



# Impacts of inaccurate area measurement on EPC rating

# Research team

- Nirushika Nagarajah, City University of London
- Joseph James Davis, University of Kent

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## Executive summary

This white paper presents research, analysis and recommendations on the reliability of area measurements used to calculate Energy Performance Certificate (EPC) ratings of residential property.

It is the result of an intensive research study using market-leading Spec technology. The research compared the property area of 532 properties as lodged in the public EPC register with the outcome

of Spec's accurately measured digital surveys of the same properties.

The paper explores the risks and impacts on the reliability of EPC ratings, the effectiveness and applicability of the standards of measurement deployed and notes areas of concern to consumers and bodies who rely on the accuracy of EPC assessments.



## Key findings



We estimate

**2,500,000 EPCs lodged  
(15%) are incorrectly rated,**

having a score within 2 points of an upgrade  
or downgrade if measured accurately.



An estimated

**35,028 E-rated properties  
are being let illegally,**

having borderline EPC scores that would likely be  
downgraded to F if their area was accurately measured.







As little as a

1% change in property area  
can result in a 1 point  
change in EPC score,

which in turn could up or downgrade a rating.

A 3% change in area is enough to alter  
scores in 2/3rds of cases sampled.



The average discrepancy on property area reported in EPCs  
we compared was 8.6% (87 square feet) indicating

most EPCs are likely to have  
an inaccurate score.





For 1 in 4 properties,  
the area reported on EPCs  
varied by at least  
10% (100 Sq Ft)

from Spec's accurately measured size.



In 56% of cases, EPCs under-stated the size.



In 44% of cases, EPCs over-stated the size.







90% of EPCs lodged use the Reduced Data Standard Assessment Procedure which employs

**standardised values rather than actual measurement**  
of many features.



Limited measurement practices and standards, combined with the use of average storey heights mean

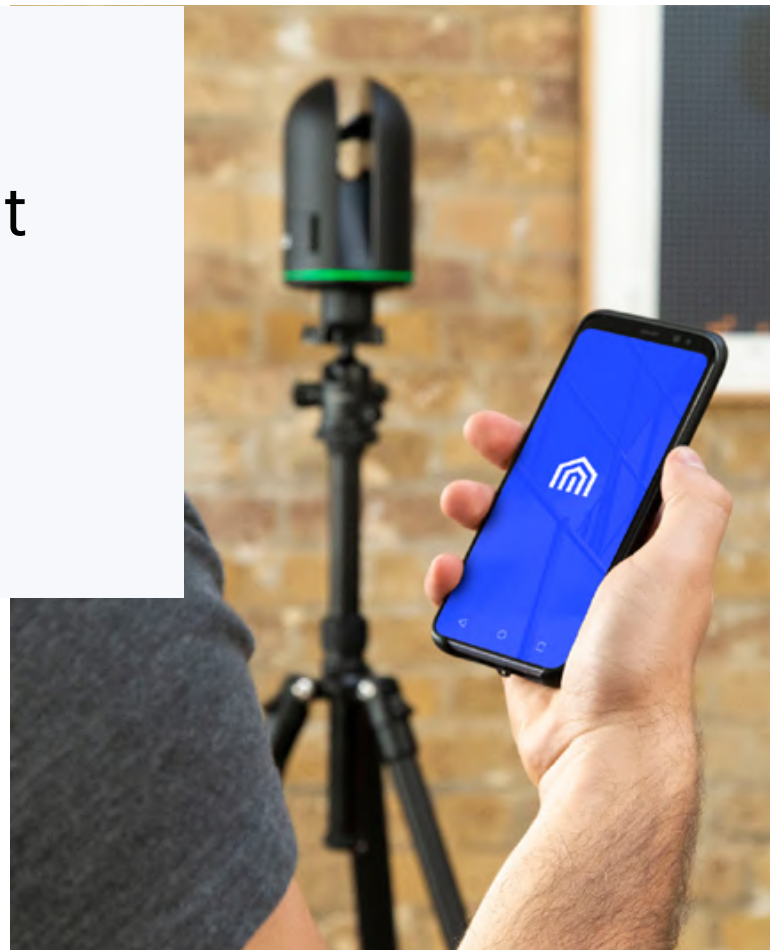
**wide margins of error**  
on the primary dwelling volume input factor.



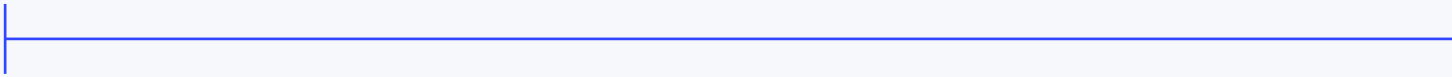
**Modern measurement tools and accurate consideration**

of the actual volumetric space to be heated vs heat loss areas would radically improve the accuracy of EPC assessment procedures.

Taking these findings, this paper presents a series of recommendations for the domestic energy assessment market and identifies concerns for accuracy of EPC ratings affecting landlords, certification and assessment organisations, environmental concerns and government.



# Energy performance of property



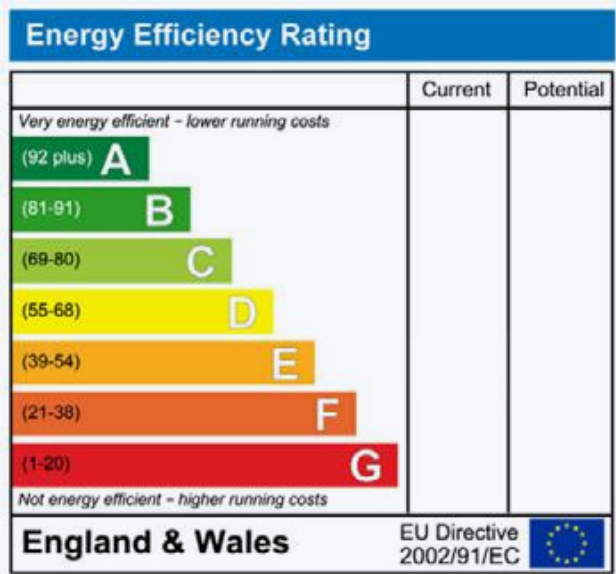


The Energy Performance of Buildings 2012<sup>1</sup> Act requires that all properties marketed for sale or let in England and Wales must have an EPC in place. An EPC provides ratings to indicate the relative energy performance and environmental impact of a property as at the time of assessment and what it could achieve if suggested improvement works were carried out.

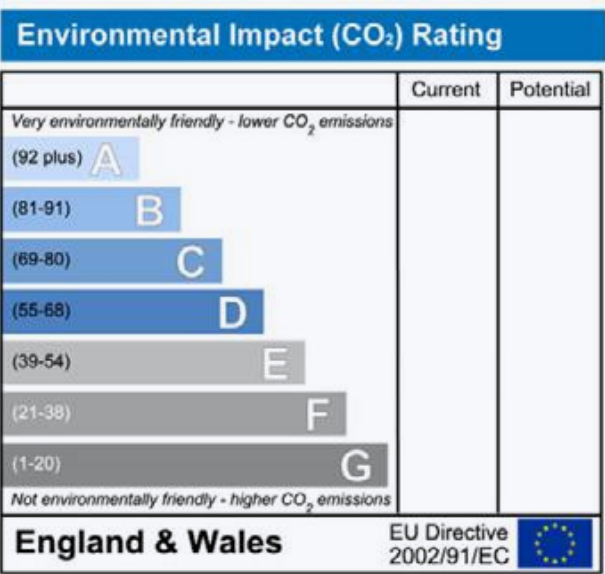
EPCs are produced by Domestic Energy Assessors (DEAs) who must be registered under an approved certification and

accreditation scheme. The EPC is then lodged with one of the government approved accreditations schemes who audit and certify the work of their accredited DEAs. The completed EPC is then lodged on the national register and valid for 10 years, after which it must be renewed. Over 17 million have been lodged to date<sup>2</sup>.

The most commonly recognised artefact of a completed EPC is the coloured bar chart indicating current and potential energy efficiency.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower fuel bills will be.



The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO<sub>2</sub>) emissions. The higher the rating the less impact it has on the environment.

# Assessment procedure

A Domestic Energy Assessor visits the property and carries out a non-invasive visual inspection to determine what characteristics of the property might affect energy efficiency. They note key features like type of heating system, locations of radiators, sources of heat, areas of heat loss, insulation features, construction methods, types of glazing and doors etc. They must also measure the floor area of the property as a key input to the EPC rating calculation.

Their observations and measurements are typically entered into a software program, usually a mobile application running on a tablet or mobile, which automatically calculates the EPC score and corresponding band rating (see table below).

