

Daylighting, Sunlight and Privacy

■ OBJECTIVE

This guidance sets out criteria and advice on implementing daylighting, overshadowing and privacy requirements and the methods to be used in measuring impacts on existing buildings and adjoining vacant land in order to achieve high quality in all new development and between new development and its surroundings.

■ POLICY CONTEXT

National Guidance

Guidance on assessing new development proposals is set out in the Building Research Establishment Report "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" by P J Littlefair (1991). A copy of this publication is available for reference at City Development (Planning - Enquiry Desk) and should be referred to in all matters of detail.

Local Plans

Local plan policies generally protect residential amenity and ensure that adjacent development does not result in unreasonable loss of light, overlooking or overshadowing. For example, policy CD19 of the Central Edinburgh Local Plan states:

"The Council will permit alterations and extensions to buildings which in their design and form, choice of materials and positioning are compatible with the character of the original building, will not result in an unreasonable loss of privacy or natural light to neighbouring properties and are not detrimental to neighbourhood amenity and character. Particular attention will be paid to ensuring that such works to listed buildings and non listed buildings in conservation areas do not damage their special character."

■ SCOPE OF GUIDANCE

This guideline applies on a city-wide basis to new development, existing buildings and adjoining buildings / vacant land.

■ **STATUTORY AND OTHER REQUIREMENTS**

New development proposals may, depending upon their scale and location, require planning permission and, if appropriate, listed building consent.

Applications should be supported by the methods of daylighting and sunlighting assessment set out in the BRE Report “Site Layout Planning”, where appropriate demonstrating both ‘before’ and ‘after’ circumstances. Information should also be submitted showing site levels and heights of neighbouring buildings as appropriate.

While the majority of planning applications will be expected to meet the standards set out, the discretion of the Planning Authority may be applied to consider exceptions. The appropriate circumstances are set out in the policy guidance. It should be noted that the majority of rooms in either a proposed or an existing development will still be expected to comply with the guidance.

In all cases where the basic requirements as determined by methods (i) to (iii) set out under section 1b) below are not fully met, even where the applicant is in any doubt, written justification (including calculations and diagrams) should be submitted with the Application. Failure to do so could lead to delay in consideration of the application as the Council will in such cases request this information. In larger proposals, it could lead to refusal on the basis of inadequate information.

1 DAYLIGHTING AND OVERSHADOWING

a) Daylighting in New and Existing Development - General Requirements

- In cloudy climates diffused light from the sky is the main source of daylighting. Good site planning should ensure that there is a sufficient area of sky visible to give good interior light with windows of a reasonable size. The availability of skylight at a window is determined primarily by the block form of the building and its surroundings. Where external obstructions extend above the 25 degree line to block even part of the sky, rooms become gloomy. It is very difficult to resolve daylighting problems caused by poor site planning at a later stage.
- It should also be remembered that compliance with the technical standards of daylighting may not in themselves mean achieving a good standard of residential amenity. Subject to other considerations, for example privacy, noise, fire spread etc. windows, particularly in new build, should take advantage of orientation and existing views to provide a good standard of amenity.
- The methods of assessment and those requirements expressed as distances and angles (see below) should not be used to justify departures from the prevailing spatial structure of the surroundings nor to generate building form.
- Where a proposed development brings a change of use and/or a radically different building form that does not respect the prevailing spatial pattern or area character then it must be provided with a setting that is appropriate to its change in scale and it should not take advantage of the minimum daylighting or overshadowing criteria to locate as close as possible to site boundaries.
- Where it is considered necessary either to 'soften' the appearance of development by tree planting on or near the boundary, then sufficient space to allow full maturity according to needs of the species proposed should be provided wholly within the applicants site.
- Where there are either existing trees that play a valuable role in the character of the site or where new tree planting is proposed care must be taken to provide adequate separation distances to avoid undue overshadowing to either proposed or surrounding development.
- It should be noted that protection of existing daylighting applies to those buildings which in themselves are good neighbours, standing a reasonable distance from the boundary taking only their fair share of light. Existing windows which do not meet these criteria cannot normally expect the full level of protection except in special circumstances.
- To ensure a sufficient quality in respect of adequate amenity, daylighting and sunlighting, it is expected that dwelling units shall be dual aspect to front and rear. Any proposal for single aspect flats or aspects to front and side would need to be justified as an exception, indicating how adequate amenity, daylighting and sunlighting will be achieved.

