Employment Densities Guide

2nd Edition | 2010

Contents

3 Table of Employment Densities

3.1   Employment densities can be used in the appraisal of potential employment in property regeneration and economic development projects. Most of the broad categories of use contain wide ranges of density. The figures in the table below are indicative only of the levels of employment that could be generated.

3.2   Where appraisers use significantly different figures (i.e. +/-10%) from those set out below, they should specify the reasons for the variation and justify them in the specific context of the project. Potential reasons for departing from the figures in the table are discussed in Section 4.

3.3   A more detailed description of the Use Class classifications is in Appendix 5.   Further description of the Use Type for offices is provided in Appendix 4.

	Use Class	Use Type	Area per FTE (m²)	Floor Area Basis	Comment on potential variation
	Industrial				
1	B2	General	36	GIA	Range of 18 - 60 m²
2	B1(c)	Light Industry (Business Park)	47	NIA	
	Warehouse & Distribution				
3	B8	General	70	GEA	Range of 25 - 115 m² The higher the capital intensity of the business, the lower the employment density
4	B8	Large Scale and High Bay Warehousing	80	GEA	Wide variations exist arising from scale and storage duration
	Office				
5	B1(a)	General Office	12	NIA	Includes HQ, Admin and 'Client Facing' office types
6	B1(a)	Call Centres	8	NIA	
7	B1(a)	IT/ Data Centres	47	NIA	
8	B1(a)	Business Park	10	NIA	A blended rate of the above B1(a) uses where they are found in out of town business park locations
9	B1(a)	Serviced Office	10	NIA	Densities within separately let units are c.7 m² per workstation but 30% of a facility's total NIA for shared services reduces the overall density
	Retail				
10	A1	High Street	19	NIA	Town/ City Centre
11	A1	Food Superstores	17	NIA	
12	A1	Other Superstores/ Retail Warehouses	90	NIA	
13	A2	Financial & Professional Services	16	NIA	Includes the back office function area as well as the customer facing areas
14	A3	Restaurants & Cafes	18	NIA	Range of 10 - 30 m²
	Leisure & Visitor Attractions				
15	C1	Budget Hotels	1 employee per 3 bedrooms plus casual staff		
16	C1	General Hotels (3 star)	1 employee per 2 bedrooms		
17	C1	4/ 5 Star Hotels	1 employee per 1.25 bedrooms		
18	D1	Cultural Attractions	36	GIA	Very wide range exists, so use with caution. Excludes external areas
19	D2	Cinemas	90	GIA	Range of 90 - 120 m²
20	D2*	Amusement & Entertainment Centres	70	GIA	Range of 40 - 100 m² - excludes external areas
21	D2	Sports centres and Private Clubs	65	GIA	Range of 30 - 100 m²

*some 'Sui Generis' Use Classes are applicable for this Use Type. See Appendix 5 for a list of Sui Generis uses.

4 Guidance Notes

4.1 These notes are to be read in conjunction with the table in Section 3. They explain a wide range of factors affecting density.

Average densities

4.2 The average density quoted is the mean figure, where it is possible to do so from a number of sources of data. Where new data sources are scarce, the median has been used as this reflects better statistical practice.

Density variances

4.3 Factors that may affect employment density variances from the mean or median within the different Use Classes and Types include the following:

   a) type of activity within Use Type

   b) working practices

   c) size of premises

   d) location

   e) region

   f) economic cycle

   g) building age

   h) energy efficiency

   i) reliance on technology

   j) length of occupation and type of tenure

a) Density variances within Use Types

4.4 Some Use Types, particularly in the industrial sector, have wide-ranging employment densities. This section highlights issues which give rise to the range.

Industrial and warehousing

4.5 B8 warehousing range is from 25m² to 115m² per FTE – the wide variation results from small amounts of very low density warehousing. For example, long term and large scale storage facilities for perishable (fresh or frozen) food warehousing has significantly higher employment densities than for non-perishable foods.

4.6 Technological developments and restructuring in most industrial sectors is setting a trend for an increase in floorspace per head so that average density is likely to become lower over time.

Office

4.7 Definitions of the office types are set out in Appendix 4.

4.8　Occupational densities for all office types have increased significantly since the publication of the 1st Edition of this Guide in 2001 (see Appendix 6 for a comparison). This is supported by anecdotal evidence that shows there is now much greater awareness amongst occupiers of the relationship between space efficiency and cost of occupation. Higher densities are achieved through more efficient space planning, new ways of working and improved communications technology.

