buildings
Any work to buildings covered by the Building Act 1984 (as amended) falls under the new BSA regime. Building Regulations apply to most new buildings and many alternations to existing buildings whether they are for domestic, commercial, or industrial use. Compliance with the Regulations is a legal requirement for all work unless a procedural exemption applies to the building type (such as defence and prisons).
Designers should always be designing to meet the Technical Requirements set out in Schedule 1 to the Building Regulations. The Approved Documents (A-R) provide guidance on ways to meet the Technical Requirements of the Building Regulations. Where designs deviate from the guidance set out in the Approved Documents or the guidance does not adequately cover the issue, designers must be able to demonstrate their design meets the Technical Requirements as set out in Schedule 1 of the Regulations.

Further details can be found in the Manual to the Building Regulations which provides guidance on the Building Regulation system in England.

**Definition of high rise buildings (HRBs)**

To meet the criteria of an HRB a building must be:

- At least 18 metres in height or have at least seven storeys; and
- Contain at least two residential units or be a hospital or a care home.

Guidance is available to determine if:

- A new building being constructed is an HRB.
- An existing building being altered is, or will become, an HRB.
- An occupied building is an HRB.

Hotels and secure residential institutions are not classed as HRBs. Buildings referred to as 'High Rise Residential Buildings' by the Building Safety Regulator (BSR) must be registered with the Regulator prior to occupation. Hospitals and care homes are not required to be registered.

**New bodies**

The Act creates three new bodies to oversee the new building safety regime:

- The Building Safety Regulator (BSR) oversees the safety and standards of all buildings. For non-high-risk buildings, the BSR will oversee safety standards, enforce building safety regulations, and maintain a register of Building Control Bodies and their Inspectors. For HRBs, the BSR will also be the Building Control authority.
- The National Regulator for Construction Products (NRCP) will oversee and enforce a more effective regulatory regime for construction products. The NRCP is in the process of being set up and in the interim the Office for Product Safety and Standards (OPSS) and Local Authority Trading Standards continue to act as the national regulator for consumer products including building materials.
- The New Homes Ombudsman will enable owners of new build homes to raise complaints.

**New responsibilities**

The BSA defines new responsibilities:

- Duty holders, known as Clients, Principal Designers, Designers, Principal Contractors, and Contractors are required to manage building safety risks during the design and construction of all building works, both new build and alteration/refurbishment.
- Accountable Persons have a range of duties in relation to relevant occupied HRB’s to ensure they are registered, building safety risks are managed and the concerns of residents are addressed.
- Building Owners, Landlords and Developers are required to pay for remediation of historical defects and may need to pay the Building Safety Levy on new residential projects.

**New Systems**

The BSA introduces the following new systems:

- Building Control has become a new regulated profession.
- Competence is required for all individuals appointed to work on all buildings, and organizations must demonstrate they have the right organizational capability.
For HRBs, new Gateways are decision points at 3 key stages of an HRB: before planning permission is granted, before building work can begin, and before a building can be occupied.

For HRBs the Golden Thread of Information must be created, stored digitally and maintained and updated throughout the lifecycle of an HRB.

For HRBs there must be Mandatory and Voluntary reporting to the BSR of fire and structural safety occurrences in buildings which could cause a significant risk to life safety.

**Existing Legislation – The Building Act 1984 (‘the Building Act’)**

The Building Act is a piece of primary legislation under which secondary legislation (e.g. Building Regulations) is made, for the purpose of:

- securing the health, safety, welfare and convenience of persons in or about buildings and of others who may be affected by buildings or matters connected with buildings;
- furthering the conservation of fuel and power; and
- preventing waste, undue consumption, misuse or contamination of water.

These Building Regulations set out the required standards for building work. In addition, the Building Act provides for the publication of ‘Approved Documents’, which give more detailed advice on how to meet the legal requirements contained in the Building Regulations. The Building Act is, therefore, a piece of enabling legislation which oversees the framework for how building work is regulated.