The calculation of the energy rating is based on the Reduced Data Standard Assessment Procedure (RdSAP) v9.93, which is a simplified version of the Standard Assessment Procedure (SAP) 2012 <sup>3</sup>. Both are derived from the UK Building Research Establishment's Domestic Energy Model <sup>4</sup>.

**90% of all EPCs registered use the RdSAP protocol<sup>1</sup>** which employs a series of calculated tables, standardised values and assumptions in combination with measured data to enable faster assessment of properties

EPC Score	EPC Band
92 +	A
81 – 91	B
69 – 80	C
55 – 68	D
39 – 54	E
21 – 38	F
1 – 20	G





## Marketing property with an EPC

With some exceptional cases (e.g. temporary, small or unused structures, holiday accommodation, places of worship or industry), an EPC must be ordered *prior* to marketing a property for sale or let. The responsible person must then use all reasonable efforts to have the EPC available within 7 days of the property going on the market, with a further 21 day grace period.

**House builders, vendors, landlords or agents can be fined £200 on each occasion they do not provide an EPC** with any property transaction and to any prospective tenant or purchaser.

Through the Consumer Protection Regulations, landlords and businesses marketing properties are also required to ensure material information provided to interested parties is accurate.



# Renting property with an EPC

From 1st April 2018, properties with new or renewing tenancies for rent must have a minimum E rating. From 1st April 2020 all domestic rented properties must have an E rating or higher, regardless of tenancy status.

If a residential property is found to be below standard, then **finest up to a maximum of £5,000 can be levied for every 3 months the property remains below standard**. Tenants cannot be evicted during this time on the grounds of failed EPC, neither can it be rented out again until it has been brought up to standard. Landlords may also incur a “name and shame” public penalty notice.





## Numbers of properties rented

As at end of Q3, 2018 there were just over 1.1 million properties lodged with F and G ratings<sup>5</sup>. There were 3.23 million properties rated E, around 18% of all lodged EPCs.

Across England there are approximately 19.8 million privately owned residential properties and 1.6 million local authority owned<sup>6</sup>. Approximately 37% of housing stock is rented (17% social, 20% private)<sup>7</sup>,

indicating around **7.98 million properties in England are rented and require an EPC.**

We estimate there are only 6.3 million lodged EPCs for rentals if the proportion of lodged EPCs reflects the proportion of rental ownership. This indicates that **there are around 1 million properties being rented without EPCs illegally.**



Around

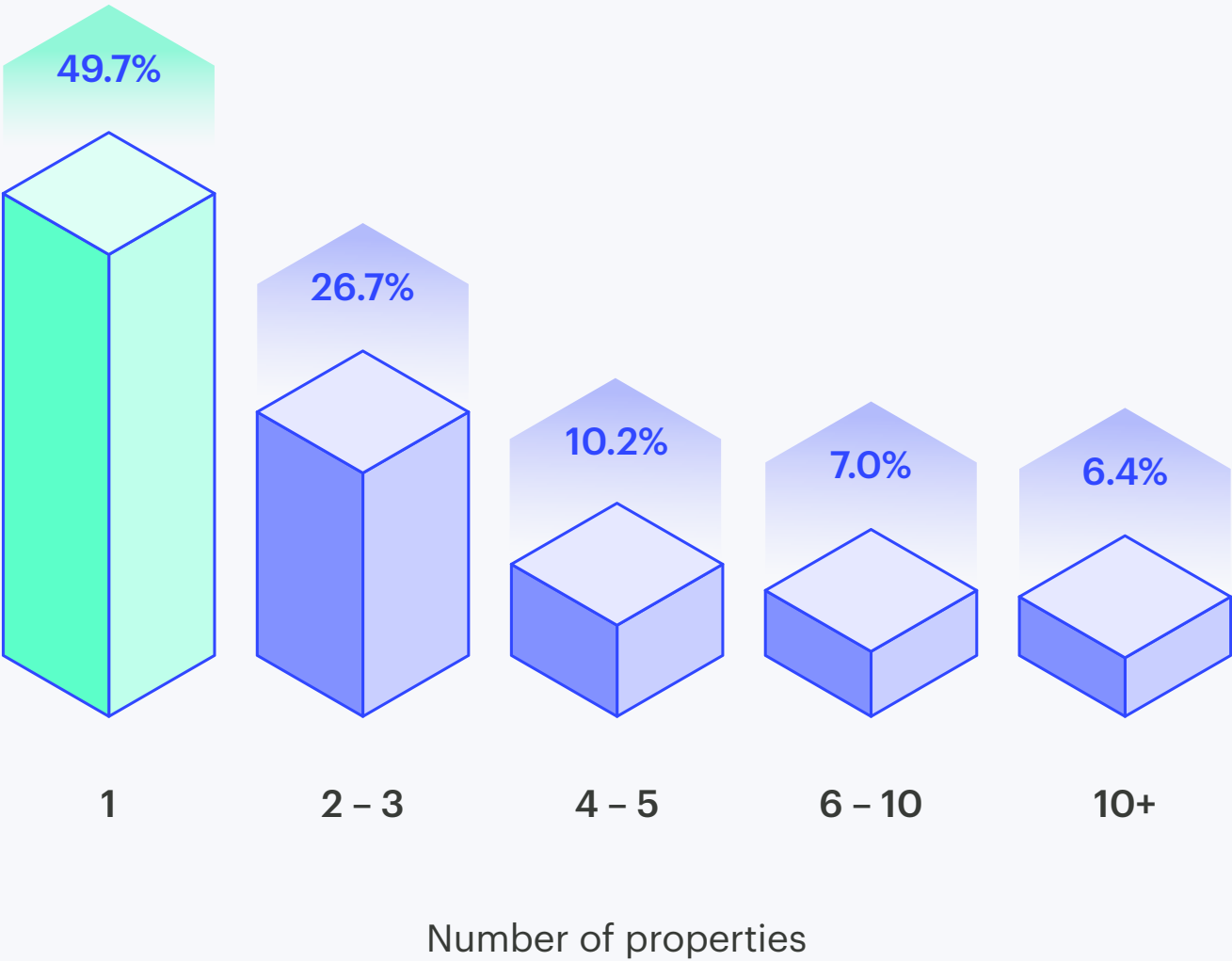
# 1,000,000

properties are being rented without EPCs illegally



The 2017 Homelet landlord survey<sup>8</sup> of 3,726 landlords reported the following break down of rented property ownership, showing half of landlords only own one property. We can derive from this that there are roughly 1 million landlords renting properties to tenants.

Figure:  
Number of properties owned by landlords according to Homelet 2017 Landlord Survey



If the proportion of band E rating is as consistent across ownership as it is ratings lodged, it would mean **180,000** landlords have properties in band E on the borderline of illegal renting.



# 180,000

landlords have properties in band E on the borderline of illegal renting



# Measurement conventions and standards in EPCs

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**Property area is one of the largest contributing factors to an EPC rating** so accurate size assessment is therefore paramount to provide reliable, trustworthy ratings to everyone involved in property transactions.

Although extensive and well documented standards for measuring property are available from the Royal Institution of Chartered Surveyors (RICS), Domestic Energy Assessors are not required to follow the same standards in calculating the size of properties for EPCs.

The current RICS standard in place is RICS Property Measurement 2nd Edition January 2018<sup>9</sup>, which any professionally measured area should adhere to. It's a comprehensive 70 page document containing detailed definitions and practice guidelines employed by chartered surveyors to accurately measure the size of properties.

The RdSAP guidance contains a number of loose, subjective conventions, assumptions and guidelines, which fall some way short of the precise, defined best practice that a certified property measurer or chartered surveyor would employ to measure a space.

## Examples

*“Room heights are always measured internally within the room.”*

but no specification as to where in the room e.g. how would split ceilings be allowed for, stairwells, skylights etc.

*“When measuring internally, measure between the finished internal surfaces of the walls bounding the dwelling. Where that cannot be done directly (i.e. when measuring room by room) include an allowance for the thickness of internal partitions.”*

taking allowances from tables but not actually measuring is essentially guessing values for internal partitions

*“Measure all perturbations (e.g. bay windows) but disregard chimney breasts unless assessor considers significant e.g. large inglenook.”*

‘large’ can vary subjectively depending on proportions of the room or the DEA’s personal opinion of significant

*"Heights are measured internally within each room, and 0.25 m is added by software to each room height except for the lowest storey, to obtain the storey height"*

ignoring the actual height of any floor depth

*"Total window area is assessed as being typical, more than typical, much more than typical, less than typical, or much less than typical."*

the actual glazing area is not measured and typical is related to other properties of age and style so effectively entirely subjective



Extensive tables of materials and assumptive sizes to be used are given for door heights, window area, party wall thicknesses etc. None of it is actually required to be measured.

EPCs can be measured based on either external dimensions or internal dimensions (provided there is consistency throughout the property) and the selected approach is documented on the plan. There's no requirement however to indicate which approach has been adopted on the lodged EPC.

