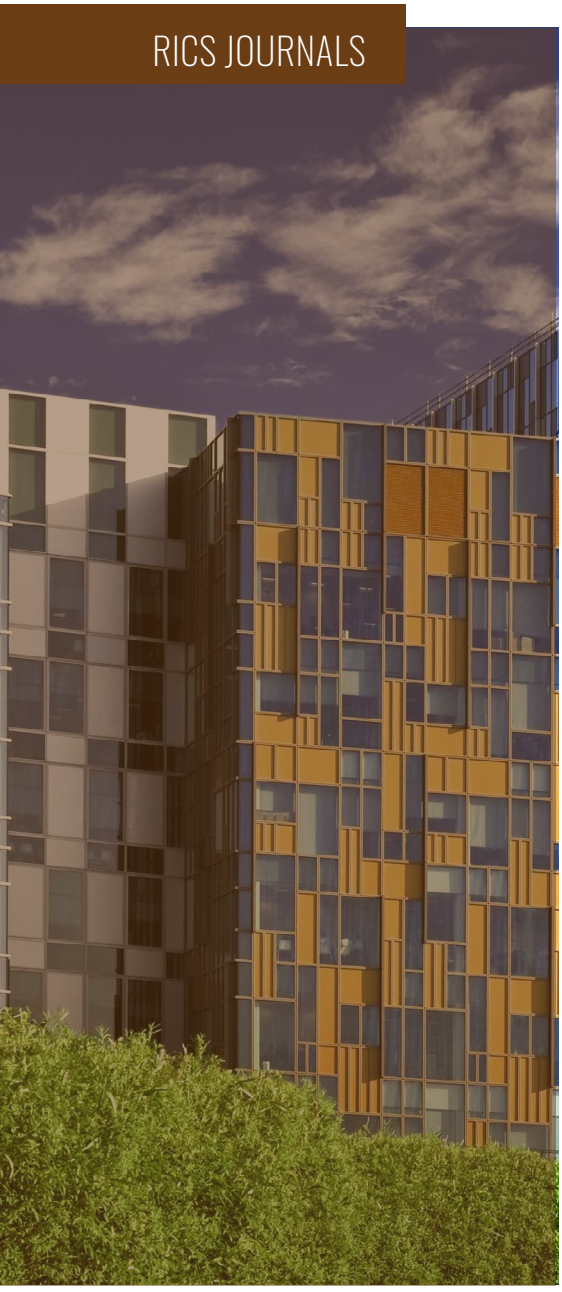
Built Environment Journal

Editor's choice

JUNE 2022 – AUGUST 2022



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BUILT ENVIRONMENT JOURNAL
First published 23 June 2022

BSR emphasises why industry must take a lead

With the Building Safety Act 2022 now in place, the regulator explains why built environment professionals must step up to prepare for the new regime

By Peter Baker

The Building Safety Bill was amended a lot before it was enacted, and some built environment professionals now think it's only about cladding remediation. Do you think the government can help by providing guidance and information?

Peter Baker: The government and we at the Building Safety Regulator (BSR) will be providing support and help for the industry sectors that are going to be affected by the requirements of the **Building Safety Act 2022**. The legislation is quite complex, and includes a whole range of new measures.

Clearly, the focus for the BSR is on the safety of high-rise residential buildings (HRBs), following the Grenfell Tower fire. But the act also introduces a construction products regulator, new ombudsman arrangements, and protection for leaseholders from cladding remediation costs.

It's also worth remembering that oversight of HRBs is only one function of the BSR. We will also be responsible for promoting competence across the built environment, supervising the safety system for all buildings, and overseeing the building control profession. So while the legislation began with the safety of HRBs in mind, the 2022 Act has gone much further in trying to improve safety and standards across the entire built environment.

BEJ: The act retains the requirements for a principal designer and principal contractor, and BSI is working on standards PAS 8671 and PAS 8672 respectively to ensure their competence. But there is no equivalent PAS for building control professionals, and this seems to be a big gap. How do you think you will address that?

PB: Our role in overseeing the building control profession will require building control approvers – currently called approved inspectors – to register with the BSR. All building control inspectors, whether in the private or public sector, will also need to register. We're working with local authorities and the private sector to develop **standards and a competency framework** to regulate the profession.

BEJ: The bill was also going to introduce the role of building safety manager; but this requirement was withdrawn, which was a bit of a surprise. What effect will this have?

PB: The absence of a section in the act requiring a building safety manager doesn't mean that the need for someone to manage building safety on a day-to-day basis has gone away.

> Professionals can't just wait and expect the government and regulators to tell them what to do

Landlords and building owners will be accountable persons (APs) – that is, the statutory duty-holders – and they will still need to have access to expertise and competent people in their organisations to help them manage their risks. What the act effectively does by removing the formal requirement for a building safety manager is to give owners more flexibility over the way buildings are managed day to day.

BEJ: How do you see guidance and training for those taking on this new role of APs? Is that something the Health and Safety Executive (HSE) will provide?

PB: There will be two strands to this. One is – as many of your members will know – the ongoing work by industry to develop frameworks that set out minimum standards of competence for individuals and organisations managing building safety.

Second, as the BSR we established an interim competence committee that will become statutory now that the act has received royal assent. We will be playing an increasingly pivotal role in the development of competency standards, which is part of our statutory role in encouraging competency across the built environment.