In addition, the Building Act gives local authorities powers (and places an obligation upon them) to uphold building regulations in their areas. These powers include a right of entry into buildings, and powers of prosecution and enforcement in relation to non-compliant building work, dangerous structures and demolitions. Building Regulations are brought into force under the Building Act will set the notification procedures that must be followed when starting, carrying out and completing building work, as well as the minimum requirements for specific aspects of building design and construction.

The role of ‘approved inspector’ is also created by the Building Act – who may act in place of the local authority building control service. The Building Regulations require that a project’s compliance with the building regulations is independently verified. Historically, this verification could only be given by local authorities, however, it can now also be provided by a UK state authorized ‘approved inspector’. The Building Act also sets out procedures for notifications, inspections, determinations, relaxations, exemptions and appeals.

As part of the new regime for building safety, changes to existing legislation is as follows:

- The Building Regulations 2010 have been amended to define requirements for all buildings.
- Approved Document B of the Building Regulations is being updated to improve fire safety in buildings.
- The Architects Act Regulations has been amended to give the Architects Registration Board new powers to monitor and assess the competence of architects throughout their careers.
- Section 38 of the Building Act will be brought into force, allowing a claim for compensation for damages caused by a breach of Building Regulations.
- Building Liability Orders extend the liability for projects undertaken by a company to any associated companies, such as a parent or sister company.
- The Defective Premises Act has been amended to extend both the liability period in which a claim can be made and its remit to include refurbishment work.
- The Fire Safety Order has been strengthened to ensure residents receive relevant fire safety information.
Research & Development (R&D) Tax Relief

Introduction
Research and Development (R&D) tax reliefs and tax credits are aimed at encouraging expenditure by companies on innovative projects that advance the overall knowledge or capability in the fields of science and technology. R&D tax relief and tax credits are given against corporation tax and are therefore only available for companies. In some situations, where the company is making losses, the tax relief or tax credit can be surrendered for a cash payment.

The legislation covering R&D tax relief and tax credits is mainly found in Part 13 of the Corporation Tax Act 2009 (CTA 2009). The following legislative references are to CTA 2009 unless otherwise stated.

There are currently two schemes set out in the legislation, which applies for expenditure incurred before 1 April 2024, as follows:

- R&D expenditure credits (section 1040A), commonly referred to as RDEC.
- Additional tax relief for small or medium sized enterprises (section 1044), commonly referred to as the SME scheme.

The two schemes were effectively merged for expenditure incurred from 1 April 2024 by legislation set out in the Finance Act 2024. However, parts of the SME scheme are retained for loss making SMEs that incur substantial R&D expenditure – this is referred to as ‘enhanced R&D intensive support’ (ERIS).

Definition of R&D
In accordance with Section 1041, R&D has the meaning given by section 1138 of CTA 2010 which states that R&D means ‘activities that fall to be treated as research and development in accordance with generally accepted accounting practice’. The activities must also fall within special definitions set out in the Department for Science, Innovation and Technology (DSIT) Guidelines for activities to be treated either as ‘directly contributing’ to seeking the advance in science or technology, or to be treated as a ‘qualifying indirect activity’.

The company seeking to claim the tax relief must be able to explain the intended advance in science or technology and how the specific project seeks to achieve the desired outcome through the resolution of uncertainty. However, the project must seek an advance in the overall knowledge or capability in the specific field of science or technology and not simply an advance for the sole benefit of the company.

The RDEC before 1 April 2024
The RDEC is designed for companies that have 500 or more employees, and either a balance sheet that exceeds 86 million euros, or a turnover of more than 100 million euros. The RDEC is an ‘above the line’ expenditure credit, in addition to the normal 100% deduction available as a trading expense under section 87. It can also be claimed by SMEs who have been subcontracted to do R&D work by a large company or where SMEs have received certain types of funding.