In summary, there's wide variation in measuring practice in the RdSAP protocol and **little requirement to reflect the accurate structure of a building.**

Combined with common online stories and concerns with "fake EPC's" and "cowboy assessors", poor quality training and surveys and manipulation of results <sup>10</sup>, consumers should be rightfully wary of the accuracy of their EPC.



"We bought a house that was F26 and when problems started to happen took a closer look at the EPC.

Took 4 months to get an admission that it was wrong and get it removed from the register.

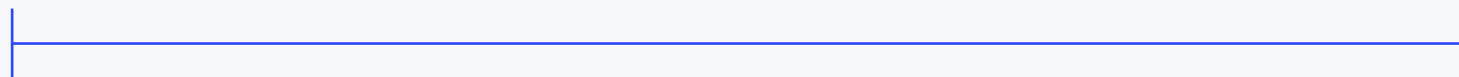
The house went down to a G13 with the new calculations but then when they reassessed... the new EPC showed that 65sq m had been missed on the original – over a third of the house! So in reality it was an even lower G score.

Took out a claim against the assessor to try to recoup what we had to spend to get the house warm... The problem with the EPC is that although it is a legally required document there is no redress when it is wrong and apparently nobody is accountable."<sup>11</sup>



# Calculating dimensions and areas

The mathematics and principles of area calculation conceal significant potential for mismeasurement depending on the complexity of the property, approach and rigour employed.





## Dimensions

When measuring in one dimension - from point A to B - it is relatively simple to mitigate against error.

A well calibrated measuring device deployed between clearly delineated start points can deliver reasonable results. Dimensions are most commonly used to report the maximum width or length of a room.



### Risks of dimension mismeasurement:

- Accurate measurement device - pacing it out is not reliable, a professional measuring tape should be the bare minimum and ideally a portable laser measurer
- Measuring tapes sag and are difficult for one person to accurately control over distances longer than a metre and remain level
- Appropriate start and end points - selecting by eye isn't accurate and is subject to the measurers opinion of the width or length of the room
- Measuring by hand without tripods and levelling - modern laser systems are so accurate that just a small deviation in angle can alter the dimension recorded
- Measuring protrusions e.g. a chimney breast presents problems because it lacks end-points to base and reflect a laser pointer against

# Areas

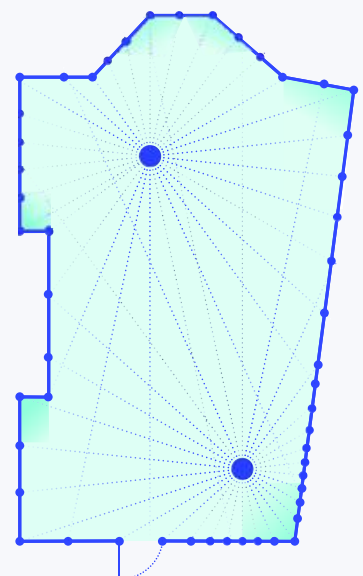
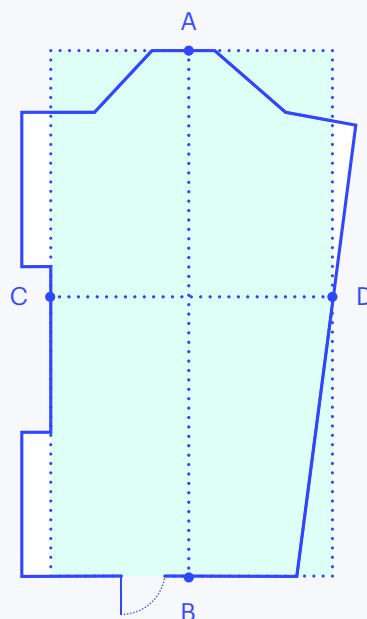
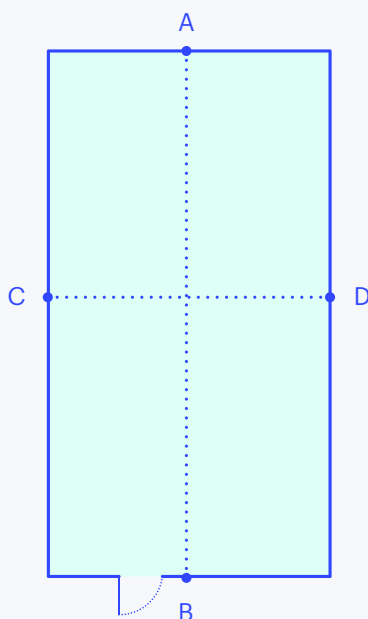
Calculating area requires both measurement (the dimensions and position of all the key architectural features of a room) and calculation (applying the correct formulas to derive area from dimensions).

Many non-professionals could calculate the area of a regular, square or rectangular shaped room - simply multiplying the width by the length - but calculation of irregular shapes is far more complex.

In a sample of 5,698 rooms analysed by Spec, **only 27% of rooms had regularly shaped, square or rectangle layouts** so the capability to correctly apply the necessary geometric or trigonometric formulas is critical.

Measured area

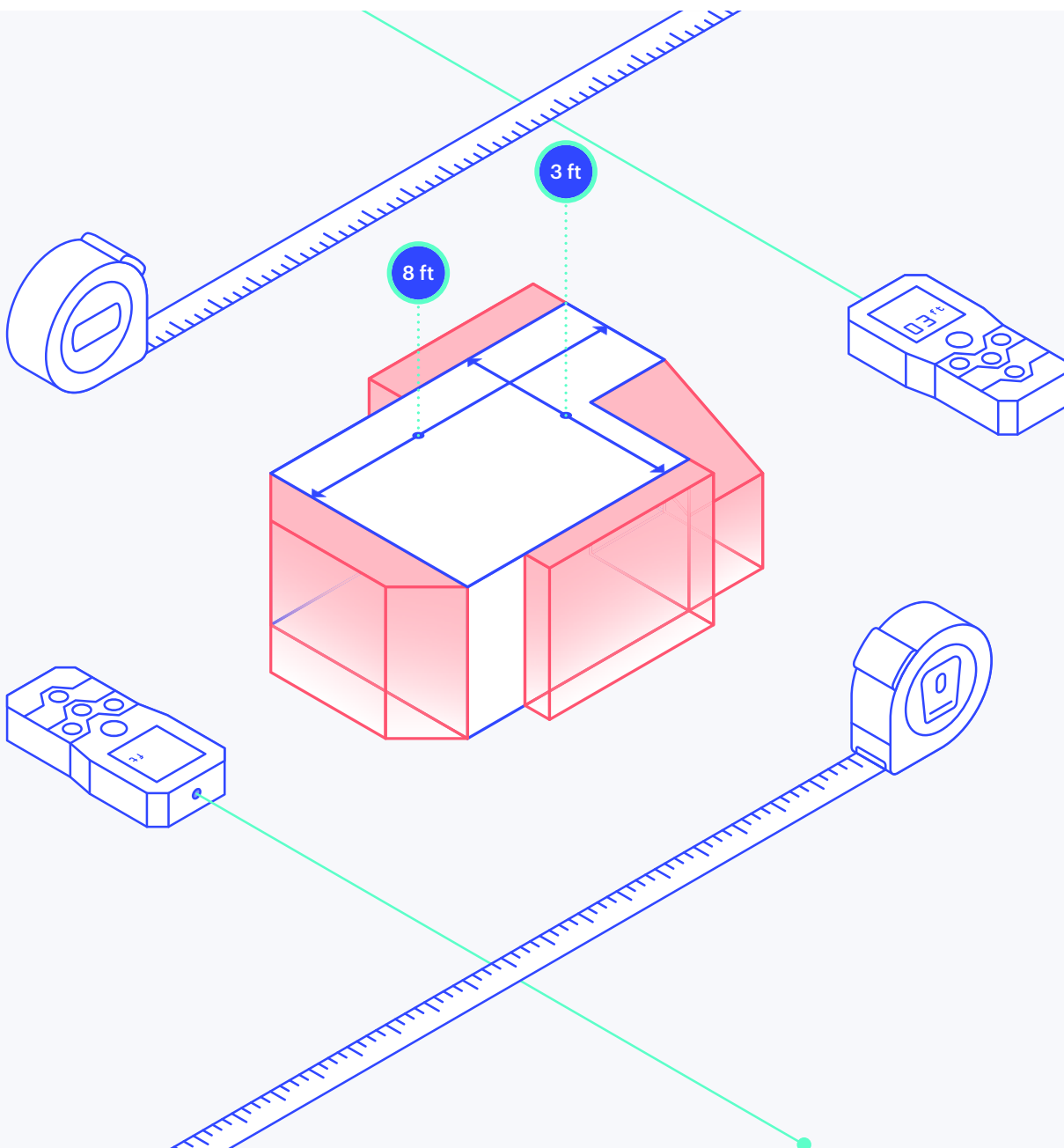
Actual floor plan





**Risks of area mismeasurement:**

- Manual calculations - using humans to calculate areas always contains risk of human error, either in selection of appropriate calculations, or through errors in transcribing or aggregating the right figures
- Insufficient dimensions to correctly calculate area - **taking only a couple of dimensions and measuring only a few points is not fit for purpose and fails when 73% of rooms are irregularly shaped**
- Complex real world rooms are not simple to measure accurately as they contain varying geometry, obstructions, irregular angles and invisible to the naked eye variations in surface depth
- Systematic small errors and using 'average sizes' of walls and rooms measured simply, quickly adds up over a whole property to potentially significant overall variations from reality

