

Appendix two

Notes and Definitions

DEFINITION OF THE CONSTRUCTION INDUSTRY

The industry is defined in accordance with Divisions 41 – 43 of the UK Standard Industrial Classification of Economic Activities 2007 - SIC(2007). The concept of allied construction activities (also known as allied trades) has been introduced in SIC (2007), replacing the division structure of the previous version SIC (2003), which was based largely on the stage of the construction process.

This industry definition includes general construction and allied construction activities for buildings and civil engineering works. It includes new work, repair, additions and alterations, the erection of prefabricated buildings or structures on the site and also construction of a temporary nature.

General construction is the construction of entire dwellings, office buildings, stores and other public and utility buildings, farm buildings etc., or the construction of civil engineering works such as motorways, streets, bridges, tunnels, railways, airfields, harbours and other water projects, irrigation systems, sewerage systems, industrial facilities, pipelines and electric lines, sports facilities etc. This work can be carried out on own account or on a fee or contract basis. Portions of the work and sometimes even the whole practical work can be subcontracted out. A unit that carries the overall responsibility for a construction project is classified here. Also included is the repair of buildings and civil engineering works.

The industry definition includes the complete construction of buildings (division 41), the complete construction of civil engineering works (division 42), as well as allied construction activities, if carried out only as a part of the construction process (division 43).

The renting of construction equipment with operator is classified with the specific construction activity carried out with this equipment.

Section 41 - Construction of buildings

This division includes general construction of buildings of all kinds. It includes new work, repair, additions and alterations, the erection of pre-fabricated buildings or structures on the site and also construction of a temporary nature.

Included is the construction of entire dwellings, office buildings, stores and other public and utility buildings, farm buildings, etc.

The New Orders and Construction Output surveys do not include class 41.1 (Development of building projects) as the class is not directly included in the construction process. This class includes: development of building projects for residential and non-residential buildings by bringing together financial, technical and physical means to realise the building projects for later sale.

Section 42 - Civil engineering

This division includes general construction for civil engineering works. It includes new work, repair, additions and alterations, the erection of pre-fabricated structures on the site and also construction of temporary nature. Included is the construction of heavy constructions such as motorways, streets, bridges, tunnels, railways, airfields, harbours and other water projects, irrigation systems, sewerage systems, industrial facilities, pipelines and electric lines, outdoor sports facilities, etc. This work can be

carried out on own account or on a fee or contract basis. Portions of the work and sometimes even the whole practical work can be subcontracted out.

Section 43 - Allied construction activities

This division includes allied construction activities (allied trades), i.e. the construction, or preparation for construction, of parts of buildings and civil engineering works. These activities are usually specialised in one aspect common to different structures, requiring specialised skills or equipment, such as pile-driving, foundation work, carcass work, concrete work, brick laying, stone setting, scaffolding, roof covering, etc. The erection of steel structures is included provided that the parts are not produced by the same unit. Allied construction activities are mostly carried out under subcontract, but especially in repair construction it is done directly for the owner of the property.

Also included are building finishing and building completion activities. Included is the installation of all kind of utilities that make the construction function as such. These activities are usually performed at the site of the construction, although parts of the job may be carried out in a special shop. Included are activities such as plumbing, installation of heating and air-conditioning systems, antennas, alarm systems and other electrical work, sprinkler systems, elevators and escalators, etc. Also included are insulation work (water, heat, sound), sheet metal work, commercial refrigerating work, the installation of illumination and signalling systems for roads, railways, airports, harbours, etc.

Repair of the above mentioned installations is also included. Building completion activities encompass activities that contribute to the completion or finishing of a construction such as glazing, plastering, painting, floor and wall tiling or covering with other materials like parquet, carpets, wallpaper, etc., floor sanding, finish carpentry, acoustical work, cleaning of the exterior, etc. Repairs to the above mentioned completion or finishing work are also included.

The renting of equipment with operator is classified with the associated construction activity.

Direct Labour Organisations

Construction work carried out by direct employees of government departments, local authorities, new towns and nationalised industries in the transport sector, where information is available, is no longer included in the published construction output and employment statistics. Output by direct employees of utilities and other public sector organisations is also excluded from construction. Such work is classified to the same SIC heading as the establishment which they serve.