Under RDEC, the company can obtain a tax credit of 20% (13% before 1 April 2023) of its R&D expenditure. The credit is taxable at the normal corporation tax rate, which effectively means that the tax benefit of the credit is 15% of the qualifying R&D expenditure for a company subject to the 25% tax rate. The tax credit is set off against the company’s corporation tax liability. Any unutilized expenditure credit, after following steps 1 to 6 set out under section 104N(2), is paid to the company under step 7 of section 104N(2).

The payable amount under step 7 ensures that loss-making companies receive the same net benefit as profit makers where the credit is taxable. This is achieved by retaining a ‘notional’ tax of 25% so that the total cash benefit for all claimants is equal to the expenditure credit net of tax at the main rate of corporation tax. For example, £300,000 of qualifying R&D expenditure would give rise to a RDEC of £60,000 (i.e. 20% × £300,000), which would be taxed at 25% providing a net benefit of £45,000
or 15% of the R&D expenditure. If the company is loss-making, the payable credit (subject to cap below) would be calculated as 15% of the R&D expenditure.

The cap on the payable tax credit under RDEC is the total amount of expenditure on the R&D workers PAYE and NIC. The companies PAYE and NIC staffing costs consist of employees of the company engaged in R&D activity and any externally provided workers (EPWs) from a connected group company. No account is taken of the employees non-R&D activity but, for the EPWs, the cost of PAYE and NIC would be apportioned between the time spent on R&D activity and non-R&D activity.

The SME scheme before 1 April 2024

The SME scheme is only available to companies with less than 500 staff and a turnover of under 100 million euros or a balance sheet total under 86 million euros. Linked companies and partnerships must be included when deciding whether a company is an SME under this scheme, but certain relaxations apply from 1 April 2023.

The additional tax deduction available under the SME scheme is 86% for R&D expenditure incurred on or after 1 April 2023 (130% before 1 April 2023). This means that under the SME scheme a company can deduct 186% of its R&D expenditure (previously it was 230%) as 100% deduction is already available as a trading expense under section 87.

The payable tax credit under the SME scheme (which unlike RDEC is not taxed as income) is 10% of the surrenderable loss from 1 April 2023 (14.5% before 1 April 2023). The surrenderable loss being the lower of actual losses and 186% of the R&D expenditure. This means that the payable tax credit is worth a maximum of 18.6% of the company's R&D expenditure based on the 25% main rate of corporation tax.

Under the SME scheme the company can also obtain tax relief for pre-trading expenditure on R&D (which would not otherwise be available) by making an election under section 1045 to treat the pre-trading R&D expenditure as a trading loss equal to 186% of the qualifying R&D expenditure. The company can then surrender the loss for a payable tax credit under section 1058.

The amount of the payable tax credit that an SME company can receive in any one year is restricted to £20,000 plus three times the company's total PAYE and NIC liability. A company is exempt from the cap if its employees are creating, preparing to create or managing intellectual property and it does not spend more than 15% of its qualifying R&D expenditure on subcontracting R&D to, or the provision of externally provided workers (EPWs) by, connected persons.

For R&D intensive SMEs that incur at least 40% of their total annual expenditure on qualifying R&D, the payable tax credit is 14.5% from 1 April 2023 instead of the 10% rate that applies for other SMEs.

However, the additional deduction rate of 86% will still apply to R&D intensive SMEs from 1 April 2023. This means that the payable tax credit is worth 26.97% for loss-making intensive SMEs.

Qualifying expenditure

The revenue expenditure that qualifies for R&D tax relief and tax credits under either the RDEC scheme or the SME scheme can be grouped under the following categories:

- Staffing costs
- EPWs
- Subcontractors
- Consumables and computer software
- Payments to the subjects of clinical trials

Staffing costs include wages, overtime pay and cash bonuses, employer national insurance contributions, employer pension contributions and certain reimbursed business expenses such as travel and subsistence expenses provided that they are incurred and then reclaimed by the employee. Any benefits in kind, such as private medical cover and company cars, are specifically excluded from the staff costs category. An appropriate apportionment should be applied to staff costs if the staff concerned are carrying out R&D for only some of their time.