But we will still expect – as we do in relation to workplace health and safety – that industry will continue to take a lead in the design of standards for competency and, more importantly, set out how these will be effectively implemented across all the key building safety roles.

BEJ: Do you have any expectations about how long it will take the construction industry to adjust to the various new provisions?

PB: The Grenfell Tower fire was five years ago, so my expectation is that the industry should be well on its way already. I've seen lots of good practice, both in the private and in the social housing sectors, with organisations getting to grips with cladding and other risks. Many have started to manage their buildings in a way that I expect them to be managed when the new regulatory framework is in place. But others are still well behind the curve.

As more detail of the new regime emerges over the next 12 months, the industry needs to be prepared. This is a message I've been emphasising since I was appointed in February 2021. There isn't very much time: built environment professionals have got to start gearing themselves up, collaborating and sharing all that good practice.

BEJ: You've been holding various round tables with built environment stakeholders to prepare them for the new regime. Will you continue with these through the implementation period?

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The Building Safety Act: what you need to know

By Alexandra Anderson and Charles Underwood

PB: We are going to continue with a range of activity over the coming months to engage with stakeholders, particularly those who will have duties under the new legislation. We will work with them on the practicalities of implementing what will be a significant change in the way buildings are constructed, designed and managed in occupation.

BEJ: Do you think the act will change the culture of the construction industry, as Dame Judith Hackitt called for in her review of the Building Regulations and fire safety?

PB: The whole remit of the 2022 Act is to ensure safe buildings, but that requires a significant cultural shift in the industry. The new legislative framework will require a major change in the performance, attitude, competence and behaviour of all parties, whether they're clients, designers, contractors, developers or building owners.

Of course, the legislation only sets the minimum standards. I know from my 30-plus years of regulating workplace health and safety that industry and professionals have got to step up as well. They can't just wait and expect the government and regulators to tell them what to do.

For the new regime to succeed, the industry has to be clear that the current position is unacceptable. It needs to set out a vision for the future and prepare a roadmap to get there. Part of my conversation with professionals over the coming months is going to focus on these – preparing the industry for the legislation, but also encouraging it to take a lead in changing the culture.

BEJ: How in particular do you think we will change the construction culture of the lowest price meaning the lowest quality?

PB: It's got to be a multi-stranded approach. The legislation is setting the minimum level of expectation, which will clearly have an impact. The secretary of state for levelling up, housing and communities, Michael Gove, is intervening to correct the behaviour of the industry and get particular problems fixed faster. But I also see the industry playing a key role in setting out its own expectations and standards to improve building safety.

I look back to my time with HSE in the early 2000s when the construction industry was seeing high levels of workplace death, injury and ill health. Along with the regulator and the government, the industry stepped up to set out some clear aspirations over 15–20 years, and held itself to account during that period. The Grenfell Tower tragedy requires a similar response, with the industry setting a vision for its future culture and performance, as well as some clear milestones for the journey.

This isn't going to happen overnight. But I have seen some very positive steps, particularly measures such as the **Building a Safer Future Charter**, to which RICS is signed up. That sets out some helpful principles, and indicates a willingness for change. I think there's much more to do, though, and the industry will be instrumental in making necessary progress.

BEJ: But as almost everything in the industry is subcontracted, often for the lowest price and with low levels of competence, the overall quality of projects is lacking. How will you change that?

PB: I am often asked how I, as the chief inspector of buildings, am going to change the way industry works. Well, I and the BSR can do our bit by engaging with the industry. The BSR, local authorities and fire and rescue services will also be able to take appropriate enforcement

action against businesses and industry sectors when we have the tools to do so.

But what is the construction industry itself going to do about it? This isn't about the regulator. The regulator can only do so much, as can government. So I would ask you the question. What is RICS going to do to eliminate the practices that have resulted in the present situation?

It comes down to the industry taking a hard look at itself and starting to think about how it needs to change its behaviour and culture.

BEJ: RICS will continue to call out poor practice, and collaborate with industry to drive out these issues. Risk management is another major issue in construction. We know the bigger contractors and developers are getting better at it because they have been found out – one example being Persimmon Homes with issues of poor quality regarding cavity barriers. However, we also know poor practice still persists. What can you do as the BSR to stop this? Will you make random visits to spot-check construction sites, for instance?

PB: The framework we're going to introduce aims to regulate risk management throughout the life cycle of a building. We are already a statutory consultee on planning applications for HRBs, the principle behind this being to get developers thinking about fire safety in particular at the earliest stages. It's a lot easier to manage risk at this point than it is to try to retrofit measures further down the line.

It is disappointing, though, that since the start of this year alone, the **planning gateway one process** that HSE introduced in August 2021 has raised fire safety concerns on more than half the building designs put forward.

So you've got to look at the regulatory framework holistically and what it's trying to achieve. The gateway process at the construction and commissioning phase aims

Since the start of this year alone, the planning gateway one process has raised fire safety concerns on more than half the building designs put forward

to get developers and contractors to eliminate the building safety risks as early as possible in the process.

They will need to demonstrate to the BSR not just what they're going to build and that it will be safe, but also how they're going to go about it. They will need to show that their design and build processes will ensure safety and quality.