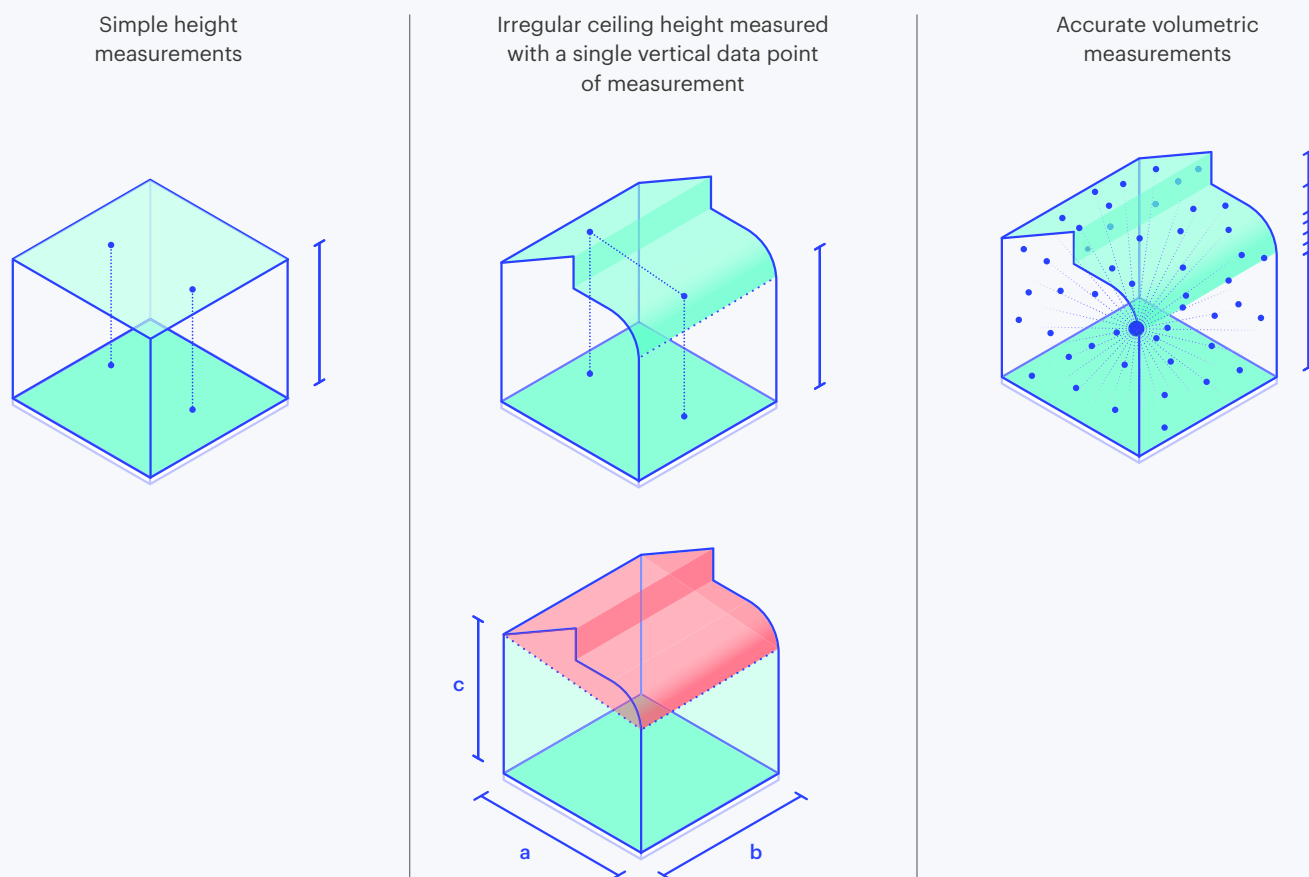


## Calculation of dwelling volume

The final third dimension - height - adds another level of complexity as accurate positional measurements in three dimensions are now required. Again, calculating volume is simple where the shapes are regular, but factor in

angled ceilings, step heights, skylights, recessed and varying floor heights and it becomes impossible to calculate a space accurately without comprehensive scans at millimetre precision that provide full coverage of the space.





In the first section of the RdSAP calculation worksheet, **only average storey height is used to calculate volume so cannot be a truly accurate figure reflecting the actual volumetric space of the property**. The resulting 'Dwelling Volume', is used as a foundational input factor throughout the subsequent calculations to derive the EPC rating.

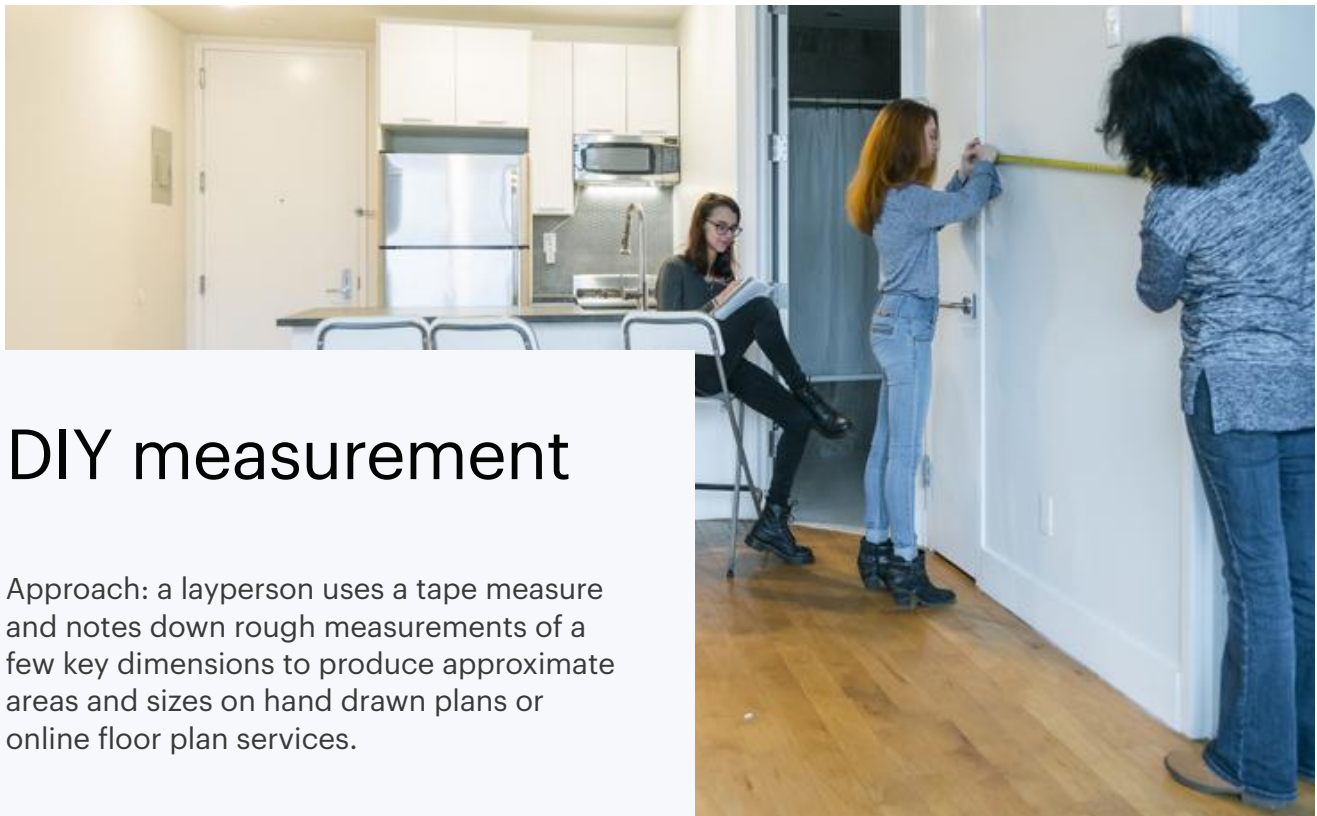
As we've seen earlier, taking only a few length and width measurements cannot accurately measure the floor area of the space and as area is used to multiply the average storey height (itself unreliable), there are therefore multiple sources of systemic error possible affecting the reliability of the final rating.