- In proposals for Houses in Multiple Occupation each room proposed for individual occupation as a Living / Bedroom should meet the recommended minimum Average Daylight Factor for living rooms of 1.5%.
- Where neighbouring land is in amenity or garden use the greater part of any overshadowing caused by the new building will be expected to be confined to the applicant's own plot.
- Some sites may not enjoy sufficient daylight levels to permit (residential) development to take place.
- The BRE Guide "Site Layout Planning" referred to above sets out numerical guidelines and methods of assessing daylighting for new building and how to assess the obstruction of daylight to existing buildings. The standards apply essentially to residential development but may also be used for other types of development where daylighting is an important consideration.
- Numerical guidelines are in themselves minimum requirements to achieve satisfactory conditions and any consideration of exceptions should take into account the impact on daylight of Edinburgh's latitude and climate.

b) Methods of Assessing Daylighting and Overshadowing

- Development proposals affecting houses, flats, changes of use to residential and any other building where daylighting is required should be subject to the Assessment Methods set out below. The methods of assessment set out in the BRE Guide vary in complexity; depending upon the specific circumstances of the development proposed. Both Daylighting and Overshadowing implications need to be assessed. The criteria for meeting daylighting requirements are more onerous and it should not be assumed that satisfaction of the overshadowing criteria will in itself lead to adequate daylighting either to the proposal or to an adjacent property once the proposal is completed.
- Proposals should be assessed for daylighting both to the proposal and to surrounding buildings primarily using the 25 degree method. In angled forms of development any potential loss of light at the corners should be checked using the 45 degree method. All proposals should be checked using the 43 degree method to ensure that overshadowing is minimised and confined to the applicant's plot.
- The more complex form of calculation as in the Vertical Sky Component Method set out at (iv) should not be used to justify failures to meet the requirements determined by methods (i) to (iii). In special cases where it is not possible to satisfy the more straightforward requirements, for example in areas of historic townscape, then further detailed assessment will be required.

The following methods are also considered in more detail in the BRE Guide;

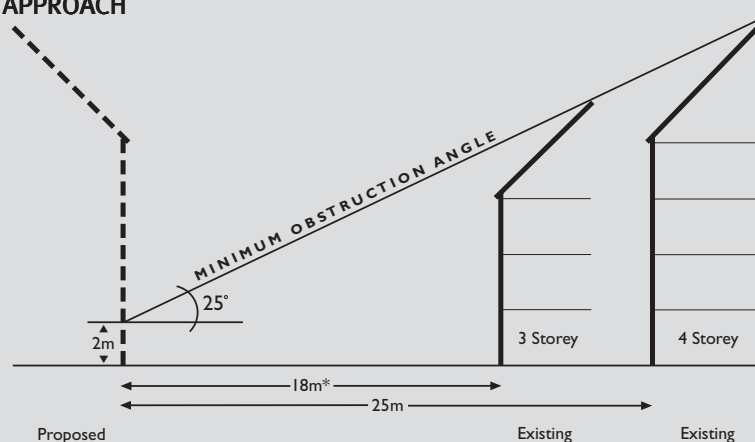
- (i) identify adequate building separation to ensure good interior daylighting using the 25 degree method;
- (ii) minimise overshadowing using the 43 degree method;
- (iii) protect potential light using the 45 degree method;
- (iv) achieve a satisfactory level of daylight as assessed by calculating the vertical sky component.

(i) The 25 degree Method (New and Existing Development)

The 25 degree method defines the separation distance at which good interior daylighting can be achieved. It requires that on the main front and rear elevations of a building no obstruction measured in a vertical section perpendicular to the main face from a point two metres above ground level, subtends an angle of more than 25° to the horizontal. Where there are shops or other uses on the ground floor then the point should be taken two metres above first floor level. This method may be applied in assessing the daylighting required in new housing and in protecting the daylighting to existing housing.

DIAGRAM 1

THE 25° APPROACH



* It should be noted that 18 metres is the minimum separation distance for privacy but where development is proposed adjacent to taller buildings or on sloping sites this distance must be increased if adequate daylight is to be achieved to the proposal's ground floor.