We will – as the BSR and the building control body for higher-risk buildings – carry out site inspections. We will not only check compliance with the Building Regulations, but also that plans are being implemented in the way intended, and that there are arrangements for managing the inevitable changes that happen during the life of a contract.

Similarly, the legislation introduces a safety case certification regime for the occupation phase, which is based on the approach used in major hazard industries such as oil and gas, and chemicals. This requires the building owner to demonstrate that they understand the risks, that they've looked properly at the serious fire and structural vulnerabilities of their building, and they've got a plan to deal with them over its life cycle. That will be subject to BSR intervention.

There will also be follow-on inspections, which will be prioritised according to risk. We will obtain a lot of information about a duty-holder's ability to manage risk from the safety case assessment, which will then inform our inspection programme for that particular building, or indeed that particular duty-holder.

BEJ: Thanks, Peter. Before we finish, what do you think is the most important thing for the industry to bear in mind?

PB: The final thing is – and this is something I emphasised in my presentation at this year's RICS Building Surveying Conference – that stakeholders should be aware the Building Safety Bill is now an Act. The next 12 months are going to be an important transition period for everybody to prepare for the new regime.

We're expecting the first requirements – building registration and the building control competency frameworks – to be launched in April 2023, with the responsibilities and duties on accountable persons and the role of principal designer and principal contractor to be introduced in October 2023. The safety cases will follow six months after that.

A lot is going to happen over the next the next 12 to 18 months, and getting ready for this new regime should be the priority for everybody involved. We will of course continue our dialogue with RICS, as a key stakeholder.

Peter Baker is chief inspector of buildings at the HSE

Learn more about the building safety regulator

Related competencies include:
Fire safety
Legal/regulatory compliance
Risk management

RICS' view

RICS global building standards director Gary Strong comments: 'We continue to work closely with the HSE and the new BSR to ensure that RICS, regulated firms and members are aware of the requirements of the Building Safety Act 2022. We have an **online information centre** about the Act, with FAQs, where we regularly post updates.'

BUILT ENVIRONMENT JOURNAL
First published 14 July 2022

Why EPCs need to accommodate measured input

By Luke Smith

Regulatory reliance on energy performance certification fails to acknowledge that the process itself depends on a range of assumptions that skew our understanding of building performance

Policy-makers have placed considerable emphasis on energy performance certificates (EPCs) as a basis for numerous measures and funding initiatives. Likewise, registered housing providers and landlords have developed investment strategies and targets that are all based on the EPCs.

However, we must remember that certification was principally developed as a means of making like-for-like comparisons between houses at the point of sale or letting. Although EPCs have evolved over time in a bid to present ever-greater insight, they were never intended to provide a wholly accurate representation of the as-built energy efficiency of an individual property. And yet built environment professionals depend on them doing so.

The EPCs are based on the standard assessment procedure (SAP), and built environment experts often say that the full SAP is better than the reduced data version. The former is used for new-build compliance sign-off and able to incorporate more detailed inputs, whereas the latter is used for existing buildings and is intended to be quick and less invasive to prepare EPCs at point of sale or letting. The difficulty lies not in the methodology so much as in the quality of inputs.

You can have the best building modelling software in the world, but if you don't accurately tell it where the building is located or how big it is, it will not provide much in return. Therefore, no matter what software they use, a surveyor is always going to need to take physical measurements and make professional observations of buildings.

While there are other voluntary standards such as Passivhaus, BREEAM, LEED and WELL ratings, they all suffer from the same underlying issue when it comes to inputs.

By contrast, Display Energy Certificates for public buildings in the UK present the energy rating performance based on actual meter readings. BREAM In-use is a similar system, which uses meter readings and internal temperature logs.

For such systems to work, however, we need benchmarks against which ratings can be set; meter readings alone don't account for occupancy and aren't strictly a direct indicator of the performance of the physical building.

To improve the accuracy, precision and usefulness of EPCs, the underlying SAP software must be able to accept measured inputs

Necessary assumptions skew understanding

The first challenge in obtaining accurate inputs is identifying features that can't be seen. Most surveys – especially those carried out for the purpose of preparing EPCs – aim not to be invasive. It's simply not practical or cost-effective to drill and borescope cavity walls, or take core samples of solid walls and floors.

Neither is it readily possible to survey the thermal mass of buildings, the extent of solar exposure, the presence of thermal bridges – quantified by psi values – or the true impact that weather and occupant behaviours have on the property. These are all critical factors, for which survey techniques and software try to account; but ultimately assumptions and estimates need to be made.

Having measured thousands of buildings, our experience at Build Test Solutions is that these assumptions cumulatively skew our understanding of the way such structures perform. Particularly when it comes to EPCs produced for existing buildings, the number of assumptions and inferences make many homes seem very similar in performance.

The reality is that no two properties are alike. Subtleties such as the age of windows, the quality of the loft insulation installation, and the type and age of cavity wall insulation all make a considerable difference.

One consequence of basing EPCs on such assumptions, for instance, is that registered social landlords are wasting money chasing theoretical ratings while losing sight of why they are retrofitting in the first place.

> The difficulty lies not in the methodology so much as in the quality of inputs

Obtaining accurate EPC input

In November, the government published an EPC action plan, co-authored by the Department of Business, Energy & Industrial Strategy and Department for Levelling Up, Housing & Communities. This identifies that, to improve the accuracy, precision and usefulness of EPCs, the underlying SAP software must be able to accept measured inputs.

