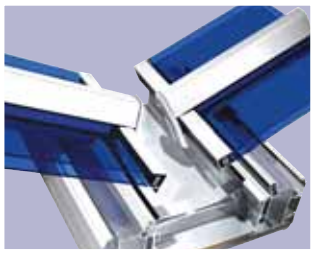
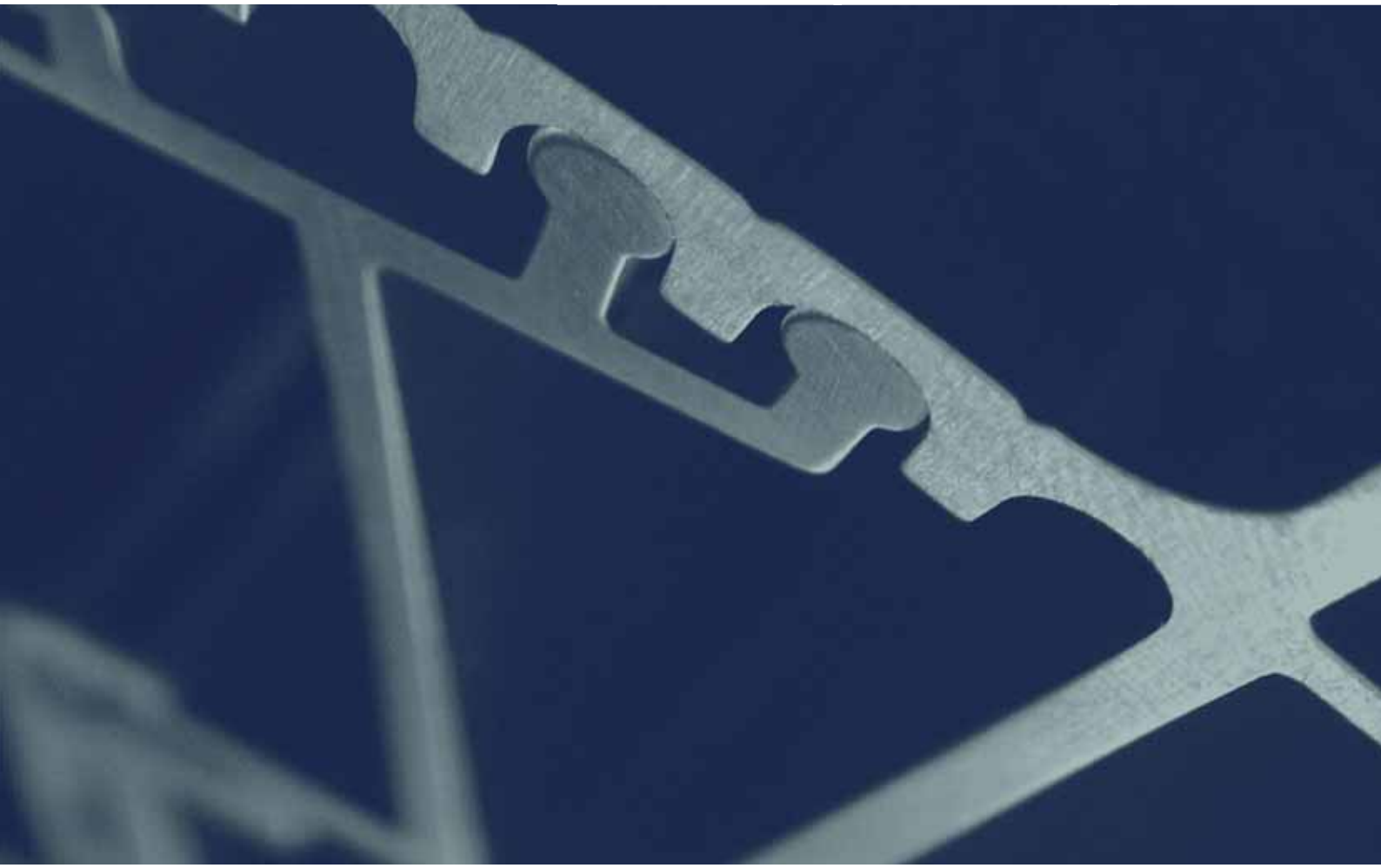
Surveyors Guide

