



Homes &  
Communities  
Agency

# EMPLOYMENT DENSITY GUIDE

3<sup>rd</sup> edition

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## 2. Calculating employment densities

- 2.1 This section provides details on the method and issues that must be considered when calculating densities.

### Employment densities

- 2.2 Employment density refers to the average floorspace (in m<sup>2</sup>) per full-time equivalent (FTE) member of staff. It is used as a measure of intensity of building use and an indicator of how much space each person occupies within the workplace.
- 2.3 Calculating the jobs generated by a particular use or building using employment densities relies upon a consistent understanding of floorspace. We provide a simple, introductory guide to floorspace measurement and employment below.
- 2.4 More detailed analysis and guidance is provided on calculating floorspace is provided in the RICS Code of Measuring Practice (6<sup>th</sup> Edition) which was updated in May 2015 to reflect and incorporate the new International Property Measuring Standards, which currently only apply to offices.

### Average employment density figures

- 2.5 Historically average employment densities have been derived from surveys of a large number of buildings; this has provided the baseline understanding of the relationship between floorspace and jobs. Since 2001, a number of industry bodies have continued to survey specific sectors and we draw on this research to inform the Guide, as considered in Section 3 in more detail.
- 2.6 With a robust understanding of employment density, it is also important to ensure the floorspace estimates are as accurate as possible.

### *Measuring floorspace*

- 2.7 The Royal Institution of Chartered Surveyors (RICS) recognises 3 principal measurements of floorspace: gross external, gross internal and net internal. In summary these are:

- Gross External Area (GEA) – this measurement includes walls, plant rooms and outbuildings, but excludes external space such as balconies and terraces. It has a narrow field of use mostly limited to calculating building costs for large industrial and warehouse buildings, planning applications and approvals, council tax banding, and rating in Scotland for industrial buildings
- Gross Internal Area (GIA) – this refers to the entire area inside the external walls of a building and includes corridors, lifts, plant rooms, service accommodation (e.g. toilets). It is a widely used metric used in calculating building costs, marketing, valuation, property management and rating (in England and Wales) of industrial buildings (including ancillary offices), warehouses and leisure units and also the valuation of new residential developments
- Net Internal Area (NIA) – this is commonly referred to as the net lettable or ‘usable’ area of offices and retail units. It includes entrance halls, kitchens and cleaners’ cupboards, but excludes corridors, internal walls, stairwells, lifts, WCs and other communal areas. It is a widely used metric and is the recognised method for marketing, valuation, property management and rating for offices, shops and supermarkets.

### *Floorspace metrics*

2.8 In Section 4, the Table of Employment Densities gives the measurement basis for each use class. It is recommended that the relevant floorspace metrics are used consistently throughout a project’s development, appraisal and evaluation.

2.9 **It is important to understand the basis of floorspace measurement and to use it consistently.** If necessary, a given figure on one basis can be converted to the appropriate basis for the employment density type.

### *Converting gross internal to net internal area*

2.10 Gross internal to net internal ratios can vary significantly according to use:

- For office space the gross figure is typically 15-20% higher than net internal space. However, this will be dependent upon building design and configuration, in particular relating to heights, number of cores and building servicing

- for all multi-tenanted buildings the range may be higher than 15-20% given the space allocated for shared or common areas. More often job estimates will be based on the 'let-able' area which exclude common parts such as meeting spaces
- for larger warehouses, the net area can be as much as 95% of the gross area
- for retail units the net to gross internal area relationship can be in the region of 90%

2.11 As a general benchmark, 15-20% acts as a suitable assumption for converting gross to net areas in non-industrial properties.

2.12 It is worth noting that figures for notional or proposed schemes may be presented as a GEA measurement. To convert these to a GIA, the general benchmark is a reduction of 5%.

**Table 1 - Worked Example, Converting GIA to NIA**

	Approach
Example Development	1,000sqm GIA development of B1a office used by the Finance & Insurance sector
Appraisal	NIA is calculated using the benchmark in Paragraph 2.10 above:  $1,000 \times (100-15)\% = 850\text{sqm NIA}$  Or  $1,000 \times (100-20)\% = 800\text{sqm NIA}$

2.13 The figure used will be dependent on the level of space efficiency anticipated at the building. For more efficient buildings, use a lower conversion percentage of 15%.

*Vacant space*

2.14 When evaluating actual densities, only the occupied floorspace should be used in the evaluation. Appraisers should include a note on the amount of unoccupied space in the building at the time of calculation so that the basis of the calculations are clear. This mitigates the risk of the vacant area distorting the employment density figure.