# Limitations of current DEA measurement practice

What options are available to DEAs to create the numbers they need to rely on without compromising the accuracy of the EPC?

Producing measurements and floor plans for property can be achieved in three broad categories; DIY, semi-professional or surveyed.





## DIY measurement

Approach: a layperson uses a tape measure and notes down rough measurements of a few key dimensions to produce approximate areas and sizes on hand drawn plans or online floor plan services.

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### Benefits:

- Cheap
- Fast

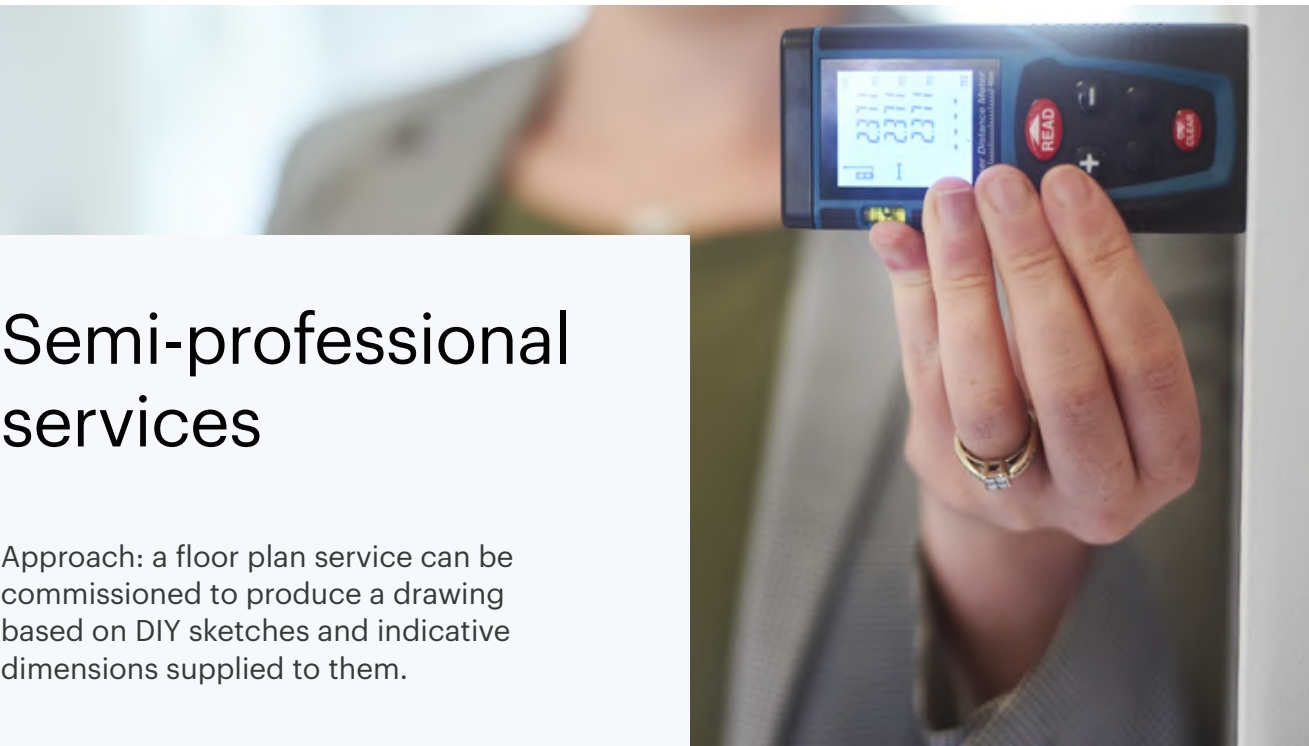
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### Costs/Risks:

- Online floor plan services have varying capability and accuracy e.g. some cannot draw curves, most assume standardised wall thicknesses
- Selecting measurement points by eye is hugely inaccurate and unrepresentative e.g. if you pick the wrong position to measure from
- No professional standards are used
- Manual calculations required with potential for human error
- High liability

Note: some apps exist that can generate floor plans automatically, but they have limited accuracy and capability to cope with irregular properties and use uncalibrated mobile phone or tablet cameras rather than accurate laser measurements.



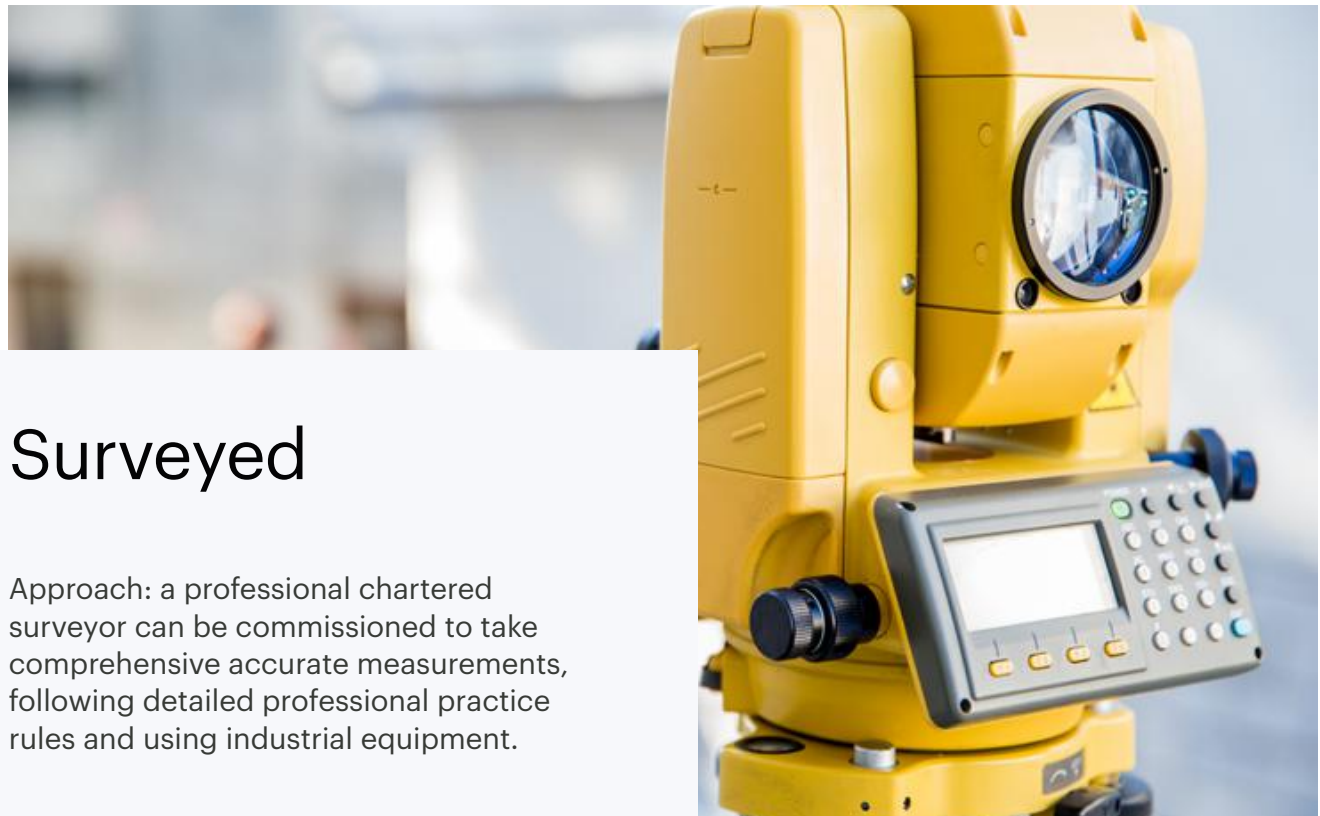


# Semi-professional services

Approach: a floor plan service can be commissioned to produce a drawing based on DIY sketches and indicative dimensions supplied to them.

Benefits:	Costs/Risks:
<ul style="list-style-type: none"><li>• Cheap to mid-price</li><li>• Someone else does the work</li></ul>	<div><ul style="list-style-type: none"><li>• These services often use remote, out-sourced or off-shore production teams who won't have been inside the property at any stage to convert sketches and notes into plans and calculate areas</li><li>• Similar to the DIY approach, they commonly suffer from using only 3 or 4 points of measurement per room, typically taken by someone who is not a professional or certified surveyor or measurer, and usually someone whose primary role is to take photographs.</li></ul><ul style="list-style-type: none"><li>• Often ignores height</li><li>• Non-compliant standards used, if at all</li><li>• No liability accepted, plans are "for illustration only, not to be relied upon"</li><li>• Data custody is broken between the original on-site measurer and plan production teams</li></ul></div>

Note: many less reputable or established floor plan services are effectively DIY operations behind the scenes with all the equivalent issues and risks.