THE PERFECT PARTNER FOR THE TRADE





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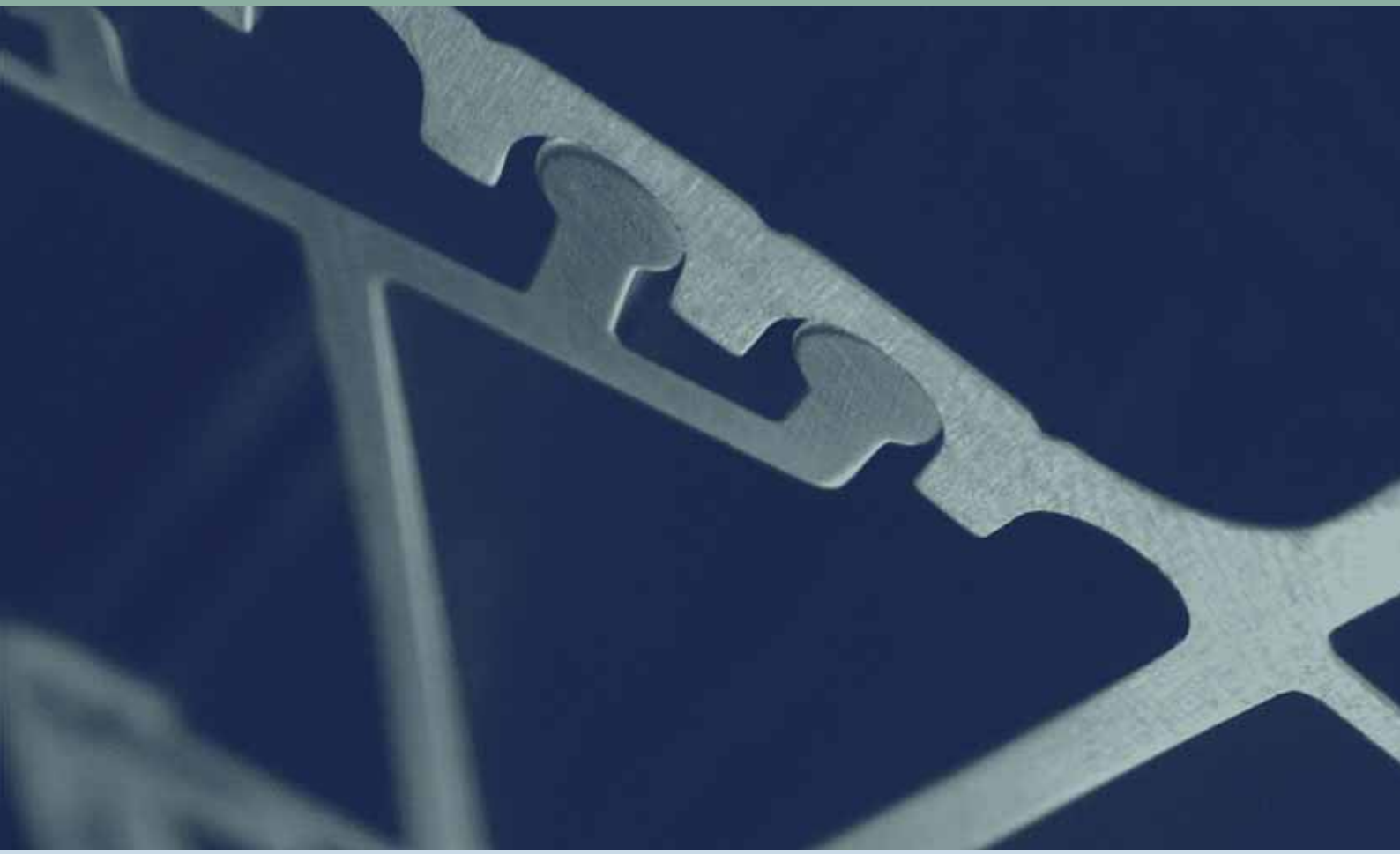
All measurements contained within this guide are in mm unless otherwise stated.