EPWs are individuals provided to the company through a staff provider. EPWs must operate through the staff provider instead of contracting directly with the company. These individuals would include agency staff, contractors and freelancers. EPWs must work under the supervision, direction and control of the company when carrying out R&D work. Again, an apportionment will be necessary between time spent on R&D and time spent on other activities. The costs for ‘unconnected’ EPWs, where
the EPWs are provided by an agency or other party that is unconnected to the company, must be restricted to 65% to allow for the profit charged by the agency. The cost of connected EPWs does not have to be similarly restricted, but the cost is restricted to the lower of the cost incurred by the company and the cost incurred by the connected party that provides the EPWs.

Subcontractor costs incurred on R&D projects will normally only be allowable in the case of a claim under the SME scheme. As in the case of unconnected EPWs, unconnected subcontractor costs are restricted to 65% for the tax credit claim. For connected subcontractors, as for connected EPWs, the subcontractor costs that can be included in the claim are the lower of the cost incurred by the company and the costs incurred by the connected subcontractor.

In the case of RDEC claims, companies can only claim for expenditure on subcontracted R&D if the subcontractor is one of the following:

- An individual
- A partnership made up solely of individuals
- A qualifying body, including charities, universities and scientific research organizations

The subcontracted costs included in a RDEC claim are not restricted in the same way as they are for claims under the SME scheme.

Consumable costs include the materials that are consumed or transformed in the R&D process, such as water, electricity, fuel and any materials used in the construction of prototypes. Any cost incurred after the R&D project has been completed, for example the cost of materials for fine-tuning or marketing, is not qualifying expenditure.

Expenditure on R&D carried out by the company that is met by any other party is subsidized expenditure under section 1138 and must be excluded from a claim under the SME scheme. However, the company can still claim under the RDEC scheme for subsidized expenditure.

**Claim notification**

For accounting periods beginning on or after 1 April 2023, if a company is making its first claim for R&D tax relief or tax credit, or it has not made a claim in any of the previous three calendar years, the company must submit a Claim Notification form otherwise its claim will not be valid.

If the Claim Notification is required, the form must be submitted not later than six months after the end of the period of account that includes the relevant accounting period. If the company’s accounting period changes, or they decide not to claim until a later accounting period, the company may need to submit a new Claim Notification form.

The Claim Notification form is accessible on GOV.UK and should contain the following information:

- the Unique Tax Reference (UTR) number of the company, as shown on its CT600 tax return
- contact details of main internal R&D contact at the company, such as a company director
- contact details of any agent involved in the R&D claim, including the agent reference number if possible
- the accounting period start and end date for which the company is claiming the tax relief or expenditure credit, which must correlate with the company’s tax return
- the period of account start and end date

Notwithstanding the above, the company is not required to submit a Claim Notification form if it makes its R&D claim before the deadline for submitting a Claim Notification. Therefore, the purpose of the Claim Notification is to give HMRC early notice that the company will be making a claim, in advance of providing the information in the company’s tax return.

**Additional information**

For R&D tax relief claims made on or after 1 August 2023, additional information must be provided in accordance with regulations made by HMRC. The guidance published by HMRC setting out what additional information is required became law under Schedule 1 of the Finance (No 2) Act 2023. This requirement applies to all R&D claims, including a claim for a payable tax credit.

HMRC guidance states that the additional information should be provided on the Additional Information form accessible on GOV.UK. Whilst additional information such as supporting reports can still be provided with the company’s tax return, the
guidance states that providing an R&D report and then inserting language into the Additional Information form such as ‘see R&D report for more detail’ does not meet the additional information requirements and will likely lead to the form being flagged for further investigation.