New construction work

Includes extensions, major alterations (improvements), site preparation and demolition, except for housing where work done on improvements, extensions and alterations and house/flat conversions is included under repair and maintenance. New construction work includes houses converted to other uses.

Public and Private Sector

Public work is for any public authority such as government departments, public utilities, nationalised industries, universities, the Post Office, new town corporations, housing associations and so on.

Private work is for a private owner or organisation or for a private developer, and includes work carried out by firms on their own initiative. It includes work where the private sector carries the majority of the risk/gain. In principle, all Private Finance Initiative (PFI) contracts are private.

Sampling Frame

ONS maintains a comprehensive list of UK businesses for statistical purposes called the Inter-Departmental Business Register (IDBR). It provides a sampling frame for surveys of businesses carried out by the Office for National Statistics (ONS) and by other government departments. It is also a key data source for analyses of business activity.

The main administrative sources for the IDBR are VAT trader and PAYE employer information passed to the ONS by HM Revenue & Customs; details of incorporated businesses are also passed to ONS by Companies House. This is supplemented by ONS survey data and survey information from:

- Department of Enterprise, Trade and Investment – Northern Ireland (DETINI)
- Department for Environment, Food and Rural Affairs (Defra) farms register

The IDBR combines the information from the three administrative sources with this survey data in a statistical register comprising over two million enterprises. These comprehensive administrative sources combined with the survey data contribute to the coverage on the IDBR, which is one of its main strengths, representing nearly 99 per cent of UK economic activity. The IDBR covers businesses in all parts of the economy, missing some very small businesses without VAT or PAYE schemes (self employed and those with low turnover and without employees) and some non-profit making organisations.

The IDBR has replaced the Builders' Address File (BAF), which was used as a sampling frame until the end of 2009.

CONSTRUCTION NEW ORDERS AND OUTPUT (CHAPTERS 1 & 2)

Value of New Orders (Tables 1.1 - 1.7)

This information relates to contracts for new construction work awarded to main contractors by clients in both the public and private sectors, including extensions to existing contracts and construction work in 'package deals'. Also included is speculative work, undertaken on the initiative of the firm, where no contract or order is awarded; the value of this work is recorded in the period when foundation works are started, such as on houses or offices for eventual sale or lease.

The figures are collected in current price terms. These are revalued at constant (2005) prices, then seasonally adjusted and converted into index form based on 2005=100.

Regional classification of orders is based on the location of the site work, not the location of the firm, by using regional boundaries. Contracts are allocated to types of work according to the type of construction involved, not the type of client.

Value of Output (Tables 2.1 - 2.9)

Output is defined as the amount chargeable to customers for building and civil engineering work done in the relevant period excluding VAT. As well as work

charged to customers, businesses are asked to include the value of work done on their own initiative on buildings such as dwellings or offices for eventual sale or lease, and of work done by their own operatives on the construction and maintenance of their own premises. The value of goods made by businesses themselves and used in the work is also included.

In all returns, work done by sub-contractors is excluded to avoid double counting, since sub-contractors are also sampled. The results of the New Orders survey are used to distribute the overall estimate of output on new work (based on business returns) between the different types of new work carried out and the location of the work. The regional classification of new work is therefore based on the location of site work, while for repair and maintenance it is based on the location of the firm.

The figures collected are at current values. These are re-valued at constant prices and then seasonally adjusted and converted into index form, based on 2005=100.

The estimates of the value of output no longer include estimates of 'unrecorded output' of firms and individuals not on the statistical register.

Output does *not* include payments made to architects or consultants from other firms - this would also cover engineers and surveyors. It would include wages paid to such people if they were directly employed by the business.

Direct Labour Output of Public Sector

Direct Labour Output ceased to be collected from January 2010. Government departments, local authorities, new towns and national industries in the transport sector (where information was available) were surveyed quarterly, in respect of work done by employees engaged on building and civil engineering work. Output by direct employees of other public bodies such as NCB and UKAEA was excluded from construction. Such work was classified to the same heading as the establishment which they serve.

