RICS PROFESSIONAL STANDARD

Daylighting and sunlighting

UK

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RICS®

Daylighting and sunlighting

RICS professional standard, UK

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This document applies to the UK and Crown Dependencies. If any of the requirements contained in this document conflict with regional legal requirements, those regional legal requirements take precedence and must be applied.

Acknowledgements

The RICS Boundaries and Party Walls Panel (B&PWP) is a cross-professional group specialist panel of associate and chartered surveyors from the building, land surveying (geomatics) and rural areas of practice. It brings together some of the foremost and distinguished professional surveyors working within the arena of neighbour disputes. Its remit includes boundaries, party walls and certain easements, such as rights of way and rights of light. These issues lie at the core of RICS members' professional work.

The B&PWP also produces professional guidance and information, RICS public guides, RICS client guides, policy responses and journal articles, and has been involved in the inception and ongoing operation of RICS Dispute Resolution Service (DRS) Neighbour Dispute Service. The B&PWP exists to promote understanding and best practice in the areas of land transfer, registration and administration, encroachments, cadastre and boundary issues, and/or an improvement in the administration of the laws regarding them, within the United Kingdom and overseas.

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RICS standards framework

RICS' standards setting is governed and overseen by the Standards and Regulation Board (SRB). The SRB's aims are to operate in the public interest, and to develop the technical and ethical competence of the profession and its ability to deliver ethical practice to high standards globally.

The RICS Rules of Conduct set high-level professional requirements for the global chartered surveying profession. These are supported by more detailed standards and information relating to professional conduct and technical competency.

The SRB focuses on the conduct and competence of RICS members, to set standards that are proportionate, in the public interest and based on risk. Its approach is to foster a supportive atmosphere that encourages a strong, diverse, inclusive, effective and sustainable surveying profession.

As well as developing its own standards, RICS works collaboratively with other bodies at a national and international level to develop documents relevant to professional practice, such as cross-sector guidance, codes and standards. The application of these collaborative documents by RICS members will be defined either within the document itself or in associated RICS-published documents.

Document definitions

Document type	Definition
RICS professional standards	**Set requirements or expectations for RICS members and regulated firms about how they provide services or the outcomes of their actions.** RICS professional standards are principles-based and focused on outcomes and good practice. Any requirements included set a baseline expectation for competent delivery or ethical behaviour. They include practices and behaviours intended to protect clients and other stakeholders, as well as ensuring their reasonable expectations of ethics, integrity, technical competence and diligence are met. Members must comply with an RICS professional standard. They may include: • mandatory requirements, which use the word 'must' and must be complied with, and/or • recommended best practice, which uses the word 'should'. It is recognised that there may be acceptable alternatives to best practice that achieve the same or a better outcome. In regulatory or disciplinary proceedings, RICS will take into account relevant professional standards when deciding whether an RICS member or regulated firm acted appropriately and with reasonable competence. It is also likely that during any legal proceedings a judge, adjudicator or equivalent will take RICS professional standards into account.
RICS practice information	**Information to support the practice, knowledge and performance of RICS members and regulated firms, and the demand for professional services.** Practice information includes definitions, processes, toolkits, checklists, insights, research and technical information or advice. It also includes documents that aim to provide common benchmarks or approaches across a sector to help build efficient and consistent practice. This information is not mandatory and does not set requirements for RICS members or make explicit recommendations.

1 Introduction

The chartered surveyor in the United Kingdom is part of a worldwide network of professionals in the areas of land, property and construction. Underpinning this professionalism is the training and experience that leads to specialist expertise in the measurement, technical reporting and evaluation of those factors that underpin the value of land and buildings and their subsequent use, utility, life expectancy and sustainability.

This standard is about daylight, sunlight and shading and, to a lesser extent, how it is dealt with in the design, planning, and environmental impact assessment of developments, and particularly in relation to the Building Research Establishment Report Site layout planning for daylight and sunlight 2011, which sets out the standards and methods of calculation most usually relied upon by local authorities when assessing planning applications. Surveyors advising on daylight and sunlight need to ensure that they are familiar with that document and with the planning policy of local authorities to whom reports are to be submitted.

Daylight and sunlight in particular are important to human health and well-being; they affect quality of life, working conditions, public amenity and property values and increasingly are important factors in current policies favouring substitution of fossil sources with renewable energy. These are critical to sustainability and ultimately affect property values and scheme evaluation, yet they are often not the subject of any legal rights. Enforceability is frequently only achieved through the exercise of wider public administration and policies relating to building use, design and longer term management.

This standard does not deal with rights of light, by which is meant the prescriptive and compensatable or enforceable right of light as an easement under common law. Prescriptive rights of light are dealt with in RICS' *Rights of light*. Furthermore, the question of views and outlook, or overlooking, is not dealt with here. It may have effects on value and utility but it falls outside the scope of this document.

Although this document is primarily for the guidance of chartered surveyors in the United Kingdom, it is hoped that in addressing the complexities, it will also have a wider application as a generic guide in both domestic and other jurisdictions.

No guidance can cover all situations; rather the purpose is to provide a prompt, a signpost to cohesive analysis and to provide a basis for the professional to approach a particular task with greater reliability, consistency and transparency. At the same time, it may assist those seeking advice in the area of daylighting and sunlighting to understand the parameters of the professional role. In the end, it is the optimisation of projects and concepts that must flow from the professional advice so generated and this guidance is just one part of a larger process.

Natural light in particular is no longer (even if it was at one time) considered an infinite resource. Building upwards in dense urban environments means that available light needs

to be managed and equitably distributed. A first-come-first-served approach will inevitably lead to conflicts and disputes unless leavened by the application of professional skills, objectivity and balance. Moreover, there are wider implications where light is taken away by development.

Such development may not only be new construction but the adaptation, change and re-use of existing land and buildings for new and sometimes novel purposes. As the newly published national Planning Policy Framework and the Localism Act 2011 take effect, the way in which natural light is managed and the public (community) interest in it will become more important and more complex.

Modern technology now enables the professional to produce accurate analyses quickly and cost efficiently. These powerful tools will increasingly become the norm for evaluation of effects and optimising outcomes. The practitioner in areas of daylighting and sunlighting will need to understand the methodologies behind these even if they use a technical specialist subcontractor to gather and process the data.

Despite growing awareness of the issues and the technological tools, there remains a divergence between the areas of policy, regulation and practice. The methodologies behind planning and development regulation, policies for energy conservation and generation, and the practical application of building technology and economic appraisal, do not always coincide. Chartered surveyors, with their training, experience and specialist knowledge are in an unrivalled position to offer objective, well-founded and technically advanced advice. Nonetheless, the precise role will depend upon the circumstances and the particular instructions given, and the role may vary from

that of an informal adviser through to evaluation affecting a regulated purpose, as an expert witness or as an advocate. In all of these, it is the professional's duty to operate within an ethical framework in which regard shall be had to the wider public interest. This requires high levels of professionalism. Where there is no means of private redress or adjudication for adverse effects arising out of daylighting issues, the professional has a particular duty to ensure that relevant matters are fairly weighed in the balance.

The underlying purpose of this standard may be summarised thus:

- to ensure that the chartered surveyor undertaking the tasks to which this guidance relates, has the necessary knowledge, resources and competence to complete the tasks requested
- to emphasise the concurrent duty to ensure that proposals and instructions for professional work in this area are clear and unambiguous and that the required
- service can be delivered and provided in an objective and timely manner
- that in any contentious or adversarial situation, the facts can be presented in a clear and unambiguous manner that assists the parties, planning committee or inquiry and in applicable circumstances does not mislead the general public, and

- to encourage and foster consistent and wherever possible common standards of analysis and presentation.

Both the B&PWP and RICS would encourage public bodies, private businesses, individuals and other professionals to select a suitable chartered surveyor to review and advise on daylight and sunlight assessments.

A useful glossary of terms commonly used in daylight and sunlight assessments can be found in the BRE Report *Site layout planning for daylight and sunlight*, 2011.

2 Instructions

There are several circumstances in which surveyors may be asked to deal with daylight and sunlight matters. These may include:

- advising an adjoining owner who has concerns regarding a potential development adversely affecting their daylight and sunlight
- assisting a developer wishing to assess impacts of daylight and sunlight on a development scheme or wishing to determine the maximum size of a potential development
- advising on application of planning policy in respect of daylight and sunlight; and
- acting for a developer at planning committee or planning inquiry.