Serviced offices

4.9　Whilst the occupational density of individual units within serviced offices is comparatively high at 7m^2 per workstation, the actual employment density of serviced office property is around 10m^2 per FTE. The provision of shared facilities such as reception, breakout space, meeting rooms etc., account for 30% of the total NIA within a serviced office centre. This reduces the overall employment density, even when taking into account the operator's own staff.

4.10　This Use Type is characterised by changes in density as the nature of the product is innately flexible and occupation by licensees is short term. The two main causes of temporary fluctuations in employment density are:

- The extent to which desk sharing within licensed units and the use of communal 'touch-down' 'virtual office' by subscribers will produce greater employment density than the number of workstations the operator actually provides.

- The higher level of churn of occupiers (compared with conventional offices) can lead to frequent peaks and troughs of vacant space within a centre. Average workstation vacancy rates range between 10% for 'economical' centres and 30% for premium centres, with an overall average of 25% of workstations remaining vacant.

Retail

4.11　Discussions with national retailers have emphasised that employment densities within the retail use class are dependent more on turnover than on floor area. This means a retail unit in a good location with high visibility and a high foot fall is likely to have a higher employment density than a retail unit of the same size in a poor location and/or with a low turnover.

General restaurants

4.12　The range of employment density for most types of casual dining-type restaurants is 10-30m^2 per person. Variations within this range are caused by the following factors:

- number of transactions – e.g. turnover rate of covers / customers;
- opening times – e.g. lunchtime only or all day opening;
- seasonal variation – e.g. summer trade greater than remainder of year; and
- brand and business model – e.g. upmarket operation will have higher ratio of staff to covers / customers.

Leisure and visitor attractions

Hotels

4.13　The types of hotel specified in the table in Section 3 have been retained as the benchmarking approach for consistency with the 1st Edition of this Guide. However, an alternative classification of hotel type, which aligns with that used in the hotels industry is shown below.

Alternative hotel classification and ratios

Type	Employment density
Limited service	1 employee per 5 bedrooms
Budget	1 employee per 2.5 bedroom
Mid market	1 employee per 1.67 bedroom
Upper class	1 employee per 1.25 bedroom
Luxury	1 employee per 1 to 0.8 bedrooms

4.14   Employment density in hotels is affected by the following factors:

- size of public areas;
- occupation rates and turnover of rooms; and
- ancillary operations i.e. conferencing &catering operations, health club, etc.

Cultural attractions

4.15   The diverse and heterogeneous nature of the cultural sector makes it impossible to identify a credible 'rule of thumb' for employment density. This use type could cover a huge range of different types of facilities. A sense check with a small number of local museums, galleries, theatres and heritage attractions suggests a very wide range of employment density from about $30m^2$ to over $300m^2$ GIA per FTE.

4.16   Variations within this range caused by the following factors:

- Facility use/purpose – what are its core and ancillary functions? Examples include the cultural programme, learning/education programmes, research and conservation, catering, retail and/or corporate hire businesses. The employment density for the Restaurants and Cafés Use Type should be applied where relevant.
- Building structure – e.g. whether it is an historic or new modern building, the proportion of the total floor space occupied, and amount of public/circulation space.
- Governance and management – who is the responsible body? E.g. local authority, independent trust or private company. The employment density may need to be adjusted where employees are responsible for more than one site.
- Volunteers can reduce the (paid) employment density by up to 50-80%[2]. However, use of volunteers can be used to demonstrate other benefits of the development in support of sustainable communities.

4.17   This Use Type may well include external areas but this factor has been excluded as it does not form part of the GIA calculation. In the absence of any new data sources, the benchmark from the 1st Edition of this Guide is assumed to remain valid.

Cinemas

4.18   A typical cinema of $3,400m^2$ GIA and 10 screens would employ 60 people, with only about a quarter being full-time, giving a density of $90m^2$ per FTE. A sense check with a national operator suggests an employment density of $90-120m^2$ GIA per FTE, with variations within this range caused by the following factors:

---

[2] The social benefits of volunteering should not be ignored. Well-run volunteer programmes can help people gain and retain skills that are essential for subsequent paid employment, or provide employment that is rewarding or socially useful in itself.

- amount of space;
- turnover/throughput of customers; and
- building age/design e.g. layout, number of floors etc.