## Surveyed

Approach: a professional chartered surveyor can be commissioned to take comprehensive accurate measurements, following detailed professional practice rules and using industrial equipment.

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### Benefits:

- Professional measurement
- Industrial equipment (typically laser measurement systems)
- Standardised process that applies professional standards
- Insured results with professional indemnity liability included
- Data chain of custody is sustained within one source

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### Costs/Risks:

- Can be a long lead time to book a survey and then can take days to produce a final result
- Requires industrial equipment
- Very expensive
- Not practical for a DEA to employ given low margins

Note: industrial grade building surveys typically require long lead times to book and come with additional processing time and cost overheads.

# Quantifying mismeasurement - research methodology

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To better evaluate the challenges and quantify the risks property professionals consumers and estate agents face from inaccurate EPCs, the Spec research team carried out an intensive research study - we believe the largest such to date. The study compared the quoted size of 532 EPCs of properties in London with accurate laser scanned Spec plans for the same properties.

The properties were effectively a random sample selected by virtue of a) being unprompted commissions for a capture by Spec customers and b) having existing EPCs available for comparison.

We further analysed a sample of 505,399 EPCs lodged across six London boroughs; Wandsworth, Camden, Greenwich, Southwark, Hackney, Barnet to establish baseline proportions and distributions for EPCs scores and ratings, combined with published data from the epc register<sup>12</sup> and open data government services<sup>13</sup>.

Finally, we utilised software by the largest EPC accreditation body Stroma to test the effects of area changes on ratings.



## Source of truth

Spec produces measurements in accordance with RICS international standards and their captures are carried out by RICS Certified Property Measurers, using industrial grade, Leica BLK laser scanners.

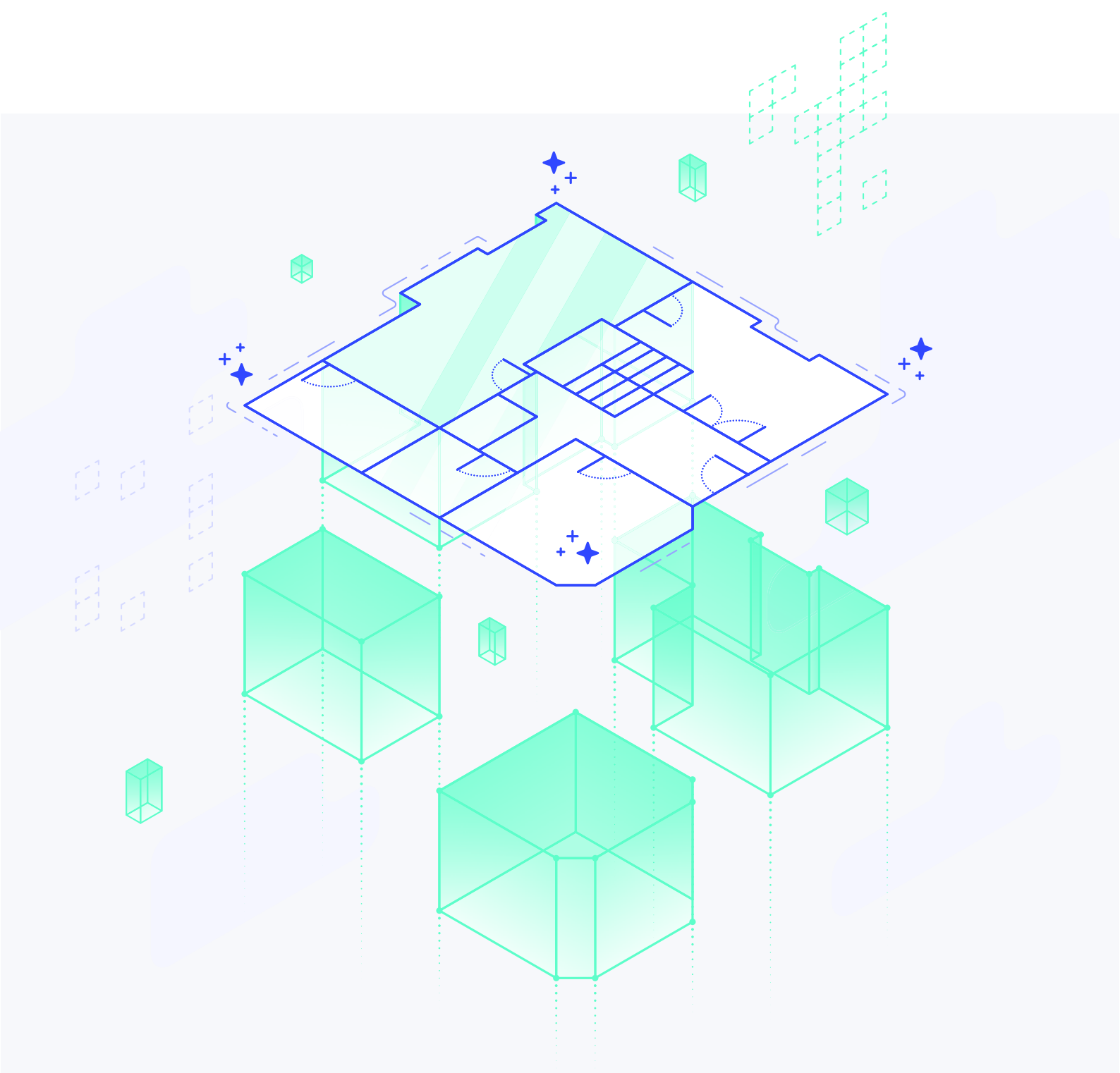
A Spec capture results in millions of measurement points per property, capturing the entire volumetric space in full 360.

The Leica system is accurate to +/- 6mm at 10m indicating Spec's raw measurements are within 99.9% of reality. The average room size across a sample of 1,590 rooms scanned by Spec is 4.4m X 2.9m so comfortably within Leica's stated range for millimetre accuracy.



Spec process those millions of measurement points in their proprietary cloud software platform using algorithms that robotically and precisely apply RICS measurement standards. Outputs are then cross checked and verified by humans before publication and the entire process is regularly checked and audited by chartered professional surveyors.

Spec's process therefore produces a consistent, rigorous and highly accurate 'source of truth' for the physical dimensions of a property.



# Basis of measurement

A professional plan should include the basis of measurement with any figure so that any interested party can properly evaluate what is being measured and included or excluded in the figures and reliably compare similar properties.

Spec produces RICS compliant measurements utilising the most up to date RICS Property Measurement 2nd Edition, January 2018. This standard replaces the previous 'Code of Measuring Practice' and has been in effect since 1st May 2018 for all chartered surveyors and RICS regulated firms.

Although EPC area measurement standards do not conform to RICS best practice, this study assumes that a reasonable consumer would expect whatever figure was reported as the area of the property on an EPC to be the total area contained by the exterior walls and hence approximate to Gross Internal Area. GIA has therefore been used as the basis of comparison as it focuses on essentially the same floor area as does the RdSAP protocol.





## Comparing areas and plans

Comparison EPCs were sourced from the public EPC Register for the same property. Once a comparison floor plan was found it was checked and verified as a match for the property and key data points were noted.

The variance between the floor area measured by Spec and the area reported by the EPC was then computed. Where identifiable, properties with substantial structural changes (e.g. extensions and major alterations) between the original EPC assessment and Spec's digital survey were excluded from the study.

# Sample considerations

Although we believe this is the first and largest sample analysed to date, a number of inherent areas for bias exist which would benefit from further research and additional validation.

## Supplier bias

It is possible that results could be distorted if the sample comparables were over-weighted to a particular EPC provider with systemic flaws in their process, software or wider range of accuracy tolerance. A sample of nearly 100 EPCs showed the largest single source assessor accounted for fewer than 9% of plans lodged and 72% were by unique assessors, so we consider there to be sufficient variation in the sample therefore to absorb supplier bias.

## Property type bias

Some types of property might be predisposed to mismeasurement or significant error. Older properties might contain more irregular rooms for example and larger properties and dwellings over multiple floors may have more opportunity for error through sheer size and complexity. Houses may have more complex layouts and non-heated areas (e.g. outbuildings, conservatories, basements) that are ignored by EPC assessment standards. This study analysed 320 flats and 212 houses so we consider this to have only minimal impact given the weight toward flats.

## Geographic bias

It's possible that properties in certain areas are more susceptible to mismeasurement, but the spread of comparables in this sample across inner London covered a mix of locations, neighbourhood and styles.



# Results

The study revealed that it's not really a case of *if* your EPC is measured inaccurately, but *how much* it is measured inaccurately. For reference, the average residential London property is 860 Sq Ft ( UK average is 1,100 Sq Ft).