The requirement to provide an Additional Information form applies to each company making an R&D claim. If there are several companies within the same group making similar R&D claims, each company in the group will be required to submit a separate Additional Information form. Furthermore, for projects spanning several years, a new Additional Information form will need to be submitted for each year that a company claims R&D tax reliefs. Again, just referring to previous forms would not meet the additional information requirements, although the information contained on earlier forms could be duplicated on later ones.

Whilst HMRC have stated that there is no pre-determined expectation of the amount of information required to be provided for any individual project when completing the Additional Information form, the information required must be sufficient to explain why the project qualifies for R&D tax relief and state under which scheme the claim is made.

The Additional Information form must be provided by the date that the claim is made or amended by the company in accordance with the Finance Act 1998 (FA 1998), Schedule 18, paragraph 83E.

The information required is substantial and includes the company’s Unique Taxpayer Reference, employer PAYE reference number, VAT registration number, business type such as the company’s Standard Industrial Classification code, as well as contact details for the main senior internal R&D contact in the company, contact details of any agent involved in the R&D claim and the accounting period start and end date for which the company is claiming the tax relief.

The company must also state the number of projects included within the R&D claim for the relevant accounting period. The level of information required for the projects will depend on the number of projects as follows:

- for 1 to 3 projects, a description is required for all the projects that cover 100% of the qualifying expenditure.
- for 4 to 10 projects, a description is required for those projects that account for at least 50% of the total expenditure, with a minimum of 3 projects described.
- for 11 to 100 (or more) projects, a description is required for those projects that account for at least 50% of the total expenditure, with a minimum of 3 projects described. If the qualifying expenditure is split across multiple smaller projects, a description is required for the 10 largest projects.

Some of the above information is the same as that required on the Claim Notification form. However, the project information required on the Additional Information form is far more onerous.

Furthermore, since 1 August 2023, all claims for R&D tax relief and tax credits must be made digitally through HMRC’s tax return portal.

The merged scheme RDEC from 1 April 2024

The existing RDEC for large companies and the SME scheme are effectively merged into a single scheme for expenditure incurred in accounting periods starting on or after 1 April 2024. From that date all claims will be made in accordance with the rules of the merged scheme, except for claims by SMEs that qualify for the enhanced R&D intensive support (ERIS). The rules for the merged scheme are set out in Chapter 1A of Part 13 of CTA 2009. Section 1042H confirms that the RDEC is still an ‘above the line’ credit which is subject to corporation tax and section 1042I sets out the 7 steps for claiming the credit.

For expenditure under the merged scheme, the rate of RDEC is 20%. This is the same as the rate under the old RDEC scheme for expenditure incurred on or after 1 April 2023. However, there are some notable differences between the existing RDEC scheme and the merged scheme, where aspects of the current SME scheme have been incorporated into the merged scheme. The most significant difference is the rules for contracted out R&D.

Generally, companies will not be able to make a claim for RDEC if the R&D has been contracted to them. However, where a company with a valid R&D project contracts a third party subcontractor to undertake R&D activities on its behalf, the company (but not the subcontractor) may claim for the qualifying expenditure. The general rule is that the party who takes the decision to undertake R&D will be able to claim.

There are some scenarios where a subcontractor can claim R&D tax relief. These include when a company carries out R&D for a contractor which is not a tax-paying entity, such as charities, universities, scientific research organizations, as well as overseas entities.
Costs incurred outside of the UK on subcontracted R&D, and on EPWs outside of UK, will only be allowable for R&D tax relief where the work must be undertaken outside of the UK for reasons such as geography, environment or regulation. Both cost considerations and workforce availability are explicitly ruled out as reasons for overseas expenditure to qualify.

There are no restrictions on subsidized expenditure within the merged scheme.

If the company is loss-making, it can utilize the ‘surrenderable loss’ as calculated under section 1042I using a notional tax deduction rate of 19% (previously 25% under the old RDEC scheme) which means that the loss can be surrendered for a cash credit of up to 16.2% of the qualifying expenditure.