(ii) Minimise Overshadowing by the 43 degree method:

- No new building, measured in a vertical section perpendicular to the site boundary, from a point two metres above ground level, should subtend an angle of more than 43° to the horizontal.
- The 43° angle should not be used to generate the development form.
- The greater part of any overshadowing caused by the new building should be confined to the applicant's own plot, the major factors being the height, distance to boundary, size of plot, orientation and topography.

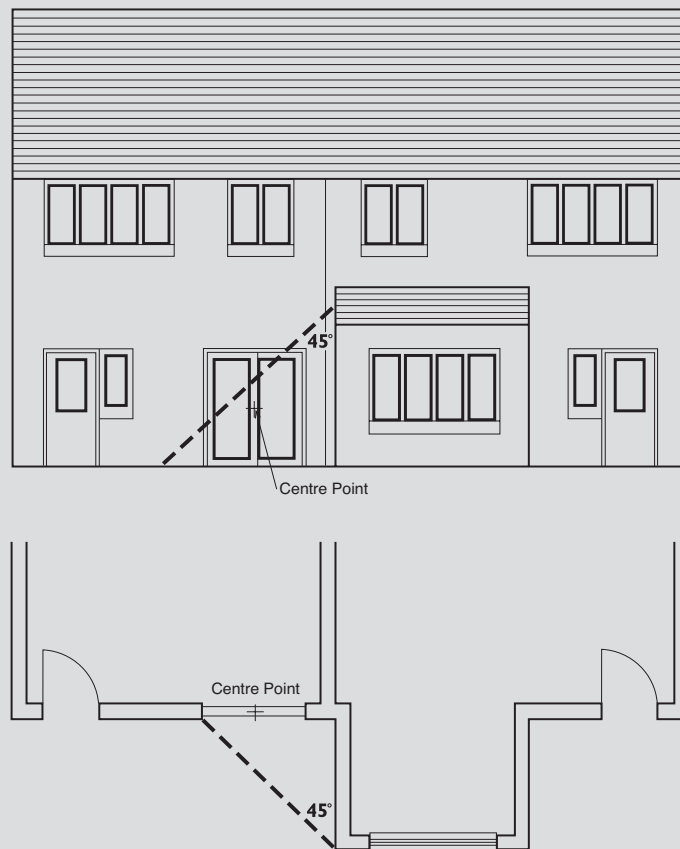
(iii) Protecting Potential light - the 45 degree method:

- New flatted housing layouts in the form of 'T' shaped plans (ie projection to rear elevation), courts or quadrangles, projecting wing arrangements (on side or end elevations), house designs with projections and angled frontages, and house extensions which adjoin the front or rear of a house should satisfy the 45 degree assessment method.

- Application of the 45° approach to a domestic extension is summarised in Diagram 2. A significant amount of light is likely to be blocked if the centre of the window (or, for a floor-to-ceiling window, as here, a point two metres from the ground) lies within the 45° lines on both plan and elevation. The method applies only where the nearest side of the extension is at a right angle to the window and not for windows which directly face it.
- The 45 degree method can also be applied to new house designs in situations where windows are placed at the corners of internal courtyards, 'L' or 'T' shaped or angled blocks. If windows and/or glazed doors are sited close to the 'internal' corners, levels of daylight will be poor and there may be a lack of privacy (see fig. 4 in 'Site Layout Planning for Daylight and Sunlight'). The skylight indicator or the 45 degree approach can be used to check how far from an internal corner windows need to be sited to receive enough light from the sky.
- In new residential development proposals where future extension(s) could cause serious loss of light to neighbouring property, consideration will be given to the removal of permitted development rights.