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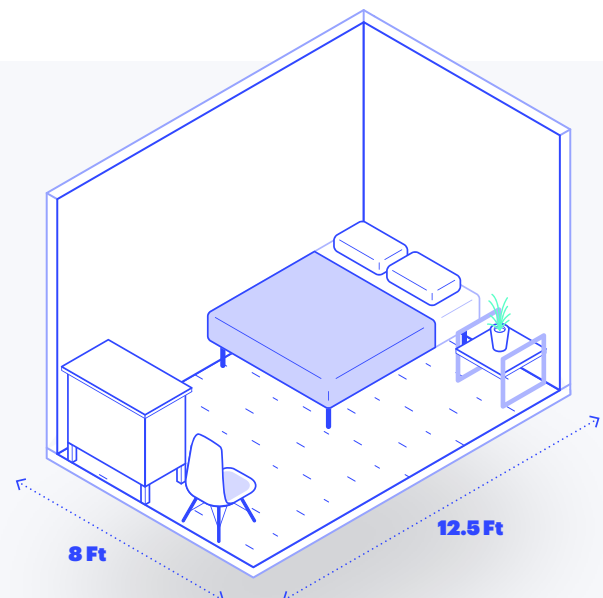
# Highlights

- The average discrepancy on property area reported in EPCs we compared was **8.6%** (87 square feet).
- For 1 in 4 properties, the area reported on EPCs varied by at least 10% (100 Sq Ft) from Spec's accurately measured size.
- In 56% of cases, EPCs under-stated the size.
- In 44% of cases, EPCs over-stated the size.



The average discrepancy on property area reported in EPCs we compared was

# 87 sqft



100 sqft is about the size of a typical second bedroom

## Effects on ratings

- **29% of EPCs lodged (5 million) are 'borderline'** having a score within 2 points of an upgrade or downgrade.
- We estimate 2.5 million EPCs would be re-rated if the property was accurately measured, 1.3 million of which would be downgraded.
- As little as a **1% change in property area can result in a 1 point change in EPC score**, which could up or downgrade a rating.

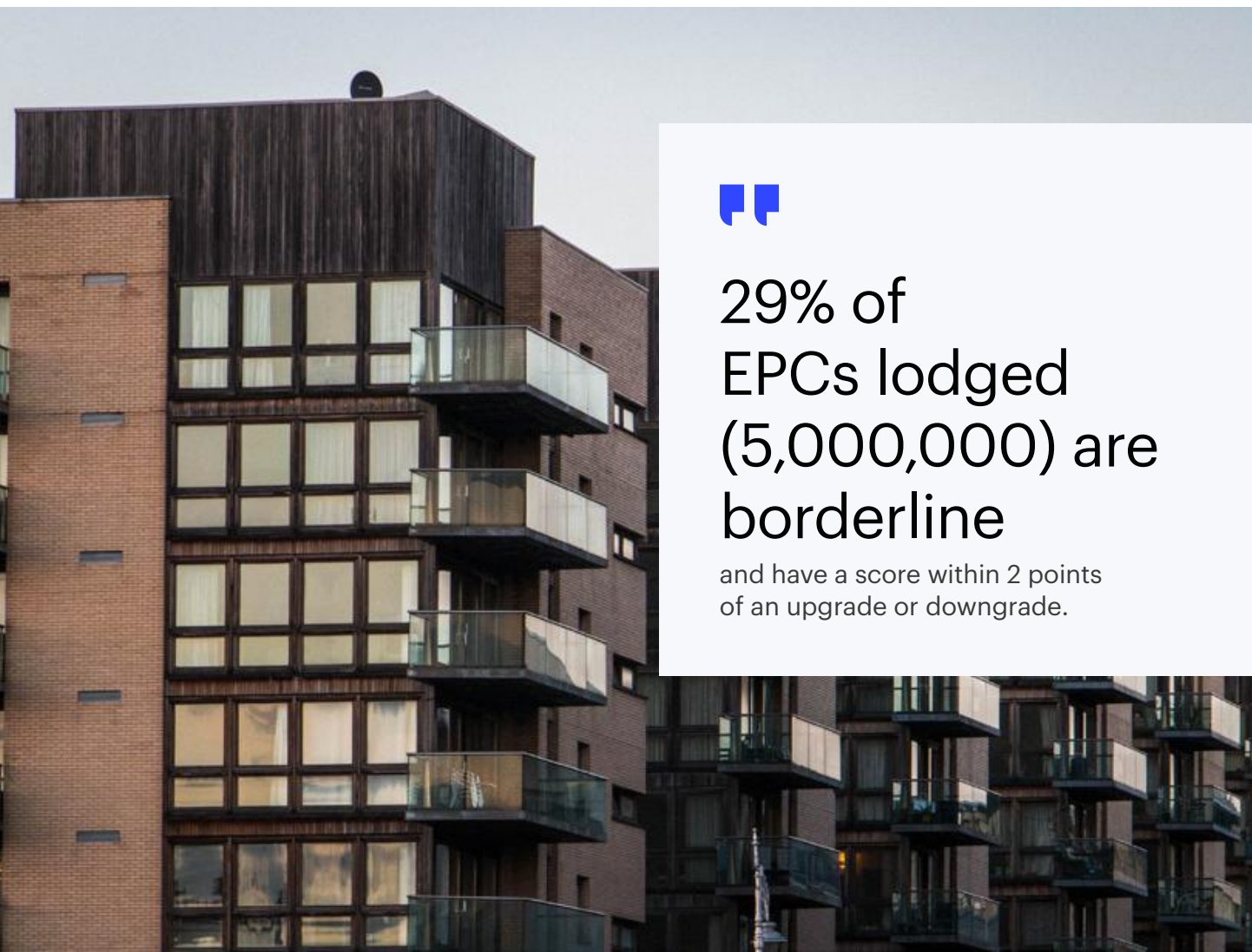
- A 3% change is enough to alter scores in 2/3rds of cases sampled.
- 3% of E rated EPCs are within 2 points of a downgrade to F if inaccurately measured, representing an estimated 35,000 rental properties nationwide potentially being let illegally.

Note: not all rented properties have EPCs lodged for them (itself an offence if rented after 1st April 2018). We estimate that, going by stock and tenure figures across the UK, there may be another 25,000 illegally let properties unrecorded.



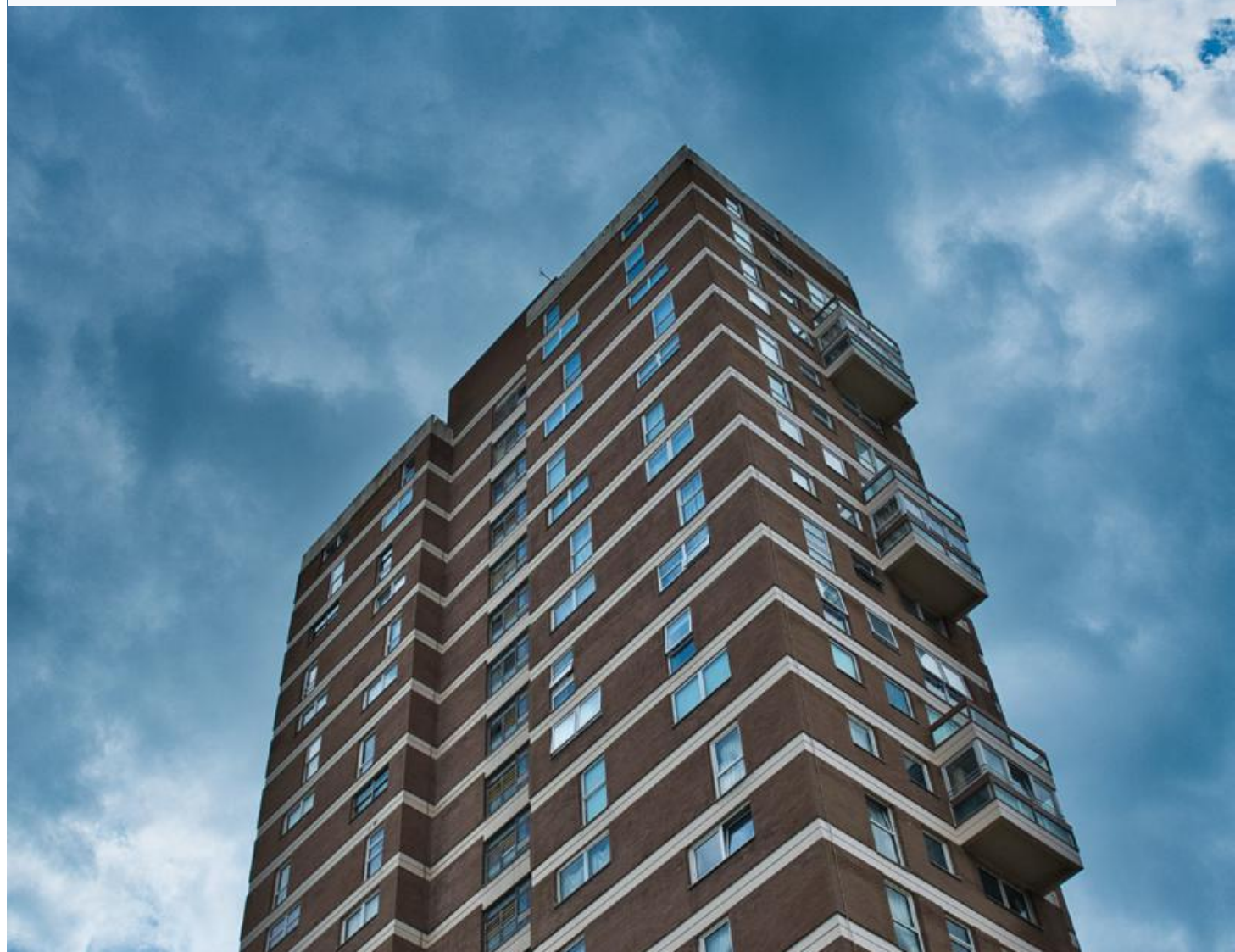
29% of  
EPCs lodged  
(5,000,000) are  
borderline