Type of New Work: Detailed Descriptions

Orders and output have been classified in accordance with revised descriptions given below from 1st quarter 1980. Prior to 1st quarter 1980 there were differences in definition; see *Housing and Construction Statistics: Notes and Definitions Supplement, 1991*.

Prior to 1st quarter 1985, telephone exchanges and cabling work for British Telecom were classified as communications work for the public sector. From 1st quarter 1985 this work has been classified to the private sector. From 1st quarter 1987 construction work for British Gas has been classified to the private sector. From 1st quarter 1990, construction work for water companies in England and Wales has been classified to the private sector. From 1st quarter 1991, construction work for electricity companies in England and Wales has been classified to the private sector. From 2nd quarter 1996 construction work for rail companies has been classified to the private sector.

Type of Work	Examples of Kind of Work Covered¹
(a) Public Sector Housing	Local authority housing schemes, hostels (except youth hostels), married quarters for the services and police; old peoples' homes; orphanages and children's remand homes; and the provision within housing sites of roads and services for gases, water, electricity, sewage and drainage.
(b) Private Sector Housing	All privately owned buildings for residential use, such as houses, flats and maisonettes, bungalows, cottages, vicarages, and provision of services to new developments.
(c) Infrastructure	
Water	Reservoirs, purification plants, dams (except for hydro-electric schemes), aqueducts, wells, conduits, water works, pumping stations, water mains, hydraulic works.
Sewerage	Sewerage disposal works, laying of sewers and surface drains.
Electricity	All buildings and civil engineering work for electrical undertakings such as power stations, dams and other works on hydro-electric schemes, sub-stations, laying of cables and the erection of overhead lines.
Gas	Gas works, gas mains and gas storage.
Communications	Post offices, sorting offices, telephone exchanges, switching centres, cables.
Air Transport	Air terminals, runways, hangars, reception halls, radar installations, perimeter fencing, etc, which are for use in connection with airfields.
Railways	Permanent way, tunnels, bridges, cuttings, stations, engine sheds, etc, and electrification of both surface and underground railways.
Harbours (Including Waterways)	All works and buildings directly connected with harbours, wharves, docks, piers, jetties (including oil jetties), canals and waterways, dredging, sea walls, embankments, and water defences.
Roads	Roads, pavements, bridges, footpaths, lighting, tunnels, flyovers, fencing.
(d) Non-Housing Excluding Infrastructure²	
Factories	Factories, shipyards, breweries, chemical works, coke ovens and furnaces (other than at steelworks), skill centres, laundries, refineries (other than oil),

¹ Mixed development schemes are included in the category which describes the major part of the scheme.

² Private work is classified between industrial and commercial as follows:

Industrial – factories, Warehouses, Oil, Steel, Coal

Commercial – Schools and Colleges, Universities, Health, Offices, Entertainment, Garages, Shops, Agriculture, Miscellaneous.

	workshops, Royal Mint (in public sector).
Warehouses	Warehouses, wholesale depots.
Oil	Oil installations including refineries, distribution pipelines and terminals, production platforms (but not modules or rigs).
Steel	Furnaces, coke ovens and other buildings directly concerned with the production of steel (excludes offices and constructional steelwork).
Coal	All new coal mine construction such as sinking shafts, tunnelling, works and buildings at the pithead which are for use in connection with the pit. Open cast coal extraction is excluded.
Schools and Colleges	Schools or colleges (including technical colleges and institutes of agriculture) except medical schools and junior special schools which are classified under 'Health'. Schools and colleges in the private sector are considered to be those financed wholly from private funds such as some religious colleges including their halls of residence.
Universities	Universities including halls of residence, research establishments.
Health	Hospitals including medical schools, clinics, surgeries (unless part of a house); medical research stations (except when part of a factory, school or university), welfare centres, centres for the handicapped and for rehabilitation; adult training centres and junior special schools.
Offices	Office buildings, banks, embassies. Police HQ's, local and central government offices (including town halls) are classified to the public sector.
Entertainment	Theatres, concert halls, cinemas, film studios, bowling alleys, clubs, hotels, public houses, restaurants, cafes, holiday camps, yacht marinas, dance halls, swimming pools, works and buildings at sports grounds, stadiums and other places of sport or recreation and for commercial television, betting shops, youth hostels and centres; service areas on motorways are also classified in this category as the garage is usually only a small part of the complex which includes cafes and restaurants.
Garages	Buildings for storage, repair and maintenance of road vehicles; transport workshops, bus depots, road goods transport depots and car parks.
Shops	All buildings for retail distribution such as shops, department stores, retail markets and showrooms.
Agriculture	All buildings and work on farms, market gardens and