Table 2 - Worked Example, Calculating Vacant Space

	Approach
Example Development	1,000sqm GIA development of B1a Finance & Insurance Sector office space as per Table 1, resulting in 800sqm NIA
Appraisal	Apply benchmark of 12sqm per FTE as per guidance in Section 4 to NIA floorspace.  $800 \div 10 = 80$ FTE
Evaluation	Despite a floor area of 800sqm only 700sqm is occupied, therefore employment is calculated as:  $700 \div 10 = 70$ FTE
Note:	<i>The building has remaining vacant floorspace of: <math>800 - 700 = 100</math>sqm Equating to potential additional capacity of: <math>100 \div 10 = 10</math> FTE</i>

- 2.15 The FTE and employment density figures in Section 4 are based on 100% occupation of a building.
- 2.16 Vacancy rates in buildings can vary significantly. There is no 'rule of thumb' to allocate a vacancy rate for any specific reason such as use type, scale, timing or location. It is recommended that in carrying out a project appraisal, sensitivity analysis is used to generate a number of vacancy rate scenarios (e.g. 50%, 70%, 90%) for, say, 12 months after first occupation of the building to assess the impact on the forecast gross jobs figure.
- 2.17 This sensitivity analysis would also enable an allowance to be made for any 'void' periods, i.e. periods when a property is unoccupied and unable to be re-let. These often occur at lease expiry where a property requires refurbishment prior to a new tenant taking up occupancy. Void periods will be directly influenced by the age and condition of the property and the strength of the local market. Estimates should be based (where possible) on these localised trends.

## Measuring employment

- 2.18 Employment can be measured in several ways:
- Actual – the number of employees who are full-time, part-time, or on contract
  - Full-time equivalent (FTE) – the number of total hours worked as a proportion of the average annual hours worked in a like-for-like full-time job
    - 1 FTE means the person works full-time

- 0.5 FTE means the person works half-time. Thus 2 part-time staff who work half-time each will equal 1 FTE

2.19 In evaluating completed projects it is recommended that FTE numbers are used to measure employment achieved. These figures should be compared with the employment forecast made as part of the project appraisal. Where there is a significant variance (i.e. +/- 10%) between ex ante appraisal and ex post evaluation, an explanation for the difference should be provided in the evaluation.

### Trends in full and part - time working

2.20 The ONS Annual Survey of Hours and Earnings (ASHE), provides data on the proportion of employees working full or part-time in different occupations:

- Service industries: part-time employment ranges between a low of 40% (found in the financial services sector) and a high of 63% (found in the leisure and recreation sector – reflecting shift patterns in bars, pubs and restaurants and seasonal working)
- Manufacturing: less than 10% are part-time

2.21 With regard to the proportion of hours worked by part-time staff to FTE, the majority of part-time staff work between 45% - 55% of full-time hours, with an overall average of 50% for all services and industry.

2.22 A ratio of 2:1 part-time staff to FTE should therefore be applied.

### Calculating employment densities for redevelopment projects

2.23 Predicting employment density figures during the project appraisal stage is most accurate for new build (or recently constructed) properties and less accurate for older properties. This is because new buildings are usually designed with regular shaped floors and capable of servicing the employment densities set out in Section 3. See also Section 4 for guidance on density variances in older buildings.

2.24 When an occupied building is to be redeveloped, care needs to be taken in the application of employment density metrics when calculating the **additional** new jobs created by the project (i.e. the gross number of jobs accommodated in the redeveloped building less the previous number of jobs in the original building). If firm

data sets are not available on employment in the original building and employment density ratios are used to determine employment levels, appraisers should adjust for the type and age of the building(s) concerned and the businesses within them.

## 4. Employment density matrix

Use Class	Sub-Category	Sub-Sector	Density (sqm)	Notes
<b>B1a Offices</b>	General Office	Corporate	13	NIA
		Professional Services	12	NIA
		Public Sector	12	NIA
		TMT	11	NIA
		Finance & Insurance	10	NIA
	Call Centres		8	NIA
<b>B1b</b>	R&D Space		40-60	NIA lower densities will be achieved in units with higher provision of shared or communal spaces
<b>B1c</b>	Light Industrial		47	NIA
<b>B2</b>	Industrial & Manufacturing		36	GIA
<b>B8</b>	Storage & Distribution	National Distribution Centre	95	GEA
		Regional Distribution Centre	77	GEA
		'Final Mile' Distribution Centre	70	GEA
<b>Mixed B Class</b>	Small Business Workspace	Incubator	30-60	B1a, B1b – the density will relate to balance between spaces, as the share of B1a increases so too will employment densities.
		Maker Spaces	15-40	B1c, B2, B8 - Difference between 'planned space' density and utilisation due to membership model
		Studio	20-40	B1c, B8
		Co-Working	10-15	B1a - Difference between 'planned space' density and utilisation due to membership model
		Managed Workspace	12-47	B1a, b, c
<b>B8 / Sui Generis</b>	Data Centres	Wholesale	200-950	
		Wholesale Dark Site	440-1,400	
		Co-location Facility	180-540	
<b>A1</b>	Retail	High Street	15-20	NIA
		Foodstore	15-20	NIA
		Retail Warehouse	90	NIA
<b>A2</b>	Finance & Professional Services		16	NIA
<b>A3</b>	Restaurants & Cafes		15-20	NIA
<b>C1</b>	Hotels	Limited Service / Budget	1 per 5 beds	FTE per bed
		Mid-scale	1 per 3 beds	FTE per bed
		Upscale	1 per 2 beds	FTE per bed
		Luxury	1 per 1 bed	FTE per bed
<b>D2</b>	Fitness Centres	Budget	100	GIA
		Mid Market	65	GIA – both types tend to generate between 40-50 jobs per gym
		Family		
	Cinema		200	GIA
	Visitor & Cultural Attractions		30-300	The diversity of the cultural attraction sector means a very wide range exists
Amusement & Entertainment Centres		70	Potential range of 20-100sqm	