and have a score within 2 points  
of an upgrade or downgrade.



**Table 1:**  
**Proportion of EPCs**  
**in each band<sup>14</sup>**

Rating	EPCs lodged	% of All
Rated A	19,838	0.13%
Rated B	1,393,618	8.92%
Rated C	4,155,004	26.59%
Rated D	6,136,780	39.28%
<b>Rated E</b>	<b>2,874,748</b>	<b>18.40%</b>
Rated F	803,690	5.14%
Rated G	239,614	1.53%



**Table 2:**  
**Proportion of borderline EPCs (London sample)**

London Borough	Borderline EPCs (+/-1)	Borderline EPCs (+/- 2)	Borderline EPCs (+/- 1 or 2)	EPCs Rated E within 2 pts of a downgrade
<b>Wandsworth</b>	14.4%	14.7%	29.2%	3.1%
<b>Camden</b>	15.2%	14.9%	30.0%	3.2%
<b>Greenwich</b>	13.6%	14.2%	27.9%	2.7%
<b>Southwark</b>	14.8%	15.4%	30.2%	2.9%
<b>Hackney</b>	14.7%	14.9%	29.7%	2.7%
<b>Barnet</b>	14.7%	14.8%	29.5%	3.5%
<b>Average</b>	<b>14.6%</b>	<b>14.8%</b>	<b>29.4%</b>	<b>3.0%</b>

Examples from Table 2:

- 15.2% of all lodged EPCs in Camden had a score 1 point off a re-rating
- 14.8% of all EPCs lodged in Barnet had a score 2 points off a re-rating
- 29.4% of all EPCs are within 2 points of the next band up or down
- 3.1% of EPCs rated E in Wandsworth would be downgraded if measured accurately

**Table 3:**  
**Proportions of EPCs at the top or bottom of their band**  
**i.e. within only 2 points of a change in score altering the band**

Assuming half of the re-rated EPCs would consolidate their score within a band (because measurement errors could be equally under or over-stated), we only take 50% of the borderline as likely to change band.

London Borough	Proportion at bottom of a Band	Proportion that would downgrade	Proportion at top of a Band	Proportion that would upgrade	Proportion that would be re-Rated
<b>Wandsworth</b>	14.9%	7.5%	14.2%	7.1%	14.6%
<b>Camden</b>	15.2%	7.6%	14.9%	7.4%	15.0%
<b>Greenwich</b>	14.3%	7.1%	13.6%	6.8%	13.9%
<b>Southwark</b>	15.4%	7.7%	14.8%	7.4%	15.1%
<b>Hackney</b>	15.6%	7.8%	14.1%	7.0%	14.8%
<b>Barnet</b>	15.2%	7.6%	14.3%	7.1%	14.8%
<b>Average</b>	<b>15.1%</b>	<b>7.5%</b>	<b>14.3%</b>	<b>7.2%</b>	<b>14.7%</b>

Examples from Table 3:

- 15.2% of the all EPCs lodged for Camden have a score within 1 or 2 points of the bottom of their band.
- 7.6% of the EPCs lodged for Camden would be downgraded if measured accurately.
- 14.7% of all EPCs lodged are likely to be re-rated if accurately measured.



# Calculations

The following calculations use the RdSAP lodgement statistics shown on [epcregister.com](http://epcregister.com) as of 14/01/2019, combined with the proportions found in Table 1 and Table 2 above.

$$\begin{aligned} & 17 \text{ million EPCs lodged currently} \\ \times & 14.7\% \text{ proportion re-rated} \\ = & 2.5 \text{ million EPCs at risk of re-rating if accurately measured.} \end{aligned}$$

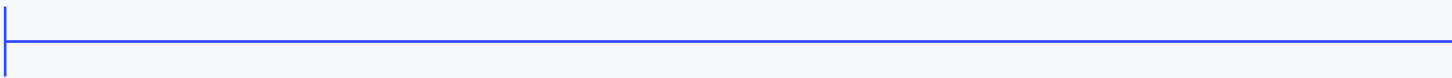
$$\begin{aligned} & 17 \text{ million EPCs lodged} \\ \times & 18.4\% \\ = & 3.1 \text{ million EPCs in band E.} \end{aligned}$$

$$\begin{aligned} & 3.1 \text{ million EPCS in band E} \\ \times & 3.0\% \text{ at downgrade risk} \times 37\% \text{ rented} \\ = & 35,028 \text{ rental properties likely to be illegally let.} \end{aligned}$$

# Recommendations

This study indicates that 1 in 4 EPCs are mismeasured by at least 10% of their size and 1 in 4 are out by at least 100 Sq Ft with potentially serious consequences on the validity of EPC rating.

Properties being marketed with inaccurate EPCs are a legal liability both to the agents marketing them and their owner/landlord if rented and the figures indicate tens of thousands of properties and landlords are affected.





## For estate agents

It's clear that property professionals must very carefully consider what services and systems their business is unwittingly using if they want to:

- Report accurately and meet their Consumer Protection Regulations obligations
- Avoid creating legal and commercial risk to their business
- Apply best practice with confidence
- Gain selling points on less compliant and accurate competitors

Ensuring that EPCs are accurately and rigorously produced using accurate based data gathered by trained and certified professionals actively mitigates legal risk for all parties involved in property transactions.

**Questions to ask your EPC provider:**

- How many points of measurement are used in calculating areas?
- How do they measure complicated shapes?
- Is the raw data captured by a RICS Certified Measurer or chartered surveyor?
- Are areas calculated in-house by the same person that captured the data or are they outsourced to off-shore services?
- Are spirit-levelled tripod bases used for measuring or is it done by hand?
- Are the supplier's processes professionally audited or subject to oversight?
- What level of professional indemnity insurance do you have in place?





## For consumers

Always check that an EPC is recent and carried out by a professional, reputable firm - don't be tempted to save money and go for the cheapest provider as it can come back to bite you in the long term. If necessary, commission a new report from a reputable provider like Spec.







## For industry

The systemic short-comings in the RdSAP EPC assessment process that allow for inaccurate measurement and ignore the true 3D physical structure of a property require further investigation.

Calculating the costs to heat a volume of space requires measuring the volume accurately, something that is now possible with 3D laser scanning and other advances such as thermal heat mapping. Homes are complex spaces and new technologies can do the job of measurement far more accurately with millions of points of data than a human with only a few.

As advanced, cost effective measurement technologies and services like Spec become more widely available, industry should explore the development of a modern assessment protocol that can incorporate true volumetric measurement and accurate assessment of the true physical characteristics of a property, rather than assumptions and standardised values.

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## About Spec

At Spec, our purpose is to inspire peace of mind for every sales and rental experience.

We partner with estate agents to deliver feature-rich marketing assets and verified property measurements. By taking transparency to a new level, we're helping agents build trust with their customers.

Our vision is to build the new standard for the residential property industry across the board, and around the world.

Spec represents the future; transparent, principled, prosperous.

To find out more, visit [www.spec.co](http://www.spec.co)



## About Pupil

Spec is a product of Pupil and is powered by Pupil technology. Pupil is a real estate AI measurement company. We capture and publish 3D information about real-world interiors. And we do it on an industrial scale.

Pupil's purpose is to empower people with better data about real-world interiors. Our spatial technology is digitising interiors with a level of accuracy and consistency nobody's seen before. We're helping make the world a smarter, safer and more sustainable place.

To find out more, visit [www.pupil.co](http://www.pupil.co)