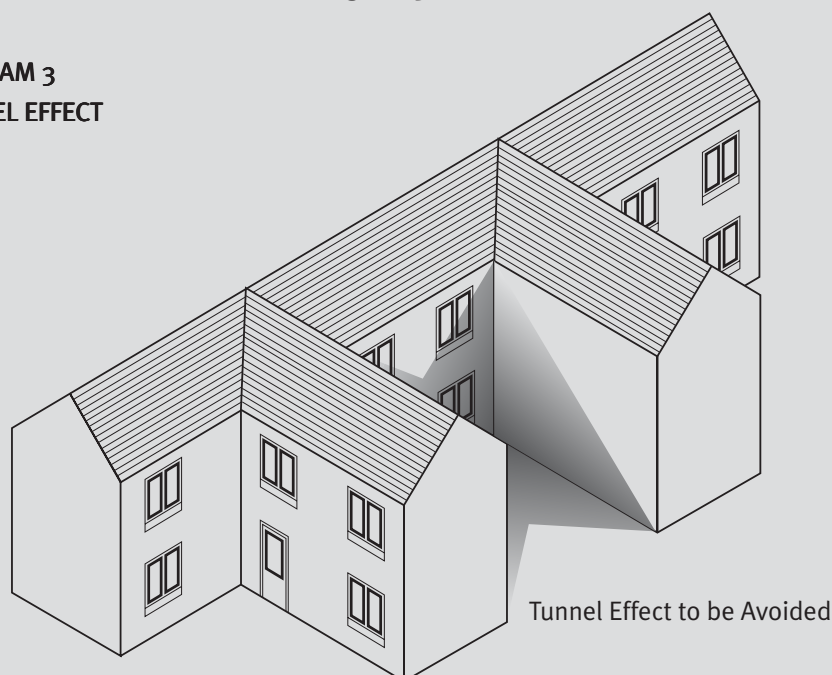
DIAGRAM 2

OVERSHADOWING: THE 45° ASSESSMENT METHOD



- The vertical plane 45 degree line should be taken from the eaves line except in the rare case where the pitch of the roof is more than 45 degrees in which case the ridge causes the overshadowing. Diagram 2 shows the 45 degrees taken from half way up a monopitch roof. As the mid point of the window in this example is overshadowed in both elevation and plan the proposal fails the guideline
- Special care needs to be taken in new house designs or where an extension already exists on the other side of an existing window to avoid creating a tunnel effect. The possibility of a cumulative impact from similar extensions needs to be considered. (See Diagram 3).

DIAGRAM 3
TUNNEL EFFECT



(iv) The Vertical Sky Component Method (New and Existing Development)

- In cases where it is not possible to meet the criteria set out above and where a more detailed assessment is necessary, for example in areas of historic townscape, this should be made by calculating the vertical sky component. The methodology for calculating the vertical sky component is set out in more detail in the BRE Report “Site Layout Planning”, which also contains advice and guidance on interior daylighting standards. (This information should be submitted with the application)
- A satisfactory level of daylight is assessed by calculating the vertical sky component for neighbouring property whether existing or, when none exists, for a possible development equal to that proposed.
- New development adjacent to vacant land should as a minimum requirement ensure that this land retains the potential for good diffuse daylighting.

c) Exceptions to the Daylighting/Overshadowing Guidelines

- **Single Storey Extensions:**

In general a single storey construction on the boundary and extending up to four metres into the rear garden owned by the property (or one third of the rear garden depth whichever is less) will generally be acceptable unless those factors set out below are considered to lead to significant overshadowing:

- the narrow width of frontages in terraced properties,
- the limited size of gardens,
- larger structures or drops in ground level requiring significant under building. (Where drops occur in ground level, proposals should minimise under building and reach the ground level in as short a distance as possible).

- **Side to Side Gable Boundaries:**

In areas of regular street layout no account will be taken of daylighting on side boundaries to side windows from the front to rear building line up to 12.5 metres in depth from the former.

- **Conversions of Listed Buildings and Buildings worthy of retention:**

Where there is conservation or sustainability gain in seeing the reuse and enduring protection of a listed or other significant building then consideration will be given to modifying the required standards depending on the use proposed.

- **Historic development pattern or townscape:**

If none of the four assessment methods are satisfied then calculation may be required to establish that rooms within new build proposals, neighbouring and/or affected property still retain the recommended minimum average daylight factor. This method may be used in circumstances where it is important to retain historic or urban patterns of development or townscape. It should be noted that an average daylight factor of 5% is required if a room is to have a daylit appearance, the minimum recommended for kitchens is 2%, living rooms 1.5%, and 1% for bedrooms. The method is set out in more detail in the BRE Report "Site Layout Planning"

- **Protecting daylighting in Non Residential Uses:**

No new building in non residential use, measured in a vertical section perpendicular to the site boundary, from a point two metres above ground level, should subtend an angle of more than 60° to the horizontal as a minimum. This should not determine building form.