2.1 Competence and experience

Any surveyor accepting a commission in relation to daylight and sunlight must ensure that they comply with RICS requirements in respect of competence, Professional Indemnity Insurance (PII) and conflicts of interest. Members need also be aware of the obligations of the *Provision of Services Regulations* 2009. These Regulations came into effect on 28 December 2009. The effect is to raise the status of previous best practice recommendations to those of minimum legal obligations. Therefore, all members are encouraged to review their terms to ensure compliance.

Although cases do not involve formal litigation, surveyors need to assume that they may be called upon to act as an expert witness at a planning inquiry.

It is essential that members make themselves conversant with RICS' *Surveyors acting as expert witnesses* (3rd edition, 2008) with 2009 amendments. This document contains advice and information on the overriding duties of an expert witness as well as practical matters, including arranging meetings with lawyers, assessing and agreeing fees, case management and the content of reports.

2.2 Establishing the brief

It is important that a client is made aware at the point of instruction of the technical and legal difference between the methods of assessment used in planning and environmental evaluations of natural light and the separate law and methods within the common law system for rights of light. This will ensure that the correct study is provided and thus avoid the common misunderstanding that leads to mixing and confusing the differing methods of technically assessing light.

It is not uncommon in daylight and sunlight cases for clients to seek early advice, but at the time of the first meeting the client may not hold all the necessary information. An initial report may comprise guidance to the client as to what is required to take the matter forward.

It is essential to establish the requirements of the client and those of any professional advisers from the outset. While daylight and sunlight make up only one part of many planning considerations, they can be critical to the permissible building massing and do not always lend themselves to a simple solution. It is important that the client understands this.

2.3 Client's instructions

On instruction, the surveyor will need to carry out an investigation into whether there is likely to be a daylight and sunlight issue. In simple cases, this process might be quite elementary, possibly using no more than 2-D drawings.

In more complex cases, the construction of a detailed 3-D model may be necessary and this will involve more detailed measurement by appropriately qualified surveyors.

If the designers have produced a 3-D model as part of their design process, this may be usable to assess the effects on daylight and sunlight to existing surrounding properties. It may, however, take some considerable time to produce a definitive report on the likelihood and extent of any adverse effect and the client must be advised what this timescale is likely to be.

Once the measurement and analysis approach has been decided upon, the surveyor will interpret the resulting information and present the client with guidance. The client may look to the surveyor for certainty in this guidance and where this may not be possible due to planning policy, survey or other constraints, it is important to make this clear.

2.4 Considerations for the developer

A developer will require a report as part of the overall planning application package to be presented to the local planning authority. On large projects, which require an Environment Impact Assessment (EIA) (see section 6), the report will be a chapter in the EIA and will usually be controlled by a planning consultant. In many cases, the development team will ask for a 'safe envelope' – there are usually two, the rights of light envelope and the daylight and sunlight envelope. The two are not the same and one may be more restrictive than the other. The daylight and sunlight envelope will be prepared to allow, usually, a 20 per cent reduction in vertical sky component (VSC) and probable sunlight hours to the surrounding sensitive receptors. Mostly these are residential properties but some planning authorities also extend the protection to educational, hotel and hostel, and even some commercial properties.

It is essential to ascertain exactly what policies have been adopted by the relevant authority and how they will enforce them. The safe envelope usually ends up as a 3-D model showing a tent-like shape and these are almost exclusively computer-generated. Using the 3-D envelope, the architect can then develop the massing for the proposals, ideally staying inside

the envelope although commonly the massing breaks through the envelope. There may well be more than one solution to the proposed massing, particularly on large sites where, for example, multiple towers could provide more accommodation than a single uniform building.

Once the initial massing has been prepared, whether or not it is based on a safe envelope, it will be necessary to undertake a detailed study of the effects which that massing will have upon the surrounding properties. This will produce tabular data and the report must then interpret that data and set out in narrative form the gravity and nature of the effects of the proposal. If an EIA is involved, there are specific categories of effect – no significance, minor adverse significance, moderate adverse significance, major adverse significance – and the planning consultant will direct how these are to be set out.

If the proposed development is providing residential units then depending on the nature of the proposed design, the planning authority may require an assessment to show that the proposed new buildings will provide satisfactory standards of accommodation for the occupants. This will usually entail showing that rooms will have at or above the recommended minimum levels of average daylight factor. If the development involves a proportion of social or affordable housing, the planning authority can be particularly strict on the imposition of the standards.

As part of the sunlight element of the investigation, there may be concern that the development does not allow sufficient sunlight to the ground within amenity spaces. Many authorities seek to protect areas where people gather – back gardens, public squares, swimming and paddling pools, playgrounds, monuments and fountains – as part of their responsibility to protect the public realm. The report may need to contain a section indicating the amount of sunshine reaching these areas through the day at certain times of the year (see section 2.8).

Authorities are becoming more sensitive to aspects of ‘tree hate’, which is where approval for a development is granted, the building is built, the purchasers move in and promptly seek to have surrounding trees and hedges cut down because they obstruct the daylight and sunlight. It is becoming more common for planning authorities to require calculations showing the shadowing effects of existing trees and hedges on a new development to prevent these problems occurring once the properties are sold. A report may need to include these calculations in accordance with Appendix H of the BRE Report.

There may be reasons why a development needs to be in a form that does not meet the required standards, in order to comply with other areas of planning policy or to ensure good design. In that case, the surveyor needs to liaise with the client and design team to coordinate the reports within the full planning application submission.

In writing the report, care should be taken to be able to justify every statement made regarding the gravity of the effects. If planning consent is refused, then an appeal may be lodged and it may be necessary to justify the original report, either in written representations or in cross- examination in a public inquiry. If the report gives an inappropriately favourable opinion on a proposed development then the evidence may end up discredited or disregarded completely. At appeal, a local authority can be expected to

employ a consultant to review the appellant's daylight report, where they may not have done so for the planning application. In addition, well organised objectors may also have retained a consultant to advise them, who will seek to overturn the findings of the report, and any vague or misstated opinions in the report will be challenged by the objectors' counsel.

2.5 Considerations for the neighbouring owner

People are increasingly knowledgeable about opposing planning applications.

Objectors will need to provide evidence to the planning authority that their daylight and sunlight will be adversely affected by a proposal. This will normally require the production of technical data. Aspects such as view, privacy and overlooking or overbearing effects are beyond the scope of a daylight and sunlight report though they may well play an important role in the overall nature of the objection.

Sometimes it may be necessary to check and perhaps to challenge another consultant's report prepared on behalf of the developer. This may well involve as much work and complexity as preparing the report for the developer and the objectors have to be aware of the costs of producing this.

Where time for response is limited, the surveyor may only have time to review the applicant's report as submitted without undertaking their own calculations. If so, they should make

the client aware of the detail of work to be undertaken and any limitations that result.

Objectors should be made aware of the advisory nature of the BRE recommendations; they are not a set of planning policies that are passed or failed. While the developer cannot guarantee that if the scheme meets all the criteria of the BRE Report that planning permission will automatically be granted, objectors cannot guarantee that if the report shows that not all results meet the criteria in the BRE Report, the proposals will automatically

be refused. The planning officer can advise the planning committee to consent to a proposal that 'harms' surrounding amenities of daylight and sunlight on the basis of a range of considerations, or the committee may vote to approve a scheme despite it having adverse effects on daylight and sunlight to surrounding properties.

Unless the application has been refused and an appeal is being lodged, or the objectors have sought judicial review, their only opportunity to overturn an application is at the stage where the matter is being considered by the Council. If the application is refused and then appealed, there may be a restricted timeframe in which the evidence has to be gathered and presented or discussions held with counsel or the planning consultant, to assess the value of the evidence that can be brought before the appeal and this must be considered when accepting instructions.

Many lay objectors will write to the council about the effect the proposals will have on their 'rights of light' (see RICS' *Rights of light*). While the Council has no place in addressing any injuries to their rights of light, it does have a duty to consider the public policy aspects of

the effects that a proposed development will have on the amenities and expectations of its surroundings.

2.6 Measurement

In order for daylight and sunlight calculations to be carried out, the surveyor will need to have sufficiently accurate information on the distances between buildings and parts of buildings, and the heights of buildings that will need to be included in the calculations.

The surveyor may be requested to make an analysis with only limited and preliminary information. Where this is the case, only an approximate assessment of the effects on surrounding properties can be made. The limitations of the analysis must be made clear so that the client does not assume that the results are fully researched and refined.