The cap on the amount of the payable tax credit that a company can receive in any one year under the merged scheme is the same as the cap that applied under the existing pre-April 2024 SME scheme, being £20,000 plus three times the company’s total PAYE and NIC liability. This is more generous than the cap that applied under the pre-April 2024 RDEC scheme. Any excess over the cap is carried forward and treated as an amount of RDEC for the next accounting period.

Enhanced R&D intensive support (ERIS) from 1 April 2024

The rules for ERIS are set out in Chapter 2 of Part 13 of CTA 2009. Under ERIS, loss-making R&D intensive SMEs can deduct an extra 86% of their qualifying costs, just as SMEs could under the previous SME scheme, instead of claiming an RDEC under the merged scheme. However, if the company qualifies under ERIS it can still opt to claim under the merged scheme but it cannot claim under both schemes.

The payable tax credit under ERIS (which unlike the merged RDEC is not taxed as income) is 14.5% of the surrenderable loss. The surrenderable loss being a maximum of 186% of the R&D expenditure. This means that the payable tax credit for loss-making and R&D intensive SMEs is still worth a maximum of 26.97% of the company’s R&D expenditure under ERIS.

In addition, under ERIS, a loss-making R&D intensive SME can still obtain tax relief for pre-trading expenditure on R&D under section 1045, which is not available to other SMEs.

The threshold for companies to be considered ‘R&D intensive’ is 30% of their total annual expenditure on qualifying R&D in accordance with section 1045ZA of CTA 2009. Companies that incur less on qualifying R&D than the 30% threshold must claim tax relief under the merged scheme.

A one-year grace period will apply for companies who dip under the 30% threshold for ERIS. This is intended to protect loss-making SMEs from moving in and out of ERIS retrospectively thereby avoiding uncertainty around financial planning and investment decisions.

The restrictions on contracted out R&D and on overseas expenditure, which apply under the merged scheme, also apply to ERIS. Also, in common with the merged scheme, under ERIS there will be no restrictions around subsidized R&D.

The cap on the amount of the payable tax credit that an SME company can receive in any one year is £20,000 plus three times the company’s total PAYE and NIC liability. Any claim for a payable tax credit in excess of the cap is invalid. However, a company is exempt from the cap if its employees are creating, preparing to create or managing intellectual property and it does not spend more than 15% of its qualifying R&D expenditure on subcontracting R&D to, or the provision of externally provided workers (EPWs) by, connected persons.

Research and development allowances

Capital costs associated with the construction of dedicated R&D facilities may benefit from specific capital allowances.

Contact

For further information or assistance, please contact AECOM’s Fiscal Incentives team:
help.r&d@aecom.com
Building Regulations in Brief, 10th edition

By Ray Tricker and Samantha Alford

This tenth edition of the most popular and trusted guide reflects all the latest amendments to the Building Regulations, planning permission and the Approved Documents in England and Wales. This includes coverage of the recent changes to use classes, updated sections on planning permission, permitted development and application fees. We have included the revisions to Approved Document B (as a result of the Hackitt Review), as well as the latest changes to Approved Documents F and L, and the new documents O (overheating) and S (electric vehicle charging points), which come into effect in June 2022.

Giving practical information throughout on how to work with (and within) the Regulations, this book enables compliance in the simplest and most cost-effective manner possible. The no-nonsense approach of Building Regulations in Brief cuts through any confusion and explains the meaning of the Regulations. Consequently, it has become a favourite for anyone working in or studying the building industry, as well as those planning to have work carried out on their home. It is essential reading for all building contractors and subcontractors, site engineers, building engineers, building control officers, building surveyors, architects, construction site managers and DIYers.