horticultural establishments such as barns, animal houses, fencing, stores, greenhouses, boiler houses, agricultural and fen drainage and veterinary clinics, but not houses (see category (c)), or buildings solely or mainly for retail sales which are included under 'shops'.

Miscellaneous

All work not clearly covered by any other heading, such as: fire stations; barracks for the forces (except married quarters, classified under 'Housing'), naval dockyards; RAF airfields, police stations, prisons, reformatories, remand homes, borstals, civil defence work, UK Atomic Energy Authority work, council depots, public conveniences, museums, conference centres, crematoria, libraries, caravan sites, except those at holiday resorts, exhibitions; wholesale markets, Royal Ordnance factories.

Repair and Maintenance

This concerns work, which is either repairing something which is broken, or maintaining it to an existing standard. For housing output, this includes repairs, maintenance, improvements, house/ flat conversions, extensions, alterations and redecoration on existing housing. For non housing this includes repairs, maintenance and redecoration on existing buildings, which are not housing, such as schools, offices, roads, shops.

STRUCTURE OF THE CONSTRUCTION INDUSTRY (CHAPTER 3)

Private Contractors Construction Work (Tables 3.1, 3.3 - 3.5)

The information from the output survey and the basic information held on the statistical register (Builders' Address File (BAF) pre-2010 and IDBR from 2010) forms the basis of several analyses of the structure of the private construction industry by size of firm, by trade of firm and by region of registration. The results are adjusted to allow for non-response but, unlike the quarterly output and employment series (before 2010), no adjustment is made to allow for firms not on the statistical register. Because of this, historical changes between the years may simply have reflected changes in the BAF rather than structural changes in the industry. For example the increase in the number of firms in 1982 and 1983 was due mainly to the addition of firms identified in the industry following a 'matching' of the VAT based register and the Department's construction register. There was also a discontinuity between 1991 and 1992 as a result of improvements to the coverage of the BAF resulting from the matching exercise carried out with the Inter-Departmental Business Register (IDBR) maintained by the Office for National Statistics. Likewise the reduction between 1995 and 1996 was due to further acceptance of information from the IDBR.

Although the term 'firms' is used throughout, strictly these are 'reporting units' since some large firms, instead of reporting as single units, prefer to report the operations of parts of their companies (such as regional divisions) separately. Other companies may make single returns covering associated companies each of which are legally separate firms.

The size of a firm is determined by total direct employment - including working proprietors as well as employees. Each firm self-classifies trade on the basis of the

activity which forms the most significant part of its turnover. The regional classification is by reference to the address of the reporting office.

Insolvencies (Table 3.2)

Figures for bankruptcies include receiving orders, administration orders and deeds of arrangement made during the year, excluding any rescinded before the end of the year. The debtor may be an individual or a partnership: if orders are made against each member of a partnership, these are consolidated into a single order before being administered. The analysis of occupations relates only to the self-employed, not to employees or company directors who account for 20-25 per cent of bankruptcies and who are included in the total of all orders.

Liquidations of companies include both those which are compulsory following court orders, and creditors' voluntary liquidations when debtor companies wind-up their affairs after agreeing terms with their creditors.

Analyses by industry are not available for sequestrations in Scotland.

CONSTRUCTION PRICE INDICES (CHAPTER 4)

Public Sector Building (Non-House building) Tender Price Index (Tables 4.1, 4.3 - 4.4)

This index measures the movement of prices in competitive tenders for building contracts in the public sector in Great Britain. It does not include contracts for housing work, work of a mainly civil engineering nature, mechanical and electrical work nor repair and maintenance work. Contribution to the data from which this index is calculated is by the submission of priced bills of quantities. The principal contributors are the NHS Trusts, Ministry of Defence, other government departments and the local authorities of England, Scotland and Wales.