In circumstances where a building in non residential use is proposed opposite to residential uses, then residential criteria will take precedence.

2 SUNLIGHT

Sunlighting in New and Existing Development - General Requirements

- Where possible, and consistent with other policies and guidelines, dwellings should be orientated to take advantage of sunlight, to provide a pleasant living environment and to maximise passive solar gain.
- Interiors in which the occupants have a reasonable expectation of direct sunlight should receive at least 25% of probable sunlight hours; at least 5% should be received during the winter months (23 September to 21 March). As a rule of thumb when a main living room window is to be used to provide sunlight it should face within 90 degrees of south and external obstructions should not be higher than 25 degrees above the horizon.
- At the Spring/Autumn equinox half the length of gardens, and half the area of open amenity spaces, should still be capable of receiving sunlight. This will apply both within new housing and between any form of proposed development and adjoining existing housing unless other urban design or townscape reasons take precedence.
- These recommendations do not apply to extensions.
- Sunlight is also valued in non-domestic buildings.
- The Council encourages the inclusion of measures to maximise passive solar gain in housing layouts, subject to compliance with other policies and guidelines; in such cases developers should include plans marked up to indicate sun paths and measures taken to achieve this objective.

3 PRIVACY AND OVERLOOKING

a) Privacy in New and Existing Development - General Standards:

- As a minimum, an 18 metres privacy distance should be established between windows when directly opposite (including those between houses and between houses and other uses).
- A minimum privacy distance side to side and back to back of 25 metres applies in villa areas - see the Villa Areas and Grounds of Villas guideline.
- The privacy distance should be spread equally on either side of side to side and rear boundaries, with at least 9 metres (or 12.5 metres in villa areas) on either side of the boundary.

b) Exceptions to the Privacy Standards:

- Buildings and windows not directly opposite:

When buildings are not directly opposite, windows may be located closer to each other according to the criteria laid down in the Building Standards (Scotland) (Consolidation) Regulations 1971 Part L10 and Table 14.

Text to part L10 and Table 14 is included together with explanatory diagrams in Appendix 1 (A).

- **Screening for Privacy:**

To maintain an acceptable level of privacy to adjoining properties all ground floor main windows in new buildings, extensions and conservatories should be at least nine metres from boundaries. In the case of single storey extensions and conservatories this distance may be reduced if two metre high screening is employed and if adequate daylighting still reaches the window in question.

- **Balconies and Decking**

Balconies and raised decking will be treated in the same way as windows in terms of privacy. Open balcony rails should be at least nine metres from boundaries and should not permit overlooking of neighbouring property.

- **Screening Devices / Orientation of Windows**

Privacy distance reductions dependent on devices such as angled or alternating window positions, louvres, obscure glass or trees will not normally be acceptable. In exceptional circumstances high level windows, lightwells and rooflights may be acceptable depending on circumstances and so long as they are secondary windows. ("Secondary windows" are defined as smaller windows provided in addition, and usually in a different wall, to a room's main window). All rooms, including those on the ground floor, must be provided with a reasonable internal environment, amenity and privacy.

- **Conversion of Listed Buildings and buildings worthy of retention**

Where there is conservation or sustainability gain in seeing the reuse and enduring protection of a listed or other significant building then consideration will be given to modifying the required standards depending on the proposed use.

- **Steeply Sloping and Unusual Sites**

Where ground floor windows are particularly high due to underbuilding or upper floor windows are virtually at ground level due to building into slope the advice of the Planning Authority should be sought.

4. OTHER FACTORS INFLUENCING SEPARATION DISTANCES REQUIRED BY DAYLIGHTING, OVERSHADOWING AND/OR PRIVACY DISTANCES

- a) Where development is three storeys or more the separation distance between buildings may require to be greater than the minimum privacy distance of 18 metres to ensure that daylighting standards are met.
- b) On sloping sites overshadowing is more of a problem and greater spacing is required to obtain the same access to daylight for buildings lower down the slope. Site Plans and Site Sections with levels should be provided.
- c) Greater separation between proposed and existing buildings may also be required to match the prevailing spatial pattern of the area.
- d) Where new flatted development is proposed of more than two storeys in height and where there would be a substantial increase in overlooking to private gardens beyond the site boundary then greater privacy distances may be sought.
- e) In new four in a block terraced properties rear gardens should be located one behind the other, i.e. only splitting the rear building elevation width (that facing the garden) at a party wall boundary; and shall each be a minimum depth of 6 metres and of a minimum width matching that between the line of the gable wall to that of the mutual party wall. Access ways should be outside these minimum widths. Minimum privacy distances between windows to other houses need to be maintained.