Amusement & entertainment centres

4.19   This is an extremely diverse Use Type, including amusement arcades, zoos & aquaria, science centres and a range of other one-off visitor attractions, which makes it very difficult to identify a benchmark for employment density. Examples include:

- An amusement arcade of 250-300m^2 GIA might have six staff and a density of 40-50m^2 GIA per FTE.
- A small aquarium or zoo of 3,000-4,000m^2 GIA and 50 staff would have a density of 60-80m^2 GIA per FTE.

4.20   Again, this Use Type may well include external areas but this factor has been excluded as it does not form part of the GIA calculation.

Sports centres/private sports clubs

4.21   This Use Type has a range of 30-100m^2 GIA per FTE where private sports clubs are at the denser end of the spectrum in comparison to a dry fitness club/gym being at the other end.

4.22   Employment density in sports centres and private sports clubs are affected by the following factors:

- whether the sports facility is wet or dry (swimming pools have minimum staff requirements by law);
- location, e.g. whether city centre or out of town; and
- business model e.g. a fitness centre with a clientele which pays for a high level of personal interaction from personal trainers and physiotherapists will have a higher density.

b) Changing working practices in offices

4.23   Changing working practices are manifest in all sectors, but particularly in the office sector. The change in density between the 1st edition and this 2nd edition of the Guide indicates these practices are delivering higher densities.

Home-working

4.24   Data from the 2001 Census shows that approximately 9% of the UK workforce work mainly at home. This varies by occupation and is not broken down into those 'teleworking' or other categories.

4.25   The proportion working from home has been increasing steadily over the last 10-15 years for the following reasons:

- increasing share of the workforce who are self-employed;
- general increase in flexible working patterns in the workplace; and
- improvements in telecommunications technology (i.e. high speed broadband) enabling working from home or non-workplace locations.

4.26 There is only a minor variation in the prevalence of working from home between rural and urban areas. Based on the DEFRA classifications, approximately 10% of the workforce in rural areas are home-workers compared to 8% in mainly urban districts.

4.27 A 2005 labour market trends study estimated that home workers had increased to 11% of the workforce, representing annual average increase of 4% since 1997. If we compare this to the long-term average increase in the workforce of 1% per annum and apply these growth rates to 2011, then it can be reasonably assumed that approximately 13% of the workforce will work from home.

4.28 Even though some of this employment is generated purely from home working, for the purposes of this Guide, however, only jobs directly linked to employment space (as opposed to residential space) should be estimated, so that double counting is avoided.

Hot-desking

4.29 Hot-desking has become increasingly prevalent within the office sector. This is particularly the case in city centre locations where rents are higher. For the purposes of this Guide, the Office density measurements assume a 'workstation:FTE' ratio of 1:1.

4.30 In practice, however, organisations look to accommodate staff at varying workstation:FTE ratios. These can vary from a 1:1 ratio down to a ratio of 7:10. It is likely that as pressures on space efficiencies increase (for instance, to reduce both costs and carbon emissions) a tighter hot-desking policy is likely to be introduced and implemented. In effect, the lower the workstation:FTE ratio, the higher the employment density.

Worked Example 3 – Calculating employment density for hot-desking offices

Example Development:	1,000m² NIA development of B1 General Office space	
Appraisal:	Apply benchmark of 12m² per FTE at the workstation to FTE ratio of 1:1	1,000m² ÷ 12m² per FTE = 83 FTE 83 FTE ÷ 1 workstation each = 83 FTE
	But: applying workstation to FTE ratio of 8:10	83 FTE ÷ 0.8 workstation each = 104 FTE
	This gives a revised employment density of 9.6m² per FTE	

Residents and local jobs

4.31 Research by GLA Economics for Greater London investigated the relationship between population density and employment in areas of low accessibility (i.e. avoiding central London and other key centres). It is clear that where there is more housing there will be greater demand for local goods and services, e.g. leisure facilities, schools, cinemas, cafes, bakeries etc., and in turn this will generate employment. The research was intended to identify interactions between residents and jobs that are essentially local and to inform the use of 'job:residents' ratios in planning housing developments in areas of high and low accessibility.

4.32 The paper concludes by noting that land used for housing will have associated employment growth in the locality. Taking the coefficient of employment density regressed alone on population density in areas of low accessibility, it can be deduced that an increase to the resident population of, say, 1,000 will on average have the potential to give rise to a further 230 jobs in the locality.