Once the initial measurement has been made, matters may then progress to a far more detailed survey process, usually carried out by specialist surveyors either in-house or commissioned especially for the purpose. This work will involve the use of more complex instrumentation and software, including the following:

- GPS receivers to obtain National Grid and height
- high-definition terrestrial laser scanner
- software for the manipulation of 'Point Cloud' data
- CAD software for 3-D model building, and
- analytical daylight and sunlight software.

All measuring equipment should hold a current calibration certificate to allow for traceability and prove adherence to quoted technical specification. For more information on calibration, members can download the RICS geomatics client guide, *Reassuringly accurate – how controlling accuracy can affect your project*.

2.7 Site inspection

Surveyors should undertake a physical site inspection, not least to confirm the aforementioned digital sources. Should data be gathered from digital-only information then the report must clearly identify this, and any other relevant sources of data, and include a statement of the limitations of this approach.

It is often helpful to have roof level access to allow sight of surrounding facing windows. Members are reminded of the safety implications of working at height. All high-level inspection should be undertaken with reference to the current edition of RICS' *Surveying safely*.

The amount of preparatory effort required at this stage should be proportionate to the complexity of the case. It is important that the surveyor makes detailed and legible notes

at inspections, meetings and interviews, as these may form a vital record. Similarly, it is advisable to take photographs at each stage of the investigation.

The choice of technology will therefore be determined from the above but may consist of:

- a digital camera
- a navigation compass
- binoculars
- measuring tapes, level and staff, and
- a handheld laser measuring device.

At the initial stage of advice, information gathering will normally commence with a site visit in order to make a preliminary assessment of the consequences of the design on the neighbouring environment.

Information gathering may also include reference to the large number of online resources currently available to view the existing conditions using, for example, both aerial and street-based photogrammetric information.

2.8 Modelling and technical analysis

The daylight and sunlight calculations can be carried out either by manual calculation using the templates provided with the BRE Report, or by computer analysis using 3-D computer modelling and specialist software. If using computer modelling, a 3-D representation of the site is likely to be required at an early stage, although this may be subject to later adjustment or adaptation. The daylight and sunlight consultant will have a good understanding of the site layout from preliminary stages of advice and should, by this point, be in possession of all available data sources relevant to the project, including any existing survey information, plans, elevations, sections, etc. This data is rarely complete and will often require considerable interpretation from supplementary data sources to enable the creation of a preliminary 3-D model. In some instances, it may for example, be necessary to utilise commercially available 3-D models to provide a more consistent dataset.

The sources of all data may need to be disclosed so that users of the resulting information are in no doubt as to the accuracy. Other supplementary data sources available include Ordnance Survey vector data, photogrammetric data and airborne light detection and ranging (LIDAR). All sources are available online and offer early stage cost benefits.

In some cases, it may be more economical to commission a ‘high definition terrestrial laser scan’ in the preliminary stages of advice to avoid wasteful adjustment or adaptation of incomplete data, or when it is envisaged that a full measured survey may be required in any event.

The nature of the 3-D model’s accuracy will dictate whether it is sufficient for basic scheme design only, or whether it can be used for final assessment to conform to local planning requirements.

As with all data being utilised, the model and drawings should clearly identify all assumptions.

2.9 Analysis based upon full measured survey

This is considered to be the most accurate 3-D model possible showing massing, adjacent window positions and room layouts. Where assumptions have to be made, these will again need to be identified. This 3-D model should ordinarily be suitable for assessing whether planning requirements are fully satisfied.

The data required for this stage can be extensive and while more traditional methods may be used, it is normal on larger schemes to capture the data using a 'high definition terrestrial laser scanner'. This type of equipment is mostly used by specialist geomatics surveyors who are able to advise on the levels of accuracy that can be attained. For more information see the RICS geomatics client guide *Virtually real: terrestrial laser scanning*, June 2010.

Unless full access to affected properties is permitted, room layouts can still only be assumed. Scan data can sometimes help in these assumptions as internal detail can be derived to give an indication of room extents and floor/ceiling levels and even wall finishes. If room access is allowed then no assumptions need to be made, as plan layouts will be measured. These plans will generally take the form of a semi-connected survey but on occasions may require a fully-connected survey. These types of survey are defined in the RICS *Specification for surveys of land, buildings and utility services* at scales of 1:500 and larger.

Particular emphasis should be placed on the accurate measurement of windows and wall thicknesses internal/external floor level as well as surface finishes.

It is prudent to connect all survey information to the Ordnance Survey National Grid by use of global positioning techniques (see RICS' *Guidance for the use of GNSS in land surveying and mapping*). This results in the definitive geo-referencing of the project and allows for other proprietary data sources to be used in context without transformation. The Ordnance Survey benchmark system is no longer maintained and while offering a validation check, should not be relied upon for height datum.

The Ordnance Survey Active GPS Network provides access to the definitive datum in England and Wales and will consequently require GPS observations local to the site. This can be supplemented with conventional traversing and spirit levelling where GPS observations are not practical. The height datum is particularly relevant in the assessment of daylight and sunlight, as just a few centimetres at room level can have significant implications on the results. For more information see the RICS geomatics client guide *Virtually level – transition from traditional benchmarks to height using GNSS*.

3 Research

In most circumstances, it is advisable to set the date for the actual site survey at some point after the initial site meeting or from receipt of documents, which will allow time for research and the sourcing of documents.

As a minimum, and subject to any limitations relating to a client instruction, surveyors should undertake searches of the local authority's planning portal to establish existing or proposed room layouts of neighbouring properties if they are available. This will ensure a robust approach and enable the surveyor to produce reliable information for daylight distribution analysis, or if average daylight factor (ADF) tests are appropriate.

The planning portal may also have information relating to proposed developments in the immediately surrounding vicinity, which may need to be considered as part of the analysis.

Surveyors should also use the internet to search for other relevant information, including estate agent details, which commonly include plans of properties that can also be useful in determining a room layout or use.

Surveyors need to be aware of the requirement to retain information for PII and other purposes. As such, images gathered from internet sources need to be saved for record purposes, against the possibility that the image sourced online is later moved, removed or updated. It is also important to advise upon the accuracy of any information relied upon when advising clients.

4 Method of assessment

4.1 Daylight calculations for neighbouring buildings

The BRE Report sets out two calculations that should be used for testing the daylight to existing and neighbouring buildings to a development:

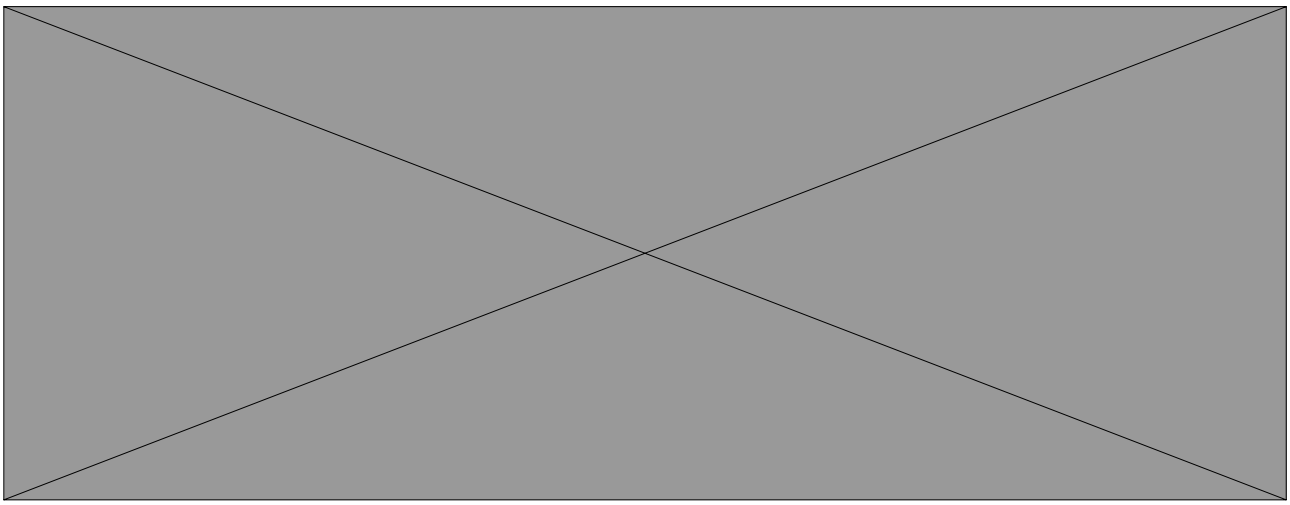
- the vertical sky component (VSC) assessment – the percentage of the total sky that can provide direct light to the centre of the face of the window when neighbouring obstructions are taken into account, and
- the no sky contour (NSC) assessment – the area of a room on a working plane of 850mm above floor level that can receive direct light from the sky through the window.