That is to say, rather than predict or estimate certain parameters of building performance, surveyors should actually measure these and input the data directly into the calculation. The overall EPC process – the assessors themselves, their training and CPD, the reporting, lodgement and auditing – will all be retained, but the accuracy would be better simply by acknowledging the as-built characteristics of the asset.

The model is in fact remarkably well set up to receive better inputs. In many ways it is simpler for the software to accept a measurement than to compute a range of factors in order to come up with an estimate. By including actual measurements, the EPC would then offer insights that are more instructive in improving appraisal of energy efficiency options and investment decisions. It will also help verify the true impact of any upgrade works after completion.

Measuring whole-building heat loss

The total rate of heat loss through the entire building fabric is one of the most significant metrics. Although it won't tell you the exact source of the heat loss, the measurement – also expressed as a heat transfer coefficient – can replace what are otherwise a huge number of assumptions and estimates.

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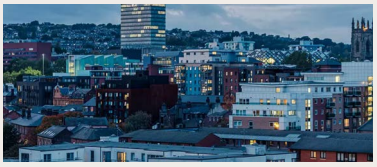

Why an updated EPC is vital to hitting net zero

By Catherine Garrido

With the roll-out of smart meters and devices such as smart thermostats, embedded temperature sensors and indoor quality monitors, for example, such measurements are more readily available than ever. Government initiatives such as the Smart Meter Enabled Thermal Efficiency Ratings (SMETER) Innovation Programme have demonstrated how to measure total building heat loss using widely accessible data such as energy consumption and internal temperature.

The programme even found that heat loss can just as readily be measured using manual readings from more conventional meters. Total consumption can be derived from two readings taken three weeks apart rather than at the 30-minute intervals a smart meter provides.

Predictions of space heating demand based on accurate measurement of the whole-building heat-loss rate are much more reliable than those otherwise based on assumptions about air leakage rates, thermal bridging and the U-values of the primary building elements. They also enable us more readily to determine the potential to upgrade the building fabric and the required size for heating systems such as low-temperature heat pumps.

Assessing air leakage and U-values

Once heat loss is measured, surveyors need to investigate the primary reasons for it. The first thing is to assess airtightness, and then to understand the thermal performance of individual building elements such as walls, floors and roof.

Already widely practised, air leakage testing measures the amount of air movement between the inside and outside of a building; it is also referred to as measuring the permeability or airtightness of a building. This is an important measurement because excessive air movement can account for around a third of a building's total heat

Excessive air movement can account for around a third of a building's total heat loss and energy consumption

loss and energy consumption; notwithstanding that sufficient fresh air is also required for a healthful internal environment.

Air movement occurs in two forms: first, through deliberate ventilation, such as air supplied through a mechanical system or a controlled opening; second, through infiltration, which is unintentional air movement through cracks and gaps in the building fabric. The latter leads to heat from the house being lost, increasing energy costs and lowering the EPC rating.

General understanding of air leakage in existing homes is fairly limited, but PAS 2035 retrofit standards are now mandating much more widespread testing on existing buildings.

The good news is that this need not be expensive. Testing 100% of new-build plots is already a legal requirement, but when done at high volume the cost can be as low as £50 per property even when this entails a dedicated site visit. If a surveyor is already on site and owns the kit, a test can e done in less than 15 minutes.

Testing is beginning to highlight the sheer level of variation in airtightness across different building types, construction methods and ages, which are otherwise extremely difficult to estimate.

The effectiveness of a wall, floor or roof, for instance, in preventing heat from escaping from a house can be measured by its U-value. In simple terms, the lower the U-value the better insulated the fabric of a building is, and thus the lower the heat loss and energy consumption.

However, unless you know the true build-up of a wall or floor or how it is affected by convective air movement, radiative effects and the weather, it is very difficult to predict the U-value accurately.

U-values can therefore instead be measured using equipment such as a Heat3D infrared thermography-based device or heat-flux plates. These measurements allow much better understanding of the as-built performance of a given building element before adding insulation or carrying out retrofit works.

What is the future of EPCs?

In recent years, the advent of low-cost sensors, smart meters and advances in understanding of building physics have meant that building measurements are more accessible and affordable than ever before.

This allows us to replace assumptions in our energy models with more reliable measured inputs, specific to the building in question. As a result, building ratings can now be as accurate as technologically possible, while still being produced at scale and cost-effective.

The growing use of measurements is also showing that EPCs do not accurately reflect the behaviours of certain building types. For example, certification has not adequately accounted for the better performance of older buildings with thick stone walls, or the airtightness of many mid-century properties with solid concrete floor slabs, wet-plastered walls and ceilings, and uPVC windows. Measurement-based inputs prove this much more clearly in many cases.

By accepting a greater number of measured inputs, EPCs can develop further. The technologies now available present fantastic opportunities for surveyors prepared to start offering measurement services. This will improve the accuracy of insights into building energy efficiency measures for homeowners, landlords, lenders and insurance companies.

> At not much extra cost, the accuracy, precision and usefulness of EPCs could be drastically improved

Benefits of measurement technology

We're not advocating that EPCs are thrown out and replaced with something entirely new at huge cost and upset. Instead certification could continue as it is – but at not much extra cost, the accuracy, precision and usefulness of EPCs could be drastically improved by the use of measurement technology.