Section One

THE ROLE OF THE SURVEYOR



Role of the surveyor

Introduction

The process of surveying a conservatory is vastly different to that of surveying for window installations. As such, K2 has put together this handy guide which will help you understand your responsibilities and the wide range of issues which need to be considered. It also hopes to provide a wide range of useful hints, tips and advice to help you carry out a survey in the best possible way.

As a surveyor, you have an obligation:

1 To confirm all details of the contract with the customer/purchaser.

2 To ensure that the size and specification of the conservatory (as set out in the contract) will fit onto the property and in the location agreed.

3 To ensure the client understands that the contract may be subject to statutory requirements.

4 To determine whether any statutory requirements affect the construction of the conservatory.

5 To ensure the client is aware of the implications of any unforeseen circumstances such as abnormal ground conditions or the presence of cables and pipes that are not marked on any drawings.

The importance of liaison

Designing, manufacturing and installing a conservatory is frequently a complicated process - not least because every building and aperture is different. As a result, numerous queries and problems can arise and it is the surveyor's responsibility to address these issues and to liaise with all the concerned parties.

This can involve answering the customer's questions or changing the specification if the original design proves inappropriate due to compliance legislation. Where changes are required, the surveyor should always ensure that the homeowner is accurately informed and that any alterations still comply with their wishes.

Ultimately, customer satisfaction should be your number one goal and forms the basis of any successful business transaction. However, in most cases the homeowner is relatively poorly informed and has little product knowledge beyond their appreciation of the ability of PVC-U windows and doors to offer reduced maintenance costs, increased sound insulation and greater thermal insulation.

The surveyor, with their greater understanding of the products being used, should be prepared to iron out any confusion or misunderstanding as soon as it occurs. They should also make sure that proposed installation is fit for purpose as required by relevant laws and codes of practice to ensure the customer is kept happy, content and comfortable every step of the way.

Responsibility to truthfulness

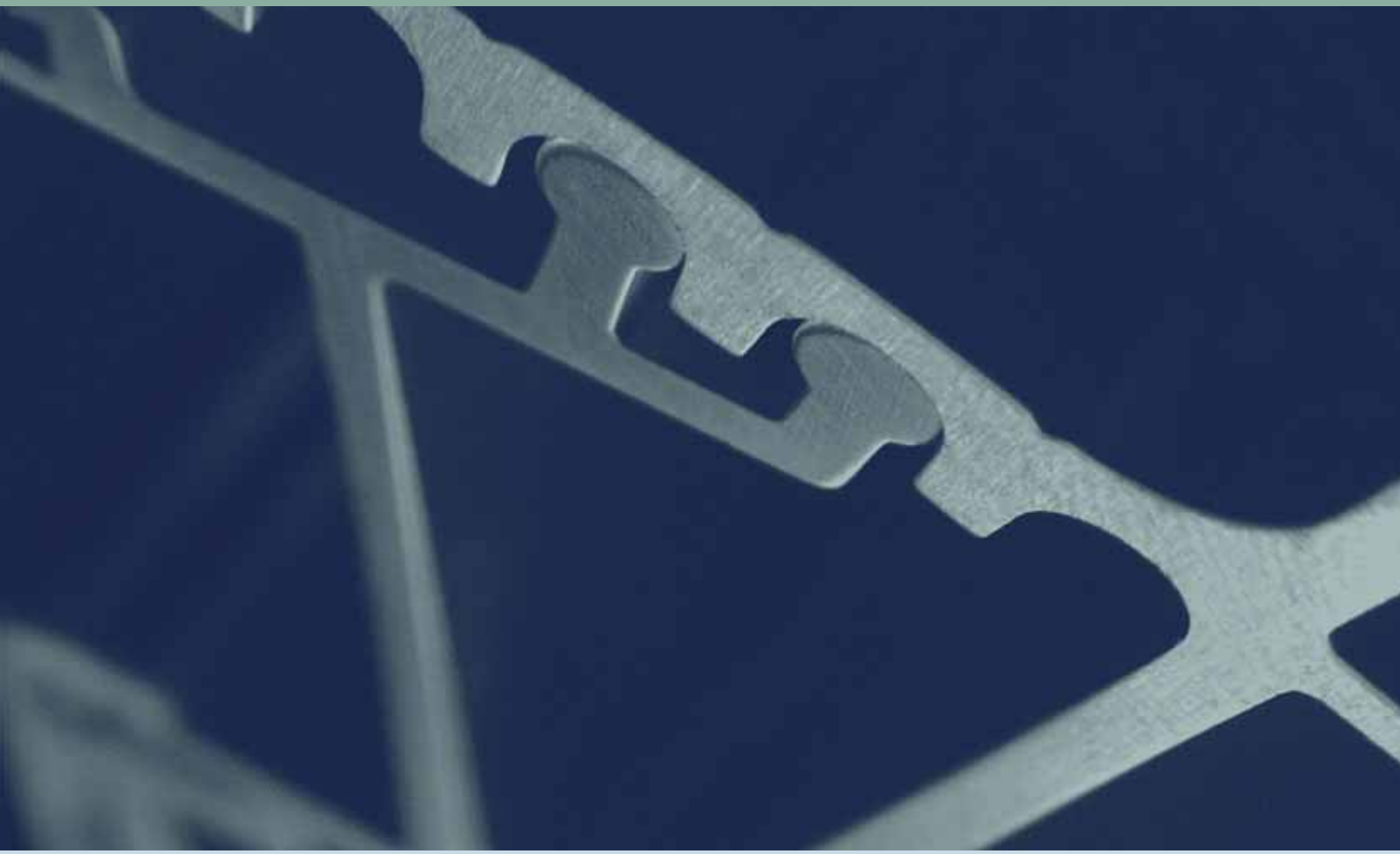
All those involved in providing a service of installing conservatories and doors are required by law to give truthful and accurate advice. Knowingly misleading a customer is an offence.