The BRE Report states that:

'the diffuse daylighting of the existing building may be adversely affected if either:

- the VSC measured at the centre of an existing main window is less than 27% and less than 0.8 times its former value; or
- the area of the working plane in a room which can receive direct skylight (the NSC) is reduced to less than 0.8 times its former value.'

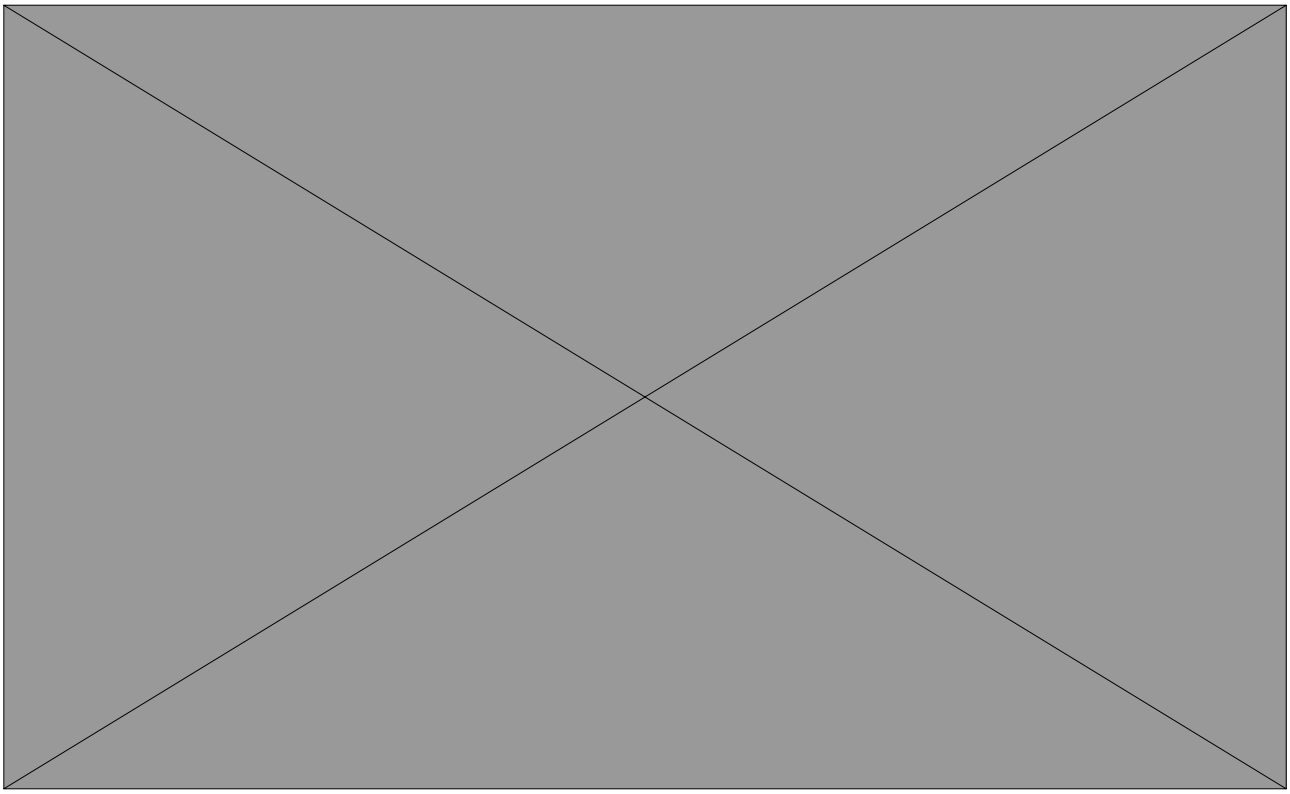
Both of these must be met because the failure of either one would indicate an adverse effect on the daylighting to the other property.



If all obstructions are beneath this 25 degree line, the VSC will be over 27 per cent.

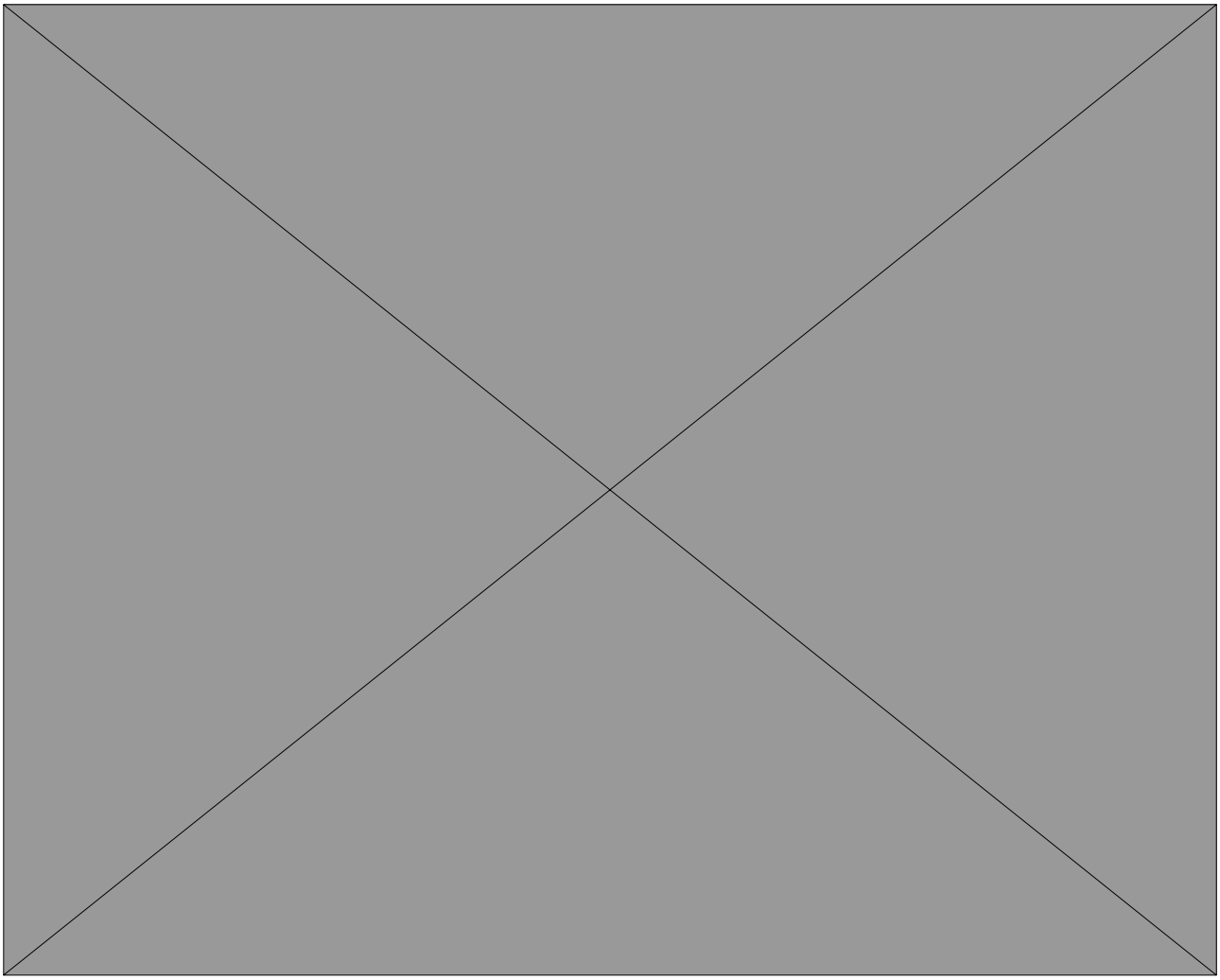
However, this assessment can only be used if all of the obstructions are below this angle. It is not appropriate to simply draw a section through a gap between buildings as that will give misleading results.

Where buildings are above the 25 degree line then the VSC may be calculated by using the skylight indicator at Appendix A in the BRE Report. This is a semicircular template that contains 80 crosses, each of which represent 0.5 per cent of the VSC. The template therefore represents 40 per cent of the total sky. Obstructions are plotted onto the template and the number of unobstructed crosses counted to establish the VSC. Separate templates can be produced for the existing and proposed conditions, or produced as overlay templates. Alternatively, the same can be accomplished using the modified Waldram Diagram at Appendix B of the BRE Report.