EPCs currently lodge at around £60 on average, and with measurement carried out by the same surveyor one might expect the price to be closer to £150–£200. However, the certification is then much more accurate and instructive in terms of helping appraise retrofit options. Indeed in some cases, it highlights that little to no upgrade is actually needed. While adding cost to the process, this means EPCs would offer much better whole-life value.

Due to the conservative nature of the assumptions used in both the full SAP and the reduced data version, replacing them with accurate, measured inputs can in fact often deliver higher EPC ratings, helping buildings comply with minimum energy efficiency standards and command better sale prices and lending rates.

Of course, that's not to say we should not invest in upgrades, rather it is to highlight where money is to be best invested to deliver real benefit - as opposed to blindly chasing theoretical performance gains.

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Related competencies include:
Construction technology and environmental services
Sustainability

BUILT ENVIRONMENT JOURNAL
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How degree apprenticeships help fill skills gap

By Dr. Nick Williams MRICS
and Dr. Paul Hampton FRICS

Concern about declining competence levels and renewed emphasis on safety are increasing demand for building control surveyors. Degree apprenticeships can help meet this need, as one course shows

Building control is fundamental to health and safety, to energy efficiency and – at a time when we need to build new homes faster than we have in decades – to the effective regulation of the construction industry. This means qualified building control surveyors are in high demand at the moment. Despite this, the sector faces a number of challenges.

In 2017, a **report** published by the then Ministry for Housing, Communities and Local Government's Building Control Performance Standards Advisory Group building-

control-performance-indicators-2015-to-2016 drew attention to the age profile of the profession, suggesting that many building control bodies were facing significant staffing challenges as experienced surveyors approached retirement. The report also showed that the average building control surveyor's level of experience and qualifications was on a downward trajectory.

Meanwhile, the 2020 report **Recommendations on the future regulation of the Building Control Sector and Profession in England** published by RICS, found that, until recently, funding for training and development in building control has declined as competition in the sector intensified, exacerbated by downturns in the construction industry.

This report went on to argue that a wider culture of deregulation during the preceding years had diminished the value and authority of building control bodies. But the tragic events of the Grenfell Tower fire in 2017 made it clear that it was essential to change the mindset of the construction industry and improve competence levels.

Programmes support professional development

In response to this growing skills gap, education providers have been developing degree apprenticeships to help new professionals advance their careers in building control, and enable those with several years' practical experience to gain formal qualifications.

One such programme is the **University of Wolverhampton's building control surveying degree apprenticeship**, which took its first students in 2018. They graduated last year, and a second cohort followed this May.

The programme was designed and developed by the university in collaboration with employers, Local Authority Building Control (LABC) and professional bodies. The course is accredited by the Chartered Institute of Building,

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Improving building safety through qualification

By Martin Cawley

the Chartered Association of Building Engineers and RICS. It is taught by lecturers who – in addition to their academic and teaching qualifications – are professionally qualified and have practical experience in the sector.

Entrants to the programme need to be currently employed in a building control or building standards role, working a minimum of 30 hours per week. They will typically require a minimum of three A levels, an equivalent qualification, or practical experience in a construction- or property-related discipline.

Most applicants will join at year one of the programme. However, those with suitable existing qualifications and experience can start at year two or three, completing the programme even more quickly.

Degree apprentices take the 48-month course part-time alongside their full-time jobs. Employers are required to release an apprentice for off-the-job training and study for at least 20% of their normal working hours – effectively, one study day a week during term time.

The classes are largely delivered online, except for one face-to-face residential week each term. This makes it convenient for apprentices to study the course wherever they are based in the country. As well as support from lecturers, all apprentices are allocated a personal tutor and a skills coach to support them in their studies.

Modules focus on core skills

The University of Wolverhampton's programme covers a range of built environment subjects.

This includes modules on topics such as:

- sustainable construction technology
- building control and construction law
- digital construction and data management
- advanced fire safety
- sports grounds safety and accessibility.

To be accredited by RICS, the modules on the course are mapped on to the chartered building control surveyor competencies

Through the combination of practical and educational experience and support, the programme aims to enable apprentices to:

- gain the essential core skills and knowledge necessary for those practising as building control surveyors or building standards inspectors
- develop an understanding of technical compliance measures in the approved document suite and other relevant standards
- develop transferable skills such as team working, independent learning, decision-making and problem-solving
- develop an awareness and knowledge of enforcement under building law
- enhance skills in construction and built environment-related projects, including managing people and resources, and leadership skills.

Towards the end of the programme, all degree apprentices must complete a dissertation. This gives them an opportunity to undertake their own research and contribute to knowledge in a particular aspect of building control of interest to them.

Course addresses Hackitt concerns

In her **review** of the Building Regulations and fire safety, Dame Judith Hackitt said the ability of those undertaking building work to choose whether building control services are provided by the local authority or private-sector approved inspectors 'appears to be unique across the UK regulatory environment'. She went on to identify that this creates 'incentives for building control competitors to attract business by offering minimal interventions or supportive interpretations to contractors'.