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Building Costs Indices, Tender Price Indices and Location Factors

AUTHORS NOTE
We have rebased our indices to 2015 = 100 (from 1976 = 100) For this edition of the book TPI has been calculated at 168 (2015 = 100).
To avoid confusion, it is essential that the terms building costs and tender prices are clearly defined and understood.

- **Building Costs Indices** are the costs incurred by the contractor in the course of his business, the principal ones being those for labour and materials, i.e. cost to contractor
- **Tender Price Indices** represents the price for which the contractor offers to do the project for, i.e. cost to client.

Readers are reminded that the following adjustments for time and location should be applied to the whole project and not just to individual elements or materials.

**Building Cost Indices**

Building costs are the costs incurred by the builder in the course of business, i.e. wages, material prices, plant costs, rates, rents, overheads and taxes. AECOM’s Building Cost Index measures movement of basic labour and materials costs to the builder. It is a composite index.

This table reflects the fluctuations since 2015 (base date 2015 = 100) in costs to the contractor. No allowance has been made for changes in productivity or for rates or hours worked which may occur in particular conditions and localities.

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<th>Third quarter</th>
<th>Fourth quarter</th>
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<td>113.3</td>
<td>115.5</td>
<td>113.3</td>
<td>-0.9%</td>
</tr>
<tr>
<td>2021</td>
<td>117.0</td>
<td>120.3</td>
<td>124.8</td>
<td>127.3</td>
<td>122.3</td>
<td>8.2%</td>
</tr>
<tr>
<td>2022</td>
<td>128.5</td>
<td>135.9</td>
<td>138.4</td>
<td>137.6</td>
<td>135.1</td>
<td>10.4%</td>
</tr>
<tr>
<td>2023</td>
<td>137.7</td>
<td>138.9</td>
<td>140.1 (P)</td>
<td>139.9</td>
<td>139.1</td>
<td>3.0%</td>
</tr>
<tr>
<td>2024</td>
<td>141.0 (F)</td>
<td>142.3</td>
<td>143.6</td>
<td>144.9</td>
<td>143.0</td>
<td>1.9%</td>
</tr>
<tr>
<td>2025</td>
<td>146.3</td>
<td>147.6</td>
<td>149.0</td>
<td>150.3</td>
<td>148.3</td>
<td>3.8%</td>
</tr>
<tr>
<td>2026</td>
<td>151.7</td>
<td>153.1</td>
<td>154.5</td>
<td>155.9</td>
<td>153.8</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

**Note:** (P) Provisional, (F) = Forecast thereafter

Users wishing to reference to or from the previous set of indices which were in use in earlier editions of the book, which had a base date of 1976 = 100 need to apply a factor to convert. Multiply the BCI series above by 8.7608 to give the equivalent in the 1976 series.
Tender Price Indices

The extract tables below show the changes in building tender prices since 2010 (base date 2015 = 100). They include building costs but also consider market factors; the tendering climate; constructor sentiment and its assessment of prevailing market conditions amongst other things. They therefore include allowances for profits, risks and other oncosts such as preliminaries. The constructor must also anticipate cost changes during the lifetime of the contract. This means that, for example, in busier times tender prices may increase at a greater rate than building costs, whilst in a downturn the opposite may apply. The same concepts apply to trade contractors, and there is often a compounding of these trends up through the supply chain. AECOM’s Tender Price Index is derived from analysis of project data and tender returns on AECOM’s UK projects.

Tender prices are similar to building costs but also take into account market considerations such as the availability of labour and materials, and the prevailing economic situation. This means that in boom periods, when there is a surfeit of building work to be done, tender prices may increase at a greater rate than building costs, whilst in a period when work is scarce, tender prices may actually fall when building costs are rising.