There are also computer programs that calculate the VSC.

The NSC assessment calculates the area of a room that has sky visibility at a working plane height of 850mm above floor level. For simple environments, the NSC can be plotted by means of drawn plans and sections. Care must be taken to follow changes in roof profile and gaps between buildings. Where obstructions to the sky visibility are more complex then care must be taken in plotting the NSC.



There are computer programs that can be used for calculating the NSC to a high degree of accuracy.

4.2 Daylight calculations for new developments

There may be cases where it is appropriate, or required by the planning authority, to demonstrate that the residential rooms being created within a development will have sufficient daylight. In that case, the VSC method of assessment may not be appropriate, particularly as the developer will have little or no control over the massing of neighbouring buildings. In that case, the appropriate method of assessment is the average daylight factor (ADF). The ADF calculates the percentage of the total sky illuminance that is available as an average within a room. The BRE Report advises that where supplementary electric lighting is provided, the minimum recommended levels of daylight factor for dwellings are two per cent for kitchens, 1.5 per cent for living rooms and one per cent for bedrooms. Where offices are considered to be a sensitive receptor then the recommended ADF is five per cent. The key technical data used for the ADF assessment are:

- the diffuse visible transmittance of the glazing, including corrections for dirt on glass and any blinds or curtains (for clean clear single glass, a value of 0.8 can be used)the total area of the room surfaces: ceiling, floor, walls, doors and windows (m^2)
- average reflectance of internal surfaces; and
- the angle of visible sky in degrees derived from the VSC.

The surveyor undertaking calculations must ensure that the actual figures used represent the conditions that apply in the building being tested. For example, whether a room has single or double glazing, the appropriate reflectance value and accurate measurements for room surface area, in so far as these can be obtained.

The value obtained is a percentage of the available illuminance so that in minimal daylight, such as late afternoon in winter, an ADF of one per cent might represent 50 lux of illuminance.

In addition to calculating the ADF to a room, the BRE Report advises that the NSC should also be calculated to ensure that the distribution of light in the room is sufficient. The BRE Report advises that if a significant area of the working plane lies beyond the NSC (normally more than 20%) then the distribution of daylight in the room will appear poor and supplementary electric lighting will be required. In urban areas it may be expected that this cannot always be achieved and that either the expected room use will not require it or that supplementary electric lighting will be expected to be used. If so, an appropriate and realistic case will need to be made to justify it.

The BRE Report also requires a check of the room depth ratio for the overall ADF to demonstrate that the depth of the room is not out of proportion to the width and the window head height to the extent that the distribution of light will be poor, even if the ADF is otherwise at an acceptable level.

4.3 Sunlight calculations for new developments

The BRE Report recommends that a sunlight assessment should be carried out for neighbouring windows serving the main habitable rooms of residential properties where those windows face within 90 degrees of due south. The sunlight assessment calculates

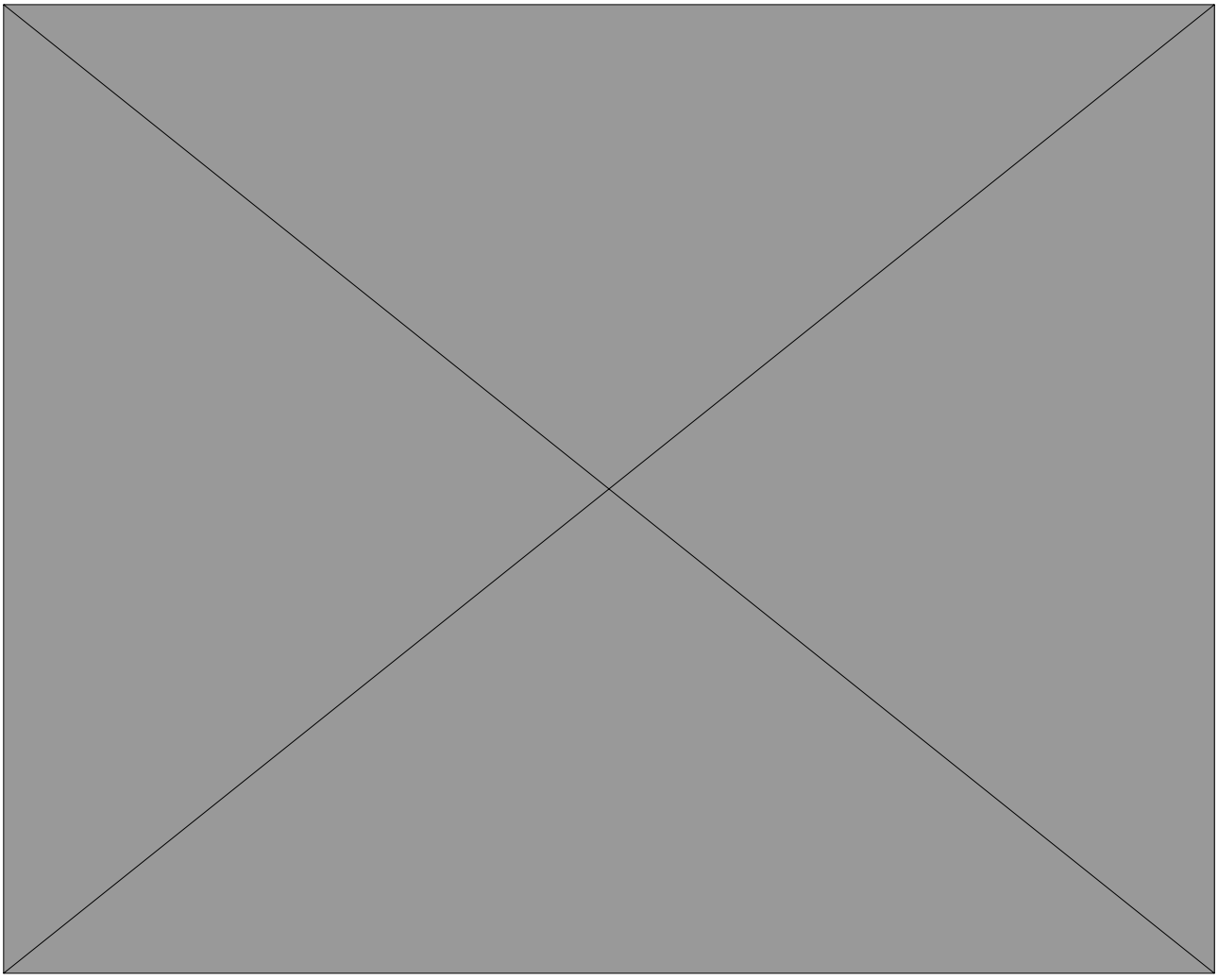
the annual probable sunlight hours (APSH) available to the centre of a window. The APSH is the number of hours in a year that a window can be expected to receive direct sunlight, taking account of external obstructions and the likelihood of cloud cover throughout the year.

In London, a south facing window unaffected by external obstructions can be expected to receive direct sunlight on its face for an average of 1,486 hours in a year. In Manchester it is 1,392 hours and Edinburgh/Glasgow 1,267 hours.

The BRE Report advises that if a window can receive more than one-quarter of APSH, including at least five per cent during the winter months between 21 September and 21 March then the room will still receive adequate sunlight. If the available sunlight falls below

this in its existing state, or the sunlight is reduced by the development below this level, then the reduction in sunlight will be unacceptable if there would be a reduction of more than 20% from the current value, either for the annual or winter figure.

The APSH may be calculated using the sunlight availability indicator in the BRE Report. This is a circular template graph onto which the sky obstructions are plotted. The template contains 100 dots, each representing one per cent of available sunlight hours and the equinox line on the template identifies the winter sunlight hours. Once the obstructions are plotted then the dots on the template can be counted to find the APSH value.



There are computer programs that can be used for calculating the APSH to a high degree of accuracy.

4.4 Shadowing to amenity space

It may be necessary to calculate whether an amenity space that is being provided within a development, or an amenity space to neighbouring land, will be unacceptably overshadowed as a result of the development. The key issue is not particularly whether a long shadow is cast on an amenity space for part of a day, but whether that space is left significantly

shadowed to the extent that it is a less pleasant environment to be in and where planting could be significantly affected.