Professional ethics are therefore central to the knowledge, skills and behaviours that underpin the University of Wolverhampton's degree apprenticeship. It uses scenario-based exercises to develop apprentices' understanding of what RICS and other building control professional bodies

expect when it comes to ethical practice.

Another of Dame Judith's key findings was the need for higher standards of competence among built environment professionals. During their studies and on-the-job training, degree apprentices at Wolverhampton therefore study technical topics including design principles, fire safety and construction technology.

The course also covers detailed aspects of building legislation, regulatory processes and professional practice. Assessments are designed around practical application of their learning on building control functions.

Graduates set up to enrol on APC

To be accredited by RICS, the modules on the course are mapped on to the chartered building control surveyor competencies; although it should be noted that students with an RICS-accredited degree can use it to enrol on any APC pathway. On successful completion, apprentices will achieve a BSc (Hons) in building control.

RICS global building standards director Gary Strong comments: 'A career in building control has never been in greater demand. More professionals will be required following the passage of the **Building Safety Act 2022** in England, and increased scrutiny of building safety in other countries. RICS has long supported the need for degree apprenticeships as a route to gaining professional qualifications.'

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Related competencies include:
Fire safety
Legal/regulatory compliance
Construction technology and environmental services

BUILT ENVIRONMENT JOURNAL
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How to avoid the risk of stranded assets

With growing concern over environmental, social and governance issues, technical due diligence can stop you being left with a stranded asset

By Charlotte Evans MRICS

As environmental, social and governance (ESG) criteria and net-zero carbon have moved to the top of the business agenda, the impact of the built environment has, rightly so, been a key focus.

However, the financial value of real-estate portfolios is at risk from the growing potential for stranded assets. This is the term used to describe properties that will not meet future energy efficiency standards or market expectations, and as a result be increasingly likely to face early obsolescence.

Incorporating sustainability into TDD

Investors are increasingly relying on technical due diligence (TDD) that includes enhanced consideration of ESG issues to inform them how a building actually performs, how far it is at risk of becoming stranded, and how that risk might be mitigated.

This has been prompted by growing evidence that links a building's green credentials to its market value. For instance, the International Property Securities Exchange and Carbon Intelligence have observed that offices in central London with strong sustainability credentials benefit from 6–11% higher rental premiums.

In comparison, assets with poor sustainability credentials and no plans for improvement are expected to depreciate in value over coming years. Investors will be seeking to avoid assets at risk of stranding, or incurring penalties for failing to comply with tightening legislation. Assessing a building's risk and the interventions and expenditure required to protect it against stranding is becoming a key part of TDD instructions that also require enhanced consideration of ESG factors.

Understanding what certifications mean

Until the recent focus on the built environment's contribution to carbon emissions, achieving sustainable building accreditations – often for marketing purposes – has tended to be seen as a tick-box exercise. However, as the market matures, certifications are increasingly important to investors, occupiers and funds to ensure legislative and internal policy compliance.

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Why industry cannot afford to ignore ESG

By Andrew Little MRICS

Understanding the various accreditations is key for a TDD instruction with enhanced ESG consideration. For example, a good energy performance certificate (EPC) rating or a high BREEAM assessment does not necessarily mean that a building will be in a position to become net-zero carbon by 2050. Instead, greater attention needs to be paid to the actual energy intensity of the building.

In 2021, the government launched a consultation to inform tighter minimum energy efficiency standards (MEES) for privately rented non-domestic buildings in England and Wales. The results of that consultation are still awaited at the time of writing, but the government has confirmed that the long-term goal is for all non-domestic buildings to have an EPC rating of no lower than B by 2030. This change will affect around 1m buildings.

Considering that 90% of EPCs on the UK's national register currently are rated lower than B, this could have a serious impact on valuation, because these buildings may face obsolescence all the sooner.

Changing models for building performance

While EPCs are a starting point when it comes to assessing and understanding energy consumption in buildings, they are only based on modelled performance. New legislation is likely to be based not only on EPCs but also actual, operational energy usage, drawing on metered data. Depending on the energy source used, the associated carbon emissions can also be calculated to determine whether a building is sufficiently efficient; that is, whether it is stranded or not.

One such scheme is the National Australian Built Environment Rating System (NABERS), which was introduced for office buildings in the UK in November 2020. The system gives a star rating to commercial office buildings' performance based on their actual energy consumption and efficiency.

> The value of an asset will be affected if it does not meet occupational, investor and legislative sustainability standards

Data on actual building energy use is, of course, a much more accurate measure than modelled building performance, as it takes account of operational and occupational behaviours and energy use.

Informing effective interventions

In many instances, existing buildings require improvement to reduce energy consumption and prevent them remaining or becoming stranded. However, retrofitting assets to align with net-zero carbon ambitions can be significantly disruptive and costly.

At Savills, we are seeing building owners and investors incorporating ESG considerations into their due diligence process ahead of acquisitions. This allows them to determine assets' current environmental performance, and understand the costs of and strategies for decarbonisation to meet net-zero commitments.

While the analysis of building performance should be carried out by specialists, understanding decarbonisation strategies and advising clients on how these affect the technical performance and life cycle of an asset are critical skills for building surveyors.

A number of tools are available to help surveyors model a building's stranding risk and identify how it can be improved.

- **EPC Plus report**: The report models the impact of cumulative interventions on a building's EPC rating with a view to meeting the government's proposed target of B by 2030, along with the carbon emissions these would save and the cost. It should be noted again, however, that EPCs represent modelled data only, and therefore do not measure the actual energy consumption of a building.

- **Carbon Risk Real Estate Monitor (CRREM)**: This tool uses energy performance data to plot where the asset sits in relation to the decarbonisation required to fulfil the goals of the 2015 Paris Agreement on climate change; that is, the maximum carbon the building can generate annually if global warming is to be limited to 1.5C or 2C. As part of the due diligence process, EPC Plus data can be entered into the CRREM model to show how these interventions will affect the asset's stranding risk.
- **Asset-level net-zero pathway**: To formulate a net-zero pathway for an asset, an energy specialist can create a bespoke model based on the building's actual operational schedules and loads. The model can then be used as a digital twin to simulate the building's current energy and carbon performance, and test the impact of interventions on future energy performance.
- **Climate change risk assessment**: the climate resilience of an asset is assessed to predict the potential impacts it will face from future flooding, overheating and drought for instance.

These tools, used together as part of TDD with enhanced consideration of ESG issues or in stand-alone ESG due diligence, can inform decisions on investment as well as what interventions should be made and when, relative to a building's stranding risk. When considered alongside lease events, this can also inform the overall strategy for the asset from a commercial perspective, allowing interventions to be implemented at the optimum time.

The findings from such exercises will enable asset owners and investors to make the right choices early on, so their assets do not become prematurely undesirable and economically unsustainable.

Findings from TDD will enable asset owners and investors to make the right choices early on

Case study: modelling interventions

Savills recently undertook ESG due diligence on an industrial building where the current carbon intensity was above the CRREM curve stranding line, meaning that it was more than the level required to align with the Paris Agreement. Intervention was therefore needed to reduce the building's energy consumption and greenhouse gas emissions.

We produced an EPC Plus report, which modelled a number of interventions to improve the current baseline rating of B. Those considered included improving the air permeability of the building, and installing such features as a photovoltaic array, photoelectric daylight dimming, and heat recovery for the mechanical ventilation system.

While energy reduction measures should be carried out as soon as possible, we advised that these should take the specific context of the asset into account. As the building was let on full repairing and insuring terms with a lease expiry in 2030, the more intrusive interventions – such as solar panel installations – were therefore scheduled for then. This was deemed acceptable in this case as the building already had a B rating; but similar delays would need to be considered on an asset-by-asset basis.

Using the energy consumption figures set out in Approved Document L, implementing these measures was predicted to reduce energy consumption by around 68%. The asset model then follows a trajectory with energy intensity below the Paris Agreement requirement for a number of years from 2030.

Preventing early obsolescence for assets

The value of an asset will be affected if it does not meet occupational, investor and legislative sustainability standards. Investors therefore need to ensure that assets have plans in place to become net-zero carbon by 2050, and understand the cost implications as part of their due diligence exercises.

TDD with enhanced consideration of ESG factors can also be used by an owner to showcase a building to potential purchasers. Savills is increasingly seeing building owners and developers looking to market and publicise their assets' credentials to attract investors.

As always, to be forewarned is to be forearmed, and the knowledge gained through TDD will enable investors to maximise their assets' value in line with changing legislation and market expectations – ensuring they do not become stranded.

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Related competencies include:
Landlord and tenant
Legal/regulatory compliance
Sustainability

RICS panel set to tackle NSW building defects

BUILT ENVIRONMENT JOURNAL
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Apartment building in a Sydney suburb, New South Wales, Australia

By Nick Hudson

An RICS panel of inspectors has been approved by the government of New South Wales to conduct surveys under a state scheme to address poor construction quality in apartment buildings

In April, RICS launched a panel of inspectors approved by the government of New South Wales (NSW) to survey apartment buildings for defects.

The approval was made under the state's **Strata Building Bond and Inspections Scheme (SBBIS)**, one of the measures taken by the NSW government over the past three years to address systematic construction quality issues, in particular in new residential apartment blocks.

Building quality issues emerge in apartment boom

A University of New South Wales (UNSW) report, Cracks in the compact city, recently documented the scale of the defects problem in jointly owned buildings, which are known as strata title buildings in reference to the way that common ownership of apartment buildings is defined under Australian property law.

Published in October 2021, the UNSW report highlighted the growth in the apartment sector in Australia. More than A$30bn of new apartment developments commenced in the country in 2018–19 alone, while 26% of NSW residents surveyed by the 2016 Australian Census of Population and Housing identified as living in apartments.

However, with this explosion in residential apartment development have come significant building quality issues – including a number of high-profile evacuations of large apartment buildings. These have sparked considerable public attention.

Research reveals serious defects

Recent research published by the office of the NSW building commissioner showed that 39% of apartment buildings surveyed had experienced serious defects in the common areas. Waterproofing accounted for 23% of these, fire safety systems for 14%, structure for 9%, key services such as heating, ventilation and air conditioning for 5%, and non-compliant cladding for 6%.

The research concluded that lack of care, pressures to maximise profit, lack of skill or experience and lack of adequate regulatory oversight were key causes of the construction quality issues and building defects seen in recent years.

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Conducting timely TDD in New Zealand

By Phil Overend MRICS

Scheme established to inspect strata buildings

In response to this growing crisis, the NSW government decided to establish a scheme that would license panels of inspectors to check all newly constructed apartment blocks more than four storeys high.

The SBBIS requires that developers building any new strata buildings of more than four storeys must lodge a bond of 2% of the construction cost with the NSW government. This bond can then be used to rectify any defects that are not remedied following two compulsory building inspections, conducted by inspectors from an approved panel.

While appointed and paid for by the developer, the inspector must be approved by the building owners; that is, the respective strata owners corporation. That inspector must report to both the developer and owner as well as the NSW government within defined timelines.

A standard reporting format has to be followed, as well as an inspection process defined by the Australian Standard 4349.2: 2018. The SBBIS also protects approved building inspectors and panel operators from liability for any defects that are not identified.

RICS draws on expertise in due diligence

Australia has historically lacked degree-level education in building surveying, and as a result has no building surveying profession of the kind found in the UK, for example. Pre-purchase residential building reports are in the main written by poorly qualified – and in some states, unlicensed – pest and building inspectors.

We urge designated responsible persons and others involved in the management and running of buildings to take their duties seriously.

However, chartered building surveyors – most of them UK expatriates – have cornered the market in inspecting for defects on commercial and larger residential developments, and in technical due diligence reporting, with RICS offering local guidance on technical due diligence and making good. Therefore, the organisation was well placed to establish an approved inspector panel comprising chartered building surveyors with relevant experience.

The RICS team in Australia identified the opportunity for chartered building surveyors to play a role in the new scheme, and applied to the NSW Office of Fair Trading for the right be one of the authorised professional associations overseeing an approved strata inspector panel.

The panel membership is underpinned by RICS building surveying competencies, ethics and regulatory standards, as well as an assessment and monitoring process overseen by the organisation's Dispute Resolution Service (DRS).

As the DRS already establishes criteria for expert witnesses, assessing, managing and promoting their work, RICS has also made the service responsible for the approved inspection panel. Given that the SBBIS aims to keep the defect remediation process out of court, it also complements the DRS's overall objective.

Panel member offers insight into value of SBBIS

Alan Stewart MRICS, an associate at consultancy MBM in Sydney, is a chartered building surveyor and an inspector on the panel.

Nick Hudson: What skills do chartered building surveyors bring to the SBBIS?

Alan Stewart: They can provide a thorough understanding of building pathology, which is central to many areas of surveying. It is essential that an understanding of defects analysis, and the defects likely to result from failures in building fabric, are recognised. Chartered surveyors who train in the UK make up the majority of the profession in Australia, and develop these analytical skills from year one of their degrees and throughout the APC, using them constantly in their daily work.

These surveyors also develop professional networks that they can call on, depending on the complexity of a task. In the case of reporting on high-rise residential defects, they may seek expert help in conducting facade assessments by rope-access abseil, services engineering or vertical transportation.

Such help will ensure due diligence satisfies the highest standards for stakeholders and end users.

NH: Why is the RICS approved inspector panel important in terms of the profile of chartered building surveyors in Australia?

AS: Chartered building surveyors in Australia perform many, varied roles, including project managers, capital works managers and development managers, as well as the core role of building surveyors, or building consultants as they are more commonly known here.

The SBBIS presents an opportunity to enhance our profile in the Australian market, allowing clients to appreciate the varied skill set and versatile nature of surveyors while recognising the competency and professionalism of each RICS member or fellow.

NH: Why is being on the panel important for your business?

AS: The panel promotes the role of chartered building surveyors within MBM, and to clients nationally, as well as encouraging higher standards of residential construction.

MBM views the scheme as a potentially valuable source of business for surveyors as well. Traditionally most chartered building surveyors working for major firms have shied away from defect inspections on residential property or working for strata owner corporations, regarding them as clients that are often unwilling to pay consultancy fees.

However, as the SBBIS requires the developer to pay, RICS members can now more readily work in this asset class. The SBBIS thus means RICS and its members can promote their work among the Australian property professions.

Promoting the panel

The chartered building surveyors on the panel and those applying to join tend to focus on the larger, more established clients and their more sizeable developments.

RICS has good links with many of these national and international developers, a number of whose project teams are led by chartered building or quantity surveyors who are senior project managers or directors. The RICS team in Sydney is developing a plan to ensure the panel is visible and well understood by these major developers.

It is hoped that the panel, while initially being established to perform a statutory function in NSW, will become the go-to-body in Australia for defect inspection, building pathology and technical due diligence.

The panel's establishment comes at an opportune time, as confusion in the marketplace persists – the label 'building surveyor' is still often applied to building control surveyors in Australia.

Promoting the panel and raising the profile of chartered building surveyors among governments, clients, professionals and the public throughout the country is a key objective.

Nick Hudson is RICS partnership development manager, Australia, and RICS approved inspector panel manager

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Related competencies include:
Building pathology
Construction technology and environmental services
Ethics
Rules of Conduct and professionalism
Legal/regulatory compliance

Delivering confidence

We are RICS. Everything we do is designed to effect positive change in the built and natural environments. Through our respected global standards, leading professional progression and our trusted data and insight, we promote and enforce the highest professional standards in the development and management of land, real estate, construction and infrastructure. Our work with others provides a foundation for confident markets, pioneers better places to live and work and is a force for positive social impact.

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