This stems from a House of Lords ruling made in 1964, whereby it was decided that when a person makes a statement to someone, knowing that the individual is relying upon their specialist skills and ability, then a special relationship exists. In effect, the maker of the statement owes the individual a duty of care.

This ruling places professional surveyors and installers in the same position and for them to knowingly give inappropriate advice (even if the advice is given freely) represents a negligent mis-statement.

Section Two

PLANNING AND BUILDING REGULATIONS



Planning Permission

Introduction

Planning Permission – what is it? Is it required for the conservatory I'm surveying? What are the relevant rules and restrictions? How does it differ from Building Regulations? In this section, we aim to answer to all these questions and more. We've also created a number of easy to use flow charts to guide you through the processes and issues involved.

What is Planning Permission?

This is the decision as to whether or not you can build a particular structure in a particular place. It is not concerned with the structural details of the building, only with where that building is due to be located.

How do I know if Planning Permission is required?

Planning Permission is a must for all development work. However, current legislation includes a general permission for some "permitted development" to a property. This means that provided certain criteria are met, there is no need to submit a specific request to cover your intended project.

Planning Permission will not usually be required under the following circumstances:

- A detached or semi-detached house may be extended without Planning Permission (subject to the conditions below) by up to 70m^3 or 15% of the volume of the original house, whichever is the greater and subject to a maximum of 115m^3.
- In the case of terraced houses or houses in National Parks, areas of outstanding beauty, conservation areas and in other specially designated areas, the limit by which a property may be extended without Planning Permission is reduced to 50m^3 or 10% of the volume of the original house.
- The term "original house" refers to the house as it was first built or if it was built before the 1st July 1948, the size it was at that date. If the house has already been extended, the cubic content of those extensions must be deducted from the permitted development limits quoted above.

Please note that outbuildings within 5m of the house count as extensions.

When the ground falls away from the property, the area between the DPC. and the ground will count toward the permitted cubic capacity of the proposed conservatory.

In all cases involving this detail consult the local planning department for their guidance.

Note: the cubic measurement is calculated from the external sizes of the conservatory.

Planning Permission

An application for Planning Permission will be required if:

- The proposed conservatory is on any wall fronting the highway. Note: a public footpath is classed as a highway for the purposes of the legislation.
- The property is a listed building, or is in a conservation area, or the permitted development rights have been taken away.
- The property is non-residential, or anything other than a single dwelling.
- The conservatory is higher than any part of the original building.
- The conservatory is greater than 4m in height.
- The conservatory is built within 2m of any boundary. Please check with local building control.
- The conservatory and other additions to the original house exceed 50% of the total area of the garden within the boundaries of the property.
- Eaves, fascias, foundations or guttering encroach over the boundaries of the property.