The BRE Report recommends that for a garden or amenity area to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on 21 March. If as a result of a new development the garden or amenity area does not achieve this, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

If it is not possible to undertake a detailed calculation then a simpler option is to check that the centre of the amenity area would still be able to receive at least two hours of sunlight on 21 March.

Shadowing can be calculated by using the shadow template provided by the BRE. More usually, standard architectural drawing programs can cast shadow accurately within the main drawing program itself although care should be taken to ensure that the point of illumination is accurately identified as being the correct sun angle.

Shadow can be plotted on an hourly basis through the course of the day on 21 March and the area of the garden that is free from shadow for each hourly period measured as a proportion of the whole.

4.5 Unusual assessments

It may be necessary for a surveyor to use alternative calculations where the light to a building is not simply received through a window in a vertical wall. Examples include atria, rooflights and winter gardens. For those circumstances, there are calculations in publications by the BRE and CIBSE that can be used.

Isolux calculations have long been used for assessing external lighting to public spaces to create contours of equal illumination. These assume the absence of daylight and the use of only artificial light.

It is now becoming more common (and is referred to in BREEAM), to use this form of calculation for rooms to present an indication of the uniformity of daylighting within a room.

In this instance, the calculations will ignore artificial light and rely upon the purely theoretical value of daylight.

4.6 Code for Sustainable Homes

Category 7: Health and Well-being

The following criteria apply to assessments under the Code for Sustainable Homes.

Kitchens must achieve minimum ADF of at least two per cent. All living rooms, dining rooms and studies (including any room designated as a home office under Ene 9) must achieve a minimum ADF of at least 1.5 per cent.

In all rooms the working plane height is taken at 0.85m as this is considered a typical desk or table height. For ADF calculations, there is a variable factor for the internal reflectance of a room. If there is no information on internal finishes then a standard reflectance figure of 0.5 is used. The higher the internal reflectance value then the greater the ADF results will be as there is more light being reflected around the room.

A study can be located in the following rooms depending on the dwelling type:

a in a dwelling with one bedroom, the study can be located in the living room or the bedroom

b in a dwelling with two bedrooms, the study can only be located in either the living room or the second bedroom, not the master bedroom, and

c in a dwelling with three bedrooms, the study can only be located in the second or third bedroom, not the living room or the master bedroom.

There is a requirement that 80 per cent of the working plane in each kitchen, living room, dining room and study must receive direct light from the sky.

4.7 BREEAM

Health and Well-being: HEA 01 Visual Comfort

Daylighting for non-domestic buildings such as offices, retail outlets, schools, healthcare and multi-residential buildings, etc. are assessed under BREEAM New Construction and, in a similar way to the Code for Sustainable Homes, criteria have been set to ensure that daylighting, artificial lighting and occupant controls are considered at the design stage to ensure best practice visual performance and comfort for building occupants.

The assessment criteria for daylighting are dependent on the building type and the function areas available. For example, patient care areas within a healthcare building may be required to demonstrate a higher level of daylighting to promote patient recovery and well-being, especially in areas of critical or intensive care.

The following table sets out the basic criteria for each building type and function space:

Building type or function area to be assessed	Credit available	Daylight factor	% of area to comply	Other requirements
Pre schools, schools, further education	1	2%	80%	Achieve either (a) OR
Higher education	1	2%	60%	(b) and (c)
	2	2%	80%	as shown below

Building type or function area to be assessed	Credit available	Daylight factor	% of area to comply	Other requirements
Healthcare buildings – staff and public areas	2	2%	80%	N/A
Healthcare buildings – patient areas including dayrooms, wards and consulting rooms		3%	80%	
Retail buildings – sales areas	1	-	35%	Point daylight factor of 2% or more
Retail buildings – other occupied areas		2%	80%	Achieve either (a) OR (b) and (c) as shown below
Multi-residential – buildings Kitchen	1	2%	80%	N/A
Multi-residential – buildings Living rooms, dining rooms, studies (inc. home office)		1.5%	80%	N/A
Multi-residential – buildings, non-residential/ communal occupied spaces		2%	80%	Achieve either (a) OR (b) and (c) as shown below
Multi-residential buildings		80% of the working plane in each kitchen, living room, dining room and study (including any room designated as a home office under HEA 20-Home Office – Code for Sustainable Homes) must have a view of the sky.		
Court, industrial, office, prison buildings and all other building types				

Building type or function area to be assessed	Credit available	Daylight factor	% of area to comply	Other requirements
Occupied spaces	1	2%	80%	Achieve either (a) OR (b) and (c) as shown below
Cells and custody cells		1.5%	80%	N/A
Internal association/ atrium area (prison buildings only)		3%	80%	EITHER a uniformity ratio of at least 0.7 OR a minimum point daylight factor of 2.1%
Patient care spaces		3%	80%	N/A
Teaching, lecture and seminar spaces		2%	80%	Achieve either (a) OR (b) and (c) as shown below
Retail spaces		-	35%	Point daylight factor of 2% or more

Area to be assessed

Where 80 per cent of the total area assessed must be adequately day lit, this refers only to the compliant area. For example, when assessing ten rooms at 20m² each, the total area assessed would be 200m². To achieve 80 per cent adequately lit would require 160m² or eight rooms to meet the average daylight factor requirement of two per cent.

Additional requirements either (a) OR (b) AND (c)

a A uniformity ratio of at least 0.4 or a minimum point daylight factor of at least 0.8 per cent is achieved.

b The uniformity ratio compares the ratio between the minimum illuminance and the average illuminance on the working plane within a room.

c A view of sky from desk height 0.7m is achieved.

The room depth criterion is satisfied.

This assesses the room depth, room width, window head height and the average reflectance of the room's internal surfaces. If a room fails this calculation, decreasing the room depth or increasing the window's head height will improve the result.

Point daylight factor

A point daylight factor is the ratio between the illuminance (from daylight) at a specific point on the working plane within a room expressed as a percentage of the illuminance received on an outdoor unobstructed horizontal plane. This is based on an assumed overcast sky, approximated by the 'CIE (Commission Internationale de l'Eclairage) overcast sky'.

Additional information

The term 'relevant building areas', generally refers to areas within the building where good daylighting is considered to be of benefit to the building users (typically those areas occupied continuously for 30 minutes or more).

Where the compliance requirement specifies that a percentage of floor area must be adequately day lit, it refers to the percentage of the total floor area of all the rooms that must be assessed as described above.

The room depth criteria cannot be used where the lighting strategy relies upon roof-lights. In such areas, either appropriate software should be used to calculate the uniformity ratio or, in the case of a regular array of roof-lights across the whole of the space. Figure 2.36 on page 37 of the CIBSE Lighting Guide LG10 can be used to determine the uniformity ratio.

Computer simulations are the most appropriate way in which to calculate and display point daylight factors. Isolux contours for the two per cent daylight factor (i.e. a line connecting all the points that have the same point daylight factor value) should be mapped on the room plan to assess the area where point daylight factors are two per cent or higher.

5 Analysis and reporting

There are several possible purposes for which an analysis and report may be provided and the format of the report will often be dictated by the purpose for which the report is prepared.

Typically, a report for a planning submission may cover the following:

Introduction

This will outline the instructions received and the purpose of the report, identifying the application site and the nature of the proposed development.

Qualifications and experience

While not essential at this point, it is useful to establish the author's qualifications to provide an opinion on qualitative matters.

Planning policy and guidance

The report should reference the relevant national and local planning guidance and set the BRE Report in context as a guidance document which may be adopted by the local authority. It may also refer to online guidance for inspectors at https://www.gov.uk/government/organisations/planning-inspectorate

Assessment methodology and significance criteria

This part of the report should set out the methodologies used in the assessment, usually by reference to the BRE Report. There is also the possibility here to establish significance criteria which may aid the local authority in their decision where not all of the dwellings assessed have met the BRE guidance levels but, in context, the levels or numbers that fall below the guidance are not considered to cause an adverse impact.

Within this section, a full detailed explanation should be provided for all of the daylight and sunlight assessment methods used to assess the development such as daylight VSC, daylight ADF, daylight distribution, sunlight APSH, sunlight winter, sun on ground, etc.

Information used in the technical study

It is important to set out exactly what information has been used in the assessment. For example, who provided the drawings and survey information, which versions of drawings were used, and how was internal information on existing properties obtained, if at all.