■ REASONED JUSTIFICATION

1) Daylighting

People prefer rooms that appear daylit to interiors that require electric lighting. People expect good natural lighting in their homes and in a wide range of non-domestic buildings. Daylight makes an interior look more attractive and interesting as well as providing light to work or read by. Access to skylight reduces the need for electric light. The guidelines seek to ensure an attractive quality of development and help to provide sustainable building forms.

2) Sunlighting

People's needs and preferences for sunlight depend on the type of building and space. Incoming sunlight can give warmth and brightness but can also cause glare and thermal discomfort. Sunlight can also help to make a building energy-efficient and winter solar gain can meet some of the heating requirements.

3) Privacy

The requirements establish distances at which most human features do not remain visible and / or preserve traditional separation distances found within existing development in Edinburgh. These respectively are based on research incorporated in earlier versions of the Building Regulations (Scotland) and/or the analysis of spatial patterns within Edinburgh.

Relaxation to privacy distances where buildings and windows are not directly opposite

When buildings are not directly opposite, windows may be located closer to each other according to the criteria laid down in the Building Standards (Scotland) (Consolidation) Regulations 1971 Part L10 and Table 14.

The Building Standards (Scotland) (Consolidation) Regulations 1971

Minimum distance between windows

L10.—(1) Subject to paragraph (2) of this regulation, no part of any window of an apartment or of a kitchen in a house shall be sited nearer to any part of any window of an apartment or of a kitchen in another house than the horizontal distance specified in Table 14 according to each of the horizontal angles included between the shortest line joining any part of one window opening to any part of the other and the vertical plane of the opening of each window:

Provided that, where a window of the kitchen in the house is on a side of the house which contains no window of an apartment, the horizontal distance between any part of the window of the kitchen and any part of the window of an apartment in another house shall not be required to be greater than 12 metres if—

- (i) the floor of the kitchen is not less than 2.2 metres below the level of the floor of the apartment in the other house, and
- (ii) the top of the sill of the window of the apartment is not less than 800 millimetres above the floor of the apartment.

(2) Nothing in this regulation shall prevent any window of an apartment or a kitchen in a house from being sited nearer to any such window in another house than the distance required by paragraph (1) if—

- (a) no part of either window below a level of 1.8 metres above floor level can be seen from any part of the other window below a level of 1.8 metres above floor level, or
- (b) both the windows are windows of kitchens.

TABLE 14—MINIMUM DISTANCE (IN METRES) BETWEEN WINDOW OPENINGS
Regulation L10

Angle† at window of house to be erected not more than—

	90°	80°	70°	60°	50°	40°	30°	20°	10°	0°
90°	18	18	18	18	13	9	6	4	3	2
80°	18	18	18	13	9	6	4	3	2	
70°	18	18	13	9	6	4	3	2		
60°	18	13	9	6	4	3	2			
50°	13	9	6	4	3	2				
40°	9	6	4	3	2					
30°	6	4	3	2						
20°	4	3	2							
10°	3	2								
0°	2									

Distances shall be interpolated for intermediate angles

†That is, the horizontal angle included between—

- (i) the shortest line joining any part of one window opening to any part of the other, and
- (ii) the vertical plane of the opening of the window (see regulation L10).

1. Table 14 sets out the minimum distance required to safeguard privacy between windows set at an angle to one another. No part of any window in a proposed house shall be sited nearer to an existing window than shown in the various examples in Illustration 1. These relaxations in privacy distance show the existing house in bold and the proposed house in dotted lines.

The following assumptions are also made

- The distances are between habitable rooms and kitchens
 - Even ground levels apply
 - Windows of apartments and kitchens may be sited closer than stated in Table 14 if no part of a window below 1.8m (above floor level) is visible from any part of the other window below 1.8m (above floor level)
2. Alternative method of calculating minimum privacy distance between windows.