4.33 This study was undertaken for London where higher earnings in the central area support lower wage services in outer London. Based on earning differentials between London and the rest of the UK we suggest that a figure of **150 jobs per 1,000 increase in population** is more applicable outside London.

This employment density assumption should only be used for purely residential developments.

4.34 Where the development is mixed use, employment densities should be calculated from the commercial aspect of the development and not the residential. This will avoid double counting employment figures.

c) Density variance through size of premises

4.35 A common thread apparent in the research for this guidance has found that smaller buildings generally have higher densities than larger buildings for all Use Types.

d) Density variance through location

4.36 One of the factors affecting density is the location of a development in terms of its accessibility and proximity to a town or city.

4.37 The main information on location variances is from the office sector (see table below). Suburban and out of town business park locations tend have the higher densities than city and town centre locations, which is surprising given town centre occupancy costs. This may be explained by the greater presence of meeting spaces and boardrooms in a city location and the propensity for call centre and high density administration functions to be located out of town.

Location	Area per FTE (general office)
In Town	11.9 m²
Out of Town	11.4 m²

e) Density variances amongst English regions

4.38 There is a lack of regional data by Use Type with which to provide any benchmark figures. However, it is recognised that there will be differences across the country, e.g. between the North and South and between London and the South East and other regions. There are unlikely to be significant differences between North East and North West regions, or parts of the South East and Eastern regions.

f) Density variances over economic cycles

4.39 Employment densities fluctuate over time for any given building. During times of economic buoyancy when businesses are expanding, and taking on more staff, densities increase. Conversely, during periods of economic instability or recession, companies may reduce the number of employees or rationalise accommodation, which may have the effect of reducing employment density.

4.40 It is difficult to identify the correlation between economic activity and changes in employment density due to the time lag between property acquisitions and disposals and economic activity. Regional variations in the economic cycle also complicate the assessment of employment densities.

4.41 When considering employment density it is important to take account of:

- the prevailing economic context, e.g. is it an economically buoyant or depressed period;
- property prices; and
- how profitable is the sector in question, i.e. the impact of a downturn will be cushioned in a highly profitable sector.

g) Density variance through building age

4.42 In general, lower densities occur in older buildings, often reflecting the less efficient use of space in such buildings, when compared to purpose-designed modern accommodation. As older buildings are refurbished and modernised, densities will, on average, increase and therefore density can be considered to be increasing over time as older building stock is refurbished.

4.43 The table below shows the variance in employment densities within general office buildings and how these might vary according to the age of the building. The reduction in employment density in the '2001 to present' bracket could be due to increased energy awareness as well as the increased provision of breakout and collaborative working spaces.

Age of construction	Area per FTE (general office)
Pre 1945	15.6 m²
1945 to 1984	12.5 m²
1985 to 2000	10.3 m²
2001 to present	11.5 m²

h) Density variance through energy efficiency

4.44 Sustainable design attempts to reduce energy consumption (amongst other things). The two energy efficiency measures that may affect employment density are:

- Using natural ventilation[3] rather than energy intensive air-conditioning – as natural ventilation works within the physical constraints of the building, there will be a limit to the

---

[3] internal and external air currents and the thermal properties of certain building materials are used to provide cool fresh air to occupants

number of occupants that naturally ventilated space can support. This may mean that low energy buildings require lower employment densities to keep heat gain from occupants and their associated equipment within operable limits.

- The provision of as much natural daylight as possible to minimise lighting loads – this may affect the amount of glazing, the layout of workstations and the depth of floor plates.

4.45　It is worth noting, therefore, that increased use of natural ventilation and daylight may limit the overall floorspace achievable on a development site.

i)　Changing technologies in industrial, warehouse and distribution sectors

4.46　The increased automation of functions in these uses is another factor affecting employment density.　Where there is a high degree of automation the employment densities are likely to be less than the benchmark figure.

j)　Length of occupation and type of tenure

4.47　The length of occupation can have an impact on the employment density of a building. Occupiers who hold their workspace on a freehold or long leasehold basis have less impetus to relocate than those holding under a short leasehold basis. A recently purchased freehold property is likely to have a lower employment density as owners may have taken more space initially, to allow for future expansion.　Conversely, an occupier who has been in a property for a number of years may have higher employment densities due to expansion. It is likely that the more flexible the structure of occupation, i.e. short-term occupation with a leasehold tenure, the closer the employment density will be to the benchmark figures and to an occupier's own target employment density.