Planning Permission -
Some additional considerations:

A point that is often overlooked, particularly for houses built on large estates, is where the developer has inserted a covenant that dictates their permission must be sought if further development work is to take place. A small fee will be charged, however it is unlikely that the developer will refuse or prevent you from building a conservatory.

If this permission is not obtained it may pose problems for the homeowner in the future. Should they wish to move house, the relevant legal and administration work could prove complicated - even to the point that it holds up the sale. It is always worth checking the deeds and consulting the developer in cases where this issue could be applicable.

Local Planning offices may also remove permitted development rights for some properties meaning that Planning Permission is always required.

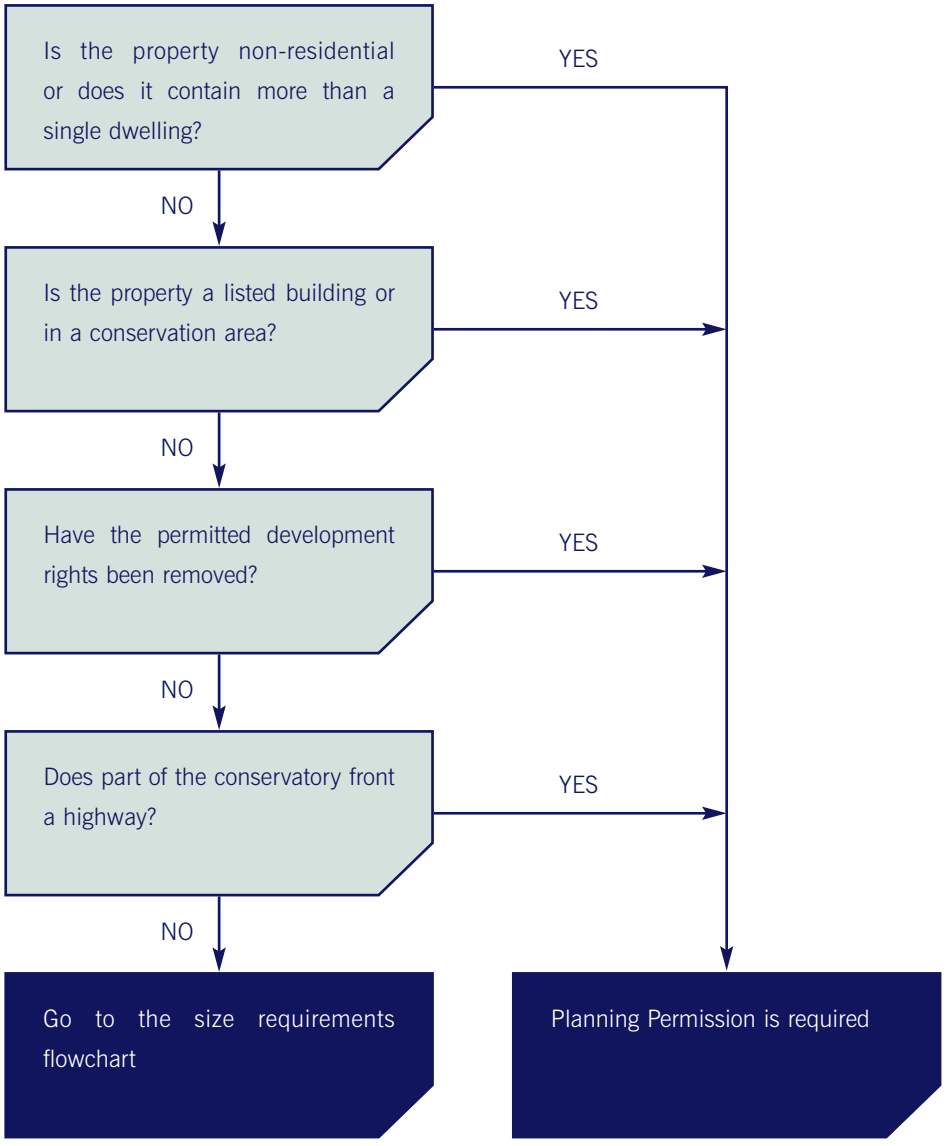
CONSULT THE LOCAL PLANNING OFFICER FOR ADVICE IN ALL CASES - LOCAL PLANNING REQUIREMENTS MAY VARY.