Scope of the technical study

The report should establish the limits of the assessment. For example, existing commercial premises are rarely assessed for loss of amenity. If dwellings are sufficiently distant by reference to the BRE Report criteria, e.g. below the 25 degree line, or for the sunlight assessment, the windows are within 90 degrees of due north, then no further testing is required.

Impact upon existing surrounding properties

The report would then normally assess the impact on existing surrounding properties considering daylight, sunlight and overshadowing in accordance with the BRE Report.

Assessment of proposed development

It is not always a requirement of the local authority that the applicant's proposed dwellings should be assessed, but where it is then these assessments should be made in accordance with the BRE Report.

Assessment of cumulative impacts

Occasionally, a review of the planning portal will reveal that there has been, or may shortly be, an approval for development of a nearby site. In these instances, it is important that some assessment be provided should that development proceed, and to state the cumulative impact on existing adjoining properties.

Mitigation measures

In some instances, it is desirable to demonstrate to the local authority that the design has been amended to improve the results. This is common in inner city developments where meeting the BRE guidance levels can prove difficult.

Residual effects

Although more common in planning enquiries and EIAs, it is sometimes useful to deal with those properties which fall below the BRE guidance and to explain why they should not be considered significant.

Summary and conclusions

The summary can be used to provide a simple overview of the body of the report and while the conclusion should not introduce any new information, it may be appropriate for the author to give an opinion on the balance of impact as a qualitative assessment.

Appendices

The appendices will normally include the site plan, site photographs, graphic outputs from computer or manual charts, and tabulated results. It is important to ensure that the locations of each assessment are identified on plan.

Expert reports for planning enquiries and reports prepared on behalf of objectors may differ in layout and content.

Reports prepared on behalf of objectors can rarely be as detailed. Time limits, imposed by the planning process, mean that there may not be the opportunity to remodel and retest the design independently, apart perhaps from sampling. It is therefore more usual to accept that the results provided are reasonable where they appear to be so, and to concentrate upon the interpretation of the results and whether there are any special circumstances that have been ignored.

Expert reports will be expected to comply with RICS' *Surveyors acting as expert witnesses*. While the report for planning may have been drafted from an advocate's perspective, an expert report should be reported factually and impartially.

6 Environmental impact assessment

An environmental impact assessment (EIA) is an analytical process that systematically examines the possible environmental consequences of the implementation of projects, programmes and policies. This helps to ensure that the public and the relevant competent authority, properly understand the importance of the predicted effects and the scope for reducing them, before making a decision. EIAs are governed by the legislation of the *Town and Country Planning (Environment Impact Assessment) Regulations* 2011 (SI 2011/1824), which came into force on 24 August 2011.

6.1 When is an EIA required?

All planning applications are screened by the local authority to assess whether an EIA is required. In some larger developments the Secretary of State, having power over the local authority, may determine whether an EIA is required. There are also a number of European Community Directives that need to be considered during the screening period. Well- versed developers will decide for themselves whether an EIA is required, but still need to apply to the local authority for a 'screening opinion'.

During the screening period, the local authority will look at a number of different factors to determine whether an EIA is required and it will be categorised as either a Schedule 1 or 2 project.

Schedule 1 projects

Whether or not a particular project falls within the scope of the Regulations will normally be clear: several of the definitions of Schedule 1 projects incorporate an indication of scale, in the form of a quantified threshold, which clearly identifies the projects requiring EIA. Where there is any doubt about a project's inclusion in Schedule 1, there are procedures that can be used to obtain an opinion from the planning authority or a direction from the Secretary of State.

Schedule 2 projects

For Schedule 2 projects, three broad criteria should be considered:

- the characteristics of the development (e.g. its size, use of natural resources, quantities of pollution and waste generated)
- the environmental sensitivity of the location
- the characteristics of the potential impact (e.g. its magnitude and duration).

When considering these, the Secretary of State's view is that, in general, EIA will be needed for Schedule 2 developments in three main types of case:

- for major developments which are of more than local importance
- for developments which are proposed for particularly environmentally sensitive or vulnerable locations; or
- for developments with unusually complex and potentially hazardous environmental effects.

6.2 What does an EIA cover?

Typically, an EIA will cover the following subjects as separate chapters, as categorised in the Environmental Statement (ES):

- methodology
- alternatives and design evolution
- the proposed development
- planning policy context
- construction details
- socio-economics
- transport
- air quality
- noise and vibration
- ground conditions
- water resources
- ecology
- daylight, sunlight, overshadowing and solar glare
- wind
- electronic interference, and
- cumulative and residual impact.

6.3 How does this apply to daylight and sunlight calculations?

The daylight, sunlight, overshadowing and solar glare calculations will usually be contained in their own chapter or within the microclimate chapter of the ES. Before undertaking any daylight and sunlight assessments, the scope of work will be agreed with the local authority to ensure that all relevant existing and proposed properties and amenity areas are covered in the assessment. Usually this task will be managed by the planning consultant. Within this chapter the report will typically be broken down into the following subjects.

Introduction

The introduction is an opportunity to present the daylight and sunlight consultant, and other key personnel such as the client, architect, project manager and thesis of the study.

Planning policy context

The daylight and sunlight assessment should adhere to the relevant national legislation, regional planning policy and local authority planning policy, and any other body such as English Heritage or the Commission for Architecture and the Built Environment (CABE).

Assessment methodology and significance criteria

Local authorities have their own individual polices for daylight and sunlight, and guidance should be sought during the scoping stage to ascertain the acceptable methods for assessing daylight and sunlight, to ensure that policy standards are followed. However, in most cases they are governed under national legislation; the *Regulatory Reform (Housing Assistance) (England and Wales) Order* 2002 documents the statutory requirement for the adequate provision of lighting to housing. The Order refers to the following methods of assessing daylight and sunlight:

1 British Standard (BS) 8206: Lighting for buildings, Part 2: 2008 Code of practice for daylighting

2 CIBSE: Code for interior lighting 1994; and

3 *Site layout planning for daylight and sunlight: a guide to good practice*, BRE, 1991. Also: *Site layout for sunlight and solar gain*, BRE IP/92, and *Site layout planning for daylight*, BRE IP5/92.

BRE Report 209 *Site layout planning for daylight and sunlight: A guide to good practice*, 2011, now supersedes (3) above. The significance criteria within an EIA are documented in the BRE Report under Appendix I for suburban environments. For alternative target values, such as in urban environments, these can be quantified using the equations within Appendix F of the BRE Report.

Within this section, a full detailed explanation should be provided for all of the daylight and sunlight assessment methods used to assess the development, such as daylight VSC, daylight ADF, daylight distribution, sunlight APSH, sunlight winter, sun on ground, etc.

Baseline conditions

This usually refers to the existing or current impact of the assessed development site. However, there are exceptions such as where a recently demolished building, or a consented scheme that is still within the validation period, may form part of the baseline.

Construction impacts and mitigation measures

This will usually refer to temporary impacts which result from the implementation of a development such as an improvement in daylight and sunlight following the demolition of a building until the proposal is completed, or conversely the increased burden in daylight and sunlight of a building covered in scaffolding.

These likely impacts are usually only described, not calculated, however if these are to be accurately assessed they would need to be discussed in advance during the scoping stage.

Operational impacts and mitigation measures

This considers the results of a completed development for daylight and sunlight to be compared against the industry standards and baseline conditions, to establish whether criteria have been met and where the results factor against the significance criteria. If at this stage the results are negative then mitigation measures can be employed to ensure that there is an improvement to the performance of the proposed development.

Residual impact assessment and conclusions

This considers the results of a completed development, once mitigation measures are implemented, to establish the lasting effect the scheme will have on neighbouring amenity for daylight and sunlight.

Cumulative impact assessment

This can be potentially complex as the analysis considers the joint impact of two or more developments that are in close proximity on neighbouring properties or amenity area. This can also apply to the residual effect two neighbouring developments have on each other.

References

This is a list of all legislation notes and document references used within the daylight and sunlight chapter.

Appendices

Throughout the daylight and sunlight chapter there will be reference made to technical appendices, which will document drawings and spreadsheets showing the results of the final study. The BRE Report gives advice on how best to present this information. Essentially, it is best practice to present the assessment disciplines separately and the results of the properties assessed individually.

6.4 Special care

When reporting within an EIA/ES all reports should be written in a third person format in a passive voice. Results should be reported factually and impartially. Where results are demonstrated as positive, the report should be concise, however where results are poor further explanation should be given at every opportunity to ensure that the layman appreciates the impacts reported.