Each project index is calculated from the price levels established by comparing the price of items to a minimum value of 25 per cent for each trade or section of the bills of quantities with standard base prices. The resultant factors are combined by applying weights representing the total value of each trade or section. Preliminaries and other general charges are spread proportionally over each item of the bill of quantities.

For each quarter, adjustment factors for location and building function are calculated using the project indices within that quarter and the past eleven quarters.

The quarterly index is calculated by taking the median value of the project indices within that quarter. A three-quarter moving average is used to smooth the published indices.

The published index is an all-in index and is published along with the adjustment factors for location and building function which should be applied before the index is used.

Public Sector House building Tender Price Index (Tables 4.1 - 4.2)

This index measures the movement of prices in competitive tenders for social house building contracts in the England and Wales. It includes new build contracts for single dwellings and those built in blocks, of up to four storeys high. Contribution to the data from which this index is calculated is by way of the completion of survey forms. The

contributors are the local authorities and housing associations of England and Wales

The survey form asks questions about the specification and details of the lump-sum prices taken from the tender documents. Each project index is calculated from the price levels established by comparing the lump-sum tender to a base price tender calculated from base unit prices adjusted to the project specification. The price of sub-structures and external works are not included in the calculation.

For each quarter, adjustment factors for location are calculated using the project indices for that quarter and the past eleven quarters. The quarterly index is calculated by normalising all the project indices, within that quarter, for location and taking their median value. A three-quarter moving average is used to smooth the published indices. The published index is an all-in index and is published along with the adjustment factors for location, which should be applied before the index is used.

Road Construction Tender Price Index (Tables 4.1, 4.5 - 4.7)

This index measures the movement of prices in competitive tenders for road construction contracts in Great Britain. It includes new road construction and major maintenance works of a value exceeding £250,000. Contribution to the data from which this index is calculated is by way of the completion of survey forms and submission of priced bills of quantities. The contributors are the Highways Agency and the highways departments of the local authorities of England, Scotland and Wales.

Each project index is calculated from the price levels established by comparing the price of items to a minimum value of 25 per cent for each trade or section of the bills of quantities with standard base prices. The resultant factors are combined by applying weights representing the total value of each trade or section. Preliminaries and other general charges are spread proportionally over each item of the Bills of Quantities.

For each quarter, adjustment factors for road type, location and contract size are calculated using the project indices for that quarter and the past 11 quarters.

The quarterly medians of the adjusted (by the above factors) project indices divided through by the public sector building tender price index for that quarter, are smoothed by a kalman filter after transformation to normality. The quarterly index is obtained by reversing the transformation on the result of the smoothing and then multiplying by the public sector building tender price index.

The published index is an all-in index and is published along with the adjustment factors for road type, location and contract size, which should be applied before the index is used.

Construction Output Price Indices (Table 4.9)

These indices measure the movement of prices of construction work being carried out. They are derived from tender price indices and are used as 'deflators' to convert Construction Output and Construction New Orders estimates from current prices to constant prices. New deflators were introduced for these series from 2010.

Output of new construction work in a quarter is made up of work done on contracts let during or before that quarter. ONS receives a mixture of Tender Price Indices (TPIs) and Output Price Indices (OPIs), for each of the sectors published, from the Building Cost Information Service (BCIS) on a quarterly basis. The TPIs are

converted to Output Price Indices (OPIs) by ONS by applying weights to the received sector TPIs, based on the typical duration of development for each sector. For Public Housing, for example, the following weights are used to convert the TPI to an OPI.

Period	n	n-1	n-2	n-3	n-4	n-5	n-6	n-7
Weights (W)	0.07	0.14	0.18	0.2	0.17	0.13	0.08	0.03
cum. weights	0.07	0.21	0.39	0.59	0.76	0.89	0.97	1

The value of New Orders for Public Housing in each of the quarters n to n-7 from the new orders survey is multiplied by the relevant weight for each period in the proportions set out in the table above to provide a value, x, for the current period such that

$$x = \sum_{n-7}^n w(n) \times NO(n)$$

A harmonically weighted average OPI index is then created as follows:

$$OPI = x / \sum_{n-7}^n \frac{w(n) \times NO(n)}{TPI(n)}$$

Where *w* = weight, *NO* = New Orders value and *TPI* = the tender price index for the period.