Planning Permission

Planning Permission Flow Chart - General

Note 1: Listed buildings fall under different regulations and consideration will be given to the general effect of the conservatory on the character of the house.

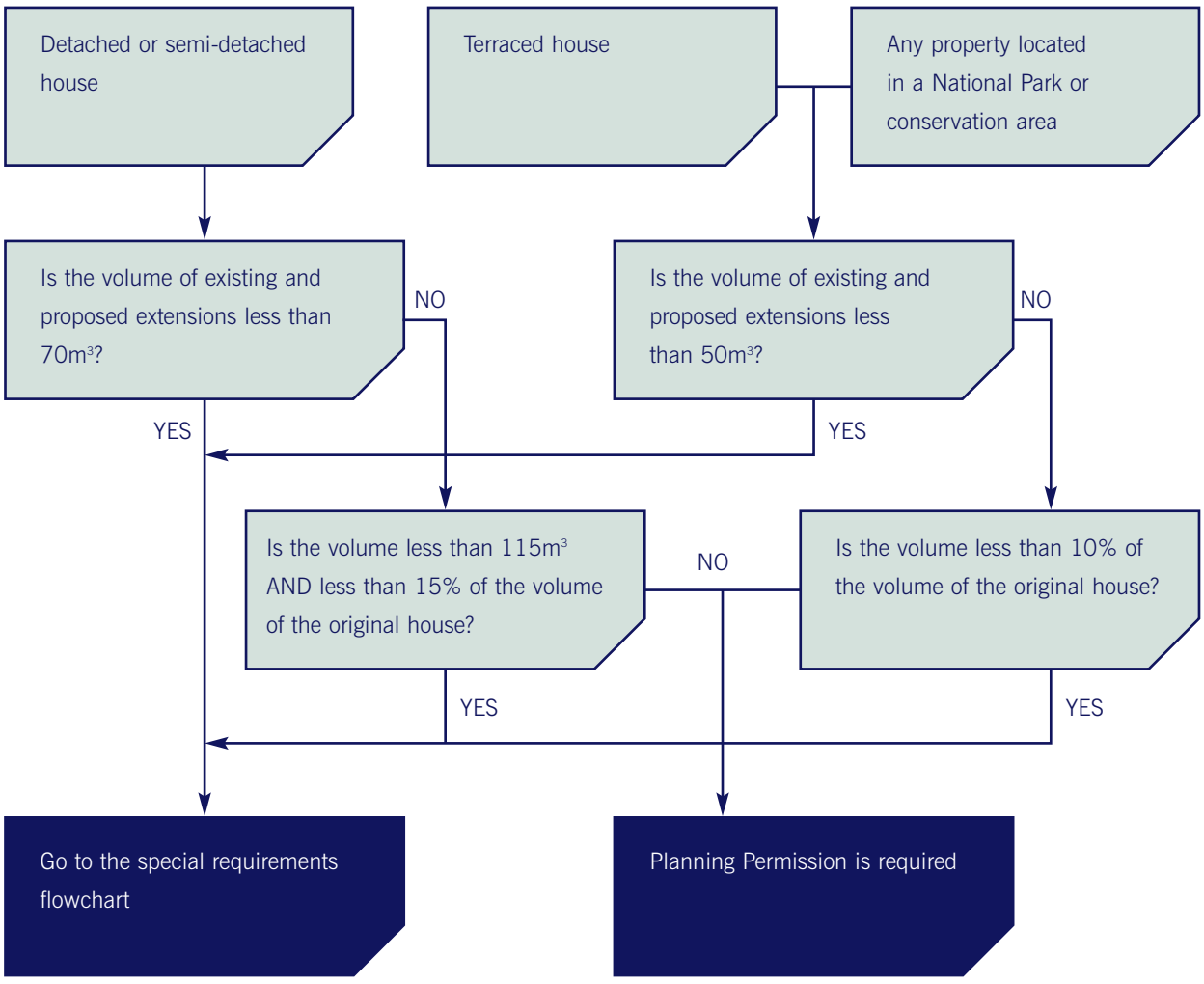
Note 2: For conservation areas higher standards of style, design and visual impact will generally be applied than in normal areas.