Spon’s A & B 2025 has been calculated to give a book TPI of 168

<table>
<thead>
<tr>
<th>Year</th>
<th>First quarter</th>
<th>Second quarter</th>
<th>Third quarter</th>
<th>Fourth quarter</th>
<th>Annual average</th>
<th>% change year-on-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>110.9</td>
<td>111.3</td>
<td>112.2</td>
<td>112.6</td>
<td>111.7</td>
<td>3.5%</td>
</tr>
<tr>
<td>2018</td>
<td>113.2</td>
<td>113.7</td>
<td>115.2</td>
<td>117.1</td>
<td>114.8</td>
<td>2.8%</td>
</tr>
<tr>
<td>2019</td>
<td>117.9</td>
<td>118.2</td>
<td>119.3</td>
<td>120.0</td>
<td>118.8</td>
<td>3.5%</td>
</tr>
<tr>
<td>2020</td>
<td>120.5</td>
<td>121.0</td>
<td>119.1</td>
<td>119.1</td>
<td>119.9</td>
<td>0.9%</td>
</tr>
<tr>
<td>2021</td>
<td>120.1</td>
<td>122.4</td>
<td>125.3</td>
<td>127.6</td>
<td>123.9</td>
<td>3.3%</td>
</tr>
<tr>
<td>2022</td>
<td>130.9</td>
<td>134.3</td>
<td>138.0</td>
<td>142.3</td>
<td>136.4</td>
<td>10.2%</td>
</tr>
<tr>
<td>2023</td>
<td>145.3</td>
<td>146.6</td>
<td>146.8</td>
<td>145.6</td>
<td>146.1</td>
<td>7.1%</td>
</tr>
<tr>
<td>2024</td>
<td>145.6 (P)</td>
<td>146.0 (F)</td>
<td>146.5</td>
<td>146.8</td>
<td>146.2</td>
<td>0.1%</td>
</tr>
<tr>
<td>2025</td>
<td>147.2</td>
<td>147.8</td>
<td>148.4</td>
<td>149.1</td>
<td>148.1</td>
<td>1.4%</td>
</tr>
<tr>
<td>2026</td>
<td>150.1</td>
<td>151.1</td>
<td>152.0</td>
<td>153.0</td>
<td>151.6</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

Note: (P) = Provisional, (F) = Forecast thereafter

Readers can be kept abreast of tender price movements in the Market Forecast articles, published quarterly in Building magazine.

Users wishing to reference to or from the previous set of indices used in older versions of the book, which had a base date of 1976 = 100 need to apply a factor to convert. Multiply the TPI series above by 5.123 to give the equivalent in the 1976 series.
Using Tender Price Indices to adjust Spon’s Book Rates

Example 1:

New secondary school

Note: example data only

Gross Internal Floor Area (GIFA) = 15,000 m²

Cost plan prepared with a TPI = 124

Start on site TPI, say = 128.4 (actual index to be selected from current published TPI)

Location: North West adjustment, say = 0.88

From Building Prices per Square Metre

Assume rate of say £1,800 per m²

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculation</th>
<th>Cost (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School rate, say</td>
<td>£1,800/m² × 15,000 m² =</td>
<td>27,000,000</td>
</tr>
<tr>
<td>Adjust for inflation to start date</td>
<td>(128.4/124) say +3.5%</td>
<td>945,000</td>
</tr>
<tr>
<td>Adjust for location</td>
<td>subtotal</td>
<td>27,945,000</td>
</tr>
<tr>
<td></td>
<td>-12%, say</td>
<td>-3,353,400</td>
</tr>
<tr>
<td>Allow for contingencies</td>
<td>subtotal</td>
<td>24,591,600</td>
</tr>
<tr>
<td></td>
<td>say 10%</td>
<td>2,459,160</td>
</tr>
<tr>
<td><strong>Total Order of Cost Estimate</strong></td>
<td></td>
<td><strong>27,050,760</strong></td>
</tr>
</tbody>
</table>

Main contractor’s preliminaries, overheads and profit need not be added to the cost of building works as they are included within the Spon’s building prices per square metre rates, but you will need to add on professional fees and other enabling works costs such as site clearance, demolition, external works, car parking, bringing services to site, etc.