The resulting OPI is then rescaled to ensure that 2005 = 100.

The received OPIs only require scaling to ensure 2005 = 100.

The following table shows the deflators which are used.

Sector deflator	TPI/OPI	Name of deflator used
Public housing new	TPI	TPISH
Private housing new	OPI	BCIS Priv Hsg
Infrastructure new	TPI	BCIS Infrastructure
Public non-housing new	TPI	PUBSEC
Private industrial new	TPI	BCIS Priv Industrial
Private commercial new	TPI	BCIS Priv Commercial
Public housing repair and maintenance	OPI	BCIS Pub Hsg R&M
Private housing repair and maintenance	OPI	BCIS Priv Hsg R&M
Infrastructure repair and maintenance*	OPI	BCIS Pub-Priv Non-Hsg R&M
Public and private non-housing repair and maintenance	OPI	BCIS Pub-Priv Non-Hsg R&M

* There is not a separate deflator for this sector. Public and private non-housing repair and maintenance is used

CONSTRUCTION INVESTMENT (CHAPTER 6)

These tables give expenditure on fixed assets and cover replacement of, or addition to, existing fixed assets. For more details see *National Income and Expenditure* (HMSO).

TRENDS IN EMPLOYMENT AND THE PROFESSIONS (CHAPTER 12)

Manpower (Table 12.1)

The source for table 12.1 is the Labour Force Survey.

Employees' Earnings and Hours (Tables 12.2 - 12.4)

Information on earnings and hours is obtained from the Annual Survey of Hours and Earnings (ASHE).

The 2007 results took account of a small number of methodological changes to improve the quality of results. These included changes to the sample design itself, as well as the introduction of an automatic occupation coding tool, ACTR. Therefore these results are only continuous with the 2006 results that have been produced using this methodology and are discontinuous with results from previous years.

CONSTRUCTION BUILDING MATERIALS (CHAPTER 14)

The following notes show that in a number of cases information is collected more frequently than quarterly. This additional information is included in another of the Department's publications, *'Monthly Statistics of Building Materials and Components'*.

(Tables 14.1-14.5)

Bricks

Information on the production, deliveries and stocks of bricks is collected monthly from each brickworks in Great Britain. Bricks are classified as (i) facing, where appearance is important, (ii) engineering, where strength is important or (iii) common, where neither appearance nor strength is a requirement. Regional figures for brick deliveries refer to deliveries from brickworks in the region to destinations both within and outside the UK.

Concrete Building Blocks

Information is collected monthly from the major producers and quarterly from all producers. The inquiry is voluntary for the first two months of each quarter whereas the quarterly inquiry is covered by the Statistics of Trade Act. The results of the quarterly inquiry are used to adjust those for the first two months of each quarter.

Sand and Gravel

Information is collected quarterly under the Statistics of Trade Act from a sample of producers and the results are grossed using the latest available Annual Mineral Raised Inquiry (AMRI) which covers all producers of sand and gravel.

Crushed Rock

Information on crushed rock is collected annually in AMRI and is available about ten months after the end of the latest year being collected. Detailed geographical analysis of the production of both crushed rock and sand and gravel are published

each year in *Business Monitor PA 1007* (HMSO).

Cement

From the beginning of 1996, all the UK manufacturers are covered, with cement production being extended to included exports, and cement deliveries being extended to include all imports rather than only manufacturers' imports.

Fibre Cement Products

Information on fibre cement products is collected quarterly.

Concrete Roofing Tiles

The figures relate to roof area covered and are derived from the quarterly returns of individual producers.

Ready Mixed Concrete

Figures are of production in the UK and are based on a quarterly summary of production provided by the Quarry Products Association.

Slate

Information on the production, deliveries and stocks of slate is collected quarterly from individual producers. The figures exclude slate waste used for fill.

Imports and Exports of Building Materials and Components (Table 14.6)

The figures are derived from the total import and export values for the commodities, which are published in *Overseas Trade Statistics (TSO)*. As many of the commodities are not used solely in construction, estimates have been made of the imports and exports for constructional use.