Planning Permission

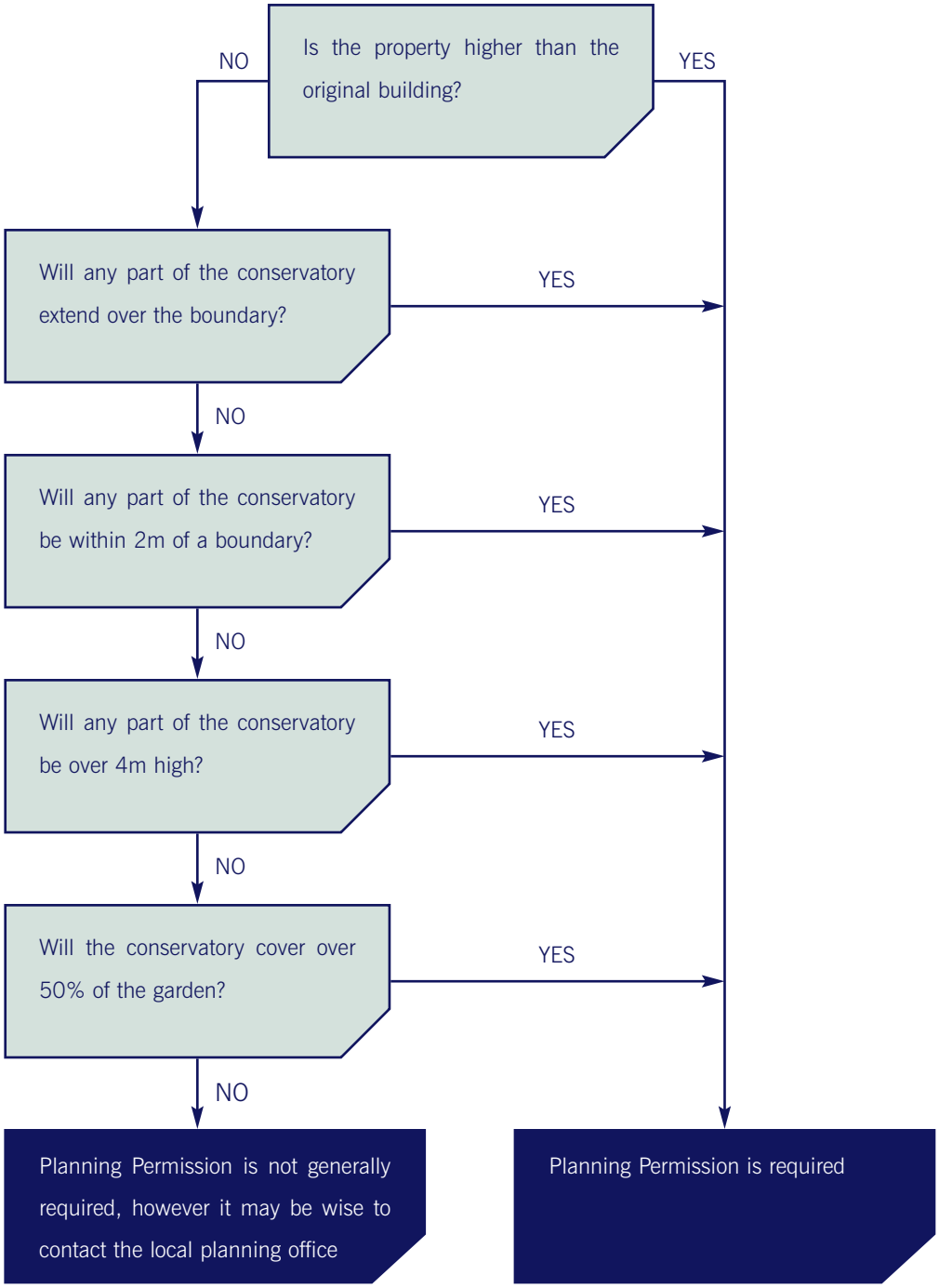
Planning Permission Flow