Table 14 demonstrates an evident relationship between angle and distance. Illustration 2 shows an alternative method of checking that the minimum privacy distance is being achieved.

In all cases it should be remembered that minimum separation distances may also be determined by other factors including daylighting, overshadowing, noise, fire spread etc. as well as privacy requirements.

Relaxation to privacy distances where buildings and windows are not directly opposite

ILLUSTRATION 1 : Examples from Table 14 calculating minimum privacy distances between window openings

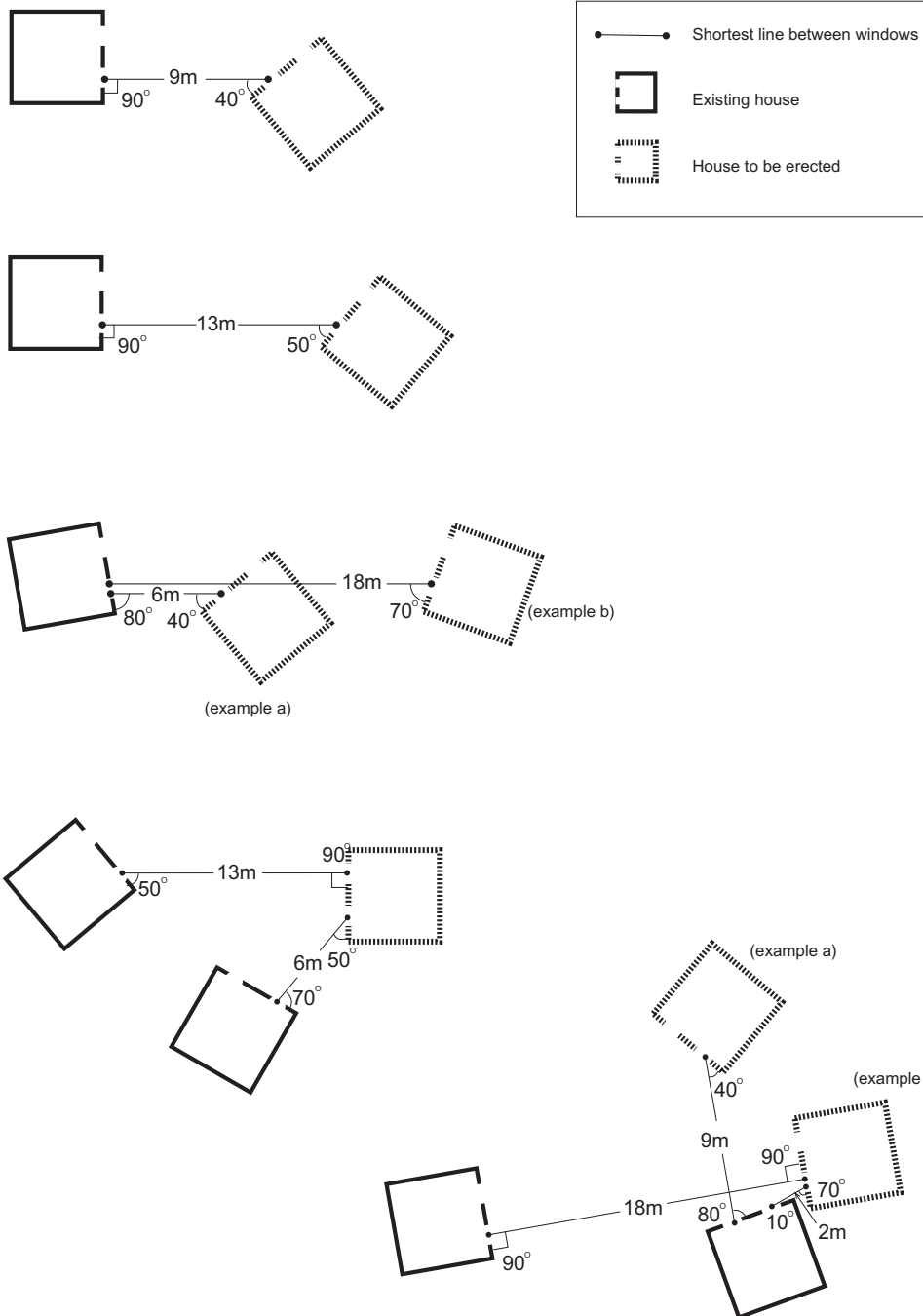
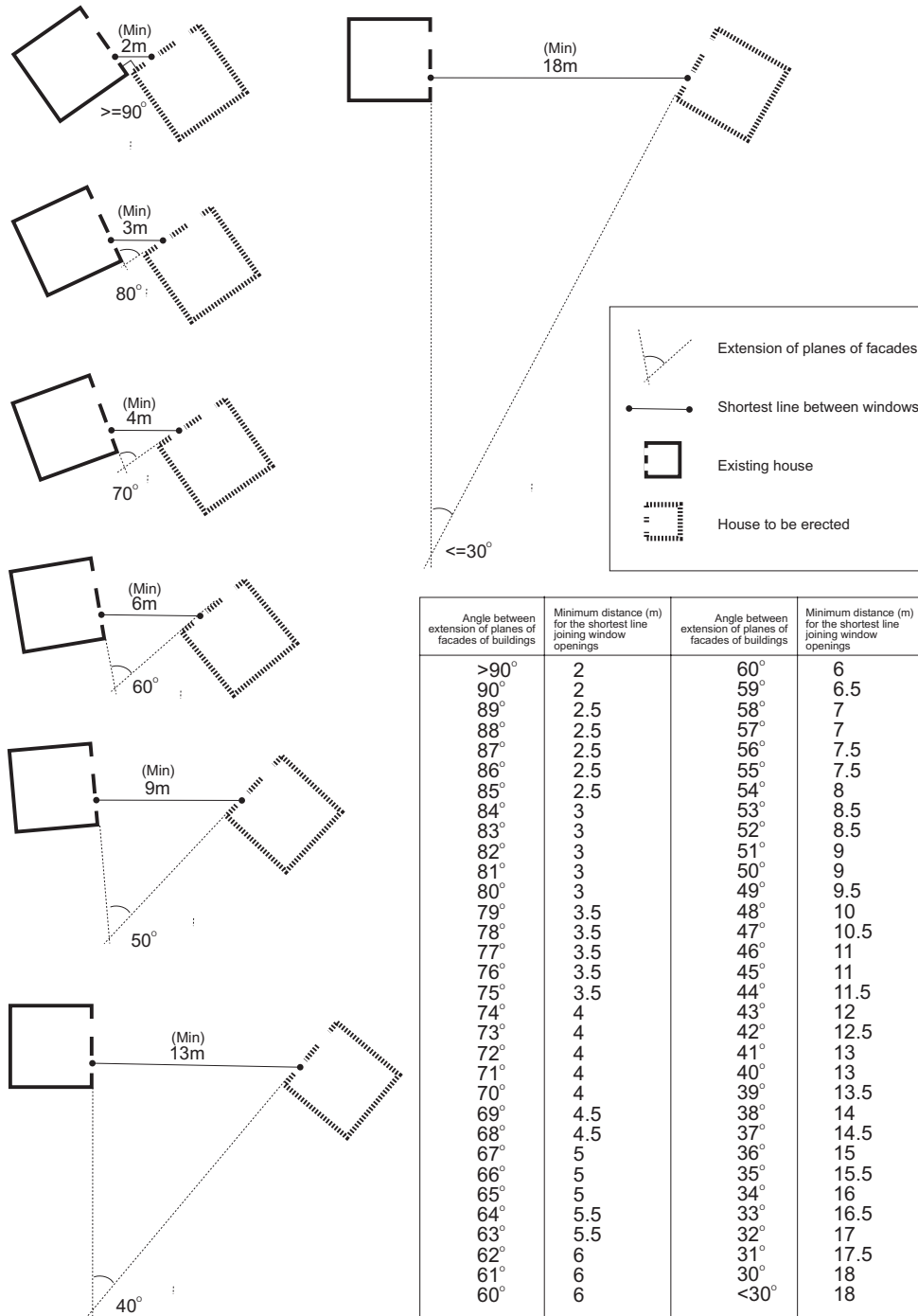


ILLUSTRATION 2 : Alternative method of checking privacy distances between window openings



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