7 Advisory roles

When advising in relation to daylight and sunlight, the surveyor must be aware of both express and implied terms within the duty of care which result from the appointment and any peripheral agreements (i.e. warranties, etc.).

7.1 Adviser to the developer

This type of role normally requires a single duty of care to the developer although instructions may be made through a third party (e.g. architect/project manager, etc.).

Advice to the developer will mainly be required in support of a planning application, although other circumstances may prevail where advice is required.

When advising in respect of a planning application, analysis may need to demonstrate the nature and the severity of any impact upon neighbouring properties and/or daylight/sunlight amenity to the development itself.

This role requires the mindset and approach that foresees potential scrutiny by third parties, usually the local planning authority but possibly also the neighbours, their advisers, the planning inspectorate and other committees or tribunals.

The nature of this role will tend to require a supportive approach to the development

while remaining entirely factual. Supporting the development is entirely appropriate and is aligned with the developer's interests however any temptation to provide an inappropriate positive opinion must be avoided. It is sensible to assume that the role lies, to some degree, between that of an advocate and an expert; the former taking a 'justifying and supporting' stance and the latter being a stance which will withstand scrutiny by tribunal.

Therefore while roles such as this may commence with a clear leaning towards advocacy, it must be remembered that any advice provided may need to be fully justified at a later date.

Further advice in relation to the roles of the advocate and expert can be found within RICS' *Surveyors acting as expert witnesses* and *Surveyors acting as advocates*.

7.2 Adviser to the objector

Conventionally, a single duty of care will be provided to the objector under this role.

Advice provided to an objector, usually a neighbour to the development, will seek to prevent any perceived unfair injury to the objector's daylight and sunlight amenity.

The objection will often seek to prevent the development in its proposed form, with the intent of forcing adaptation to the development.

The role of the surveyor in this context requires an approach based upon fact, which will tend to lean closer to the role of the expert than the advocate (see section 7.1). Objections raised must be capable of support under scrutiny by the applicant and their advisers, including perhaps legal (planning) counsel and advocates. Where an objection is not factually based, any objection is likely to fail.

It is important to consider the relative strengths and merits of the potential objection, advising the objector accordingly at the outset prior to embarking on what may be a time-consuming and costly appointment.

The RICS documents referred to (at 7.1) should be adhered to, where appropriate, in relation to this role.

7.3 Advocate in planning committee

This role conventionally requires a single duty of care to the developer.

The role of the advocate, supporting a planning application, is one which will require promotion of the proposed application in the face of opposition from objectors, which may include neighbours, the planning authority, consultant advisers or other tribunals.

While the guidance referred to in section 7.1 is relevant in terms of the role of the advocate, it is important to ensure that the advice provided, while supportive, does not provide an unwarranted position which could not support later scrutiny – for example as part of a planning appeal.

7.4 Expert witness in planning inquiry appointed by developer

An expert witness role, such as this, would ordinarily create a 'duty' to the planning tribunal as opposed to the appointing party (the developer/applicant). There will of course remain a 'duty of care' to the appointing party and this must not be forgotten – however, due to the nature of these two duties, care must be taken to ensure that the role is fully understood prior to commencement. While the role will be to support the proposed development, the overriding obligation will be to present factual information to the planning tribunal as if acting as an expert witness in court. The guidance referred to in section 7.1 will also assist the surveyor in making a distinction between these obligations.

7.5 Independent expert advising planning department

A surveyor may be instructed by a local planning authority to advise them on the technical analysis provided by an applicant.

Where appointed to advise a local planning authority, the surveyor will be expected to provide technical advice to the local authority on the basis that the 'authority' has neither

the expertise nor inclination to deal with the matter directly, or requires an independent assessment and opinion. The role will therefore result in a duty of care directly to the local planning authority.

Prior to accepting such an instruction, which will require the usual checks, the surveyor must be careful to understand the basis of the instruction in technical terms. For example, it is possible that the surveyor may be asked to advise on strict compliance with planning policy – often relating directly to the BRE Report. Alternatively, the planning authority may require the expert's opinion on whether compliance is appropriate and whether in real terms the impact on daylight is a material adverse impact. When asked to provide such an opinion, the surveyor's role will be to consider acceptable tolerances to strict compliance with planning policy.

This role may therefore include separate or combined positions, providing advice on points of fact and providing advice on expert opinion concerning acceptable tolerances; the role of the surveyor in advising the local planning authority is therefore more directly aligned to that of an expert than an advocate. It is however one which must be clearly defined in each case.

Appendix 1 References and online resources

RICS standards

Surveyors acting as expert witnesses (3rd edition), 2008

Surveyors acting as advocates (2nd edition), 2008

Rights of light, 2010

Code of Measuring Practice (7th edition), 2007

The use of GNSS in land surveying and mapping (2nd edition), 2010

Professional standards and guidance

BSI – BS8206-2:2008 *Lighting for Buildings – Part 2: Code of Practice for daylighting*, Garston

Littlefair, P. *Site layout planning for daylight and sunlight – A guide to good practice*, BRE Press, 2011

CIBSE LG10:1999 *Daylighting and Window Design*

Building Research Establishment, BRE IP 23/93: *Measuring daylight*, BRE, 1993

Books and journals

Cato, D., *The Expert in Litigation and Arbitration*, LLP Professional Publishing, 1999

Morris, A., *The Surveyor as Expert Witness: building and development play*, EG Books, 2005

Paine, D.P. and Kiser, J.D., *Aerial Photography and Image Interpretation*, Wiley- Blackwell, 2003

Pamplin, C. (Dr), *The Little Book on Expert Witness Fees*, JS Publications, 2007

Redler, A., *Practical Neighbour Law Handbook*, RICS Books, 2006

Client specifications

Surveys of land, building and utility services at scales of 1:500 and larger (2nd edition), 1997

Public guides – guides for Citizens Advice bodies

Rights of Light Party Walls Subsidence Boundaries

Compulsory Purchase Orders (CPOs).

Appendix 2 Quick specification for topographical and measured building surveys

The quick reference specification sheet, summarising the full *Measured surveys* RICS document, is intended for use on small or straightforward schemes and assumes that the first option clause (where appropriate) is used throughout. Margin numbers indicate the relevant main guidance sections or clauses.

The specifier should tick the requirement(s) needed in each subject category. Where no item is selected for a particular category, the surveyor will assume that there is no requirement. Additional information, where necessary, should be provided in a covering letter.

If this sheet does not provide adequate opportunity to specify the survey then the main guidance document should be used to prepare the survey specification. Please read the ‘user guide’ carefully.

Clause	Subject	Choices									
1.1	Project information										
1.1.2	Client										
1.1.3	Contact and telephone										
1.2	Survey extent	Location plan attached		Textual description		Proposals plan		(Indicate items supplied by Specifier)			
1.3	Scale(s) 1:	50		100		200		500		Other	
2.1	Plan Control Grid	Local grid		Site grid plan		Based on national grid*					
2.2	Level datum	GPS-derived national datum		Benchmark derived national datum		Site datum		Local datum			
2.3	Detail survey	Boundaries		Outline		Full detail		(see also Buildings, section 4)			
2.4	Trees	Foliage lines		Trunk over 0.15m dia.		All trees					
2.5	Height information	Spot heights		Contour interval		Road section spacing					
3	Underground services	Cover position		Cover level		Invert/ pipe size					
4	Buildings external	Outline		Full		Footprint		Eaves/ridge		Elevations	
4.1	Buildings Internal	Ground floor		All floors		Roof		Sections			
5.1	Plan Reproduction	Final drawings		Proof plots		Survey report					
5.2	Digital Data	State format									
5.6	Computer media	Internet download		Email attachment		Portable hard drive		CD/DVD		Other	
	REMARKS										

*Scale factor applies

Appendix 3 Suggested checklist of documents relevant to a daylight/sunlight assessment

	Essential	Desirable
Site land survey information of the surrounding properties in mass and test window context.	✓	
Site land survey information of all trees to be retained on site that will be subject to a daylight assessment.		✓
Site land survey information of all residential gar- dens, private space, play areas, school space, parks or public seating space that is subject to assessment.	✓	
Architectural drawings in plan, section and elevation of the existing and proposed building.	✓	
Confirmation of true North position for use in sunlight assessments.		✓
Planning archive investigation information on room layout and room use of all surrounding properties that are subject to assessment.		✓
Planning policies specific to local area.	✓	
Copies of all objections letters or known light sensitive properties identified by planning officer in any pre-application meeting. Typically provided by client or planning consultant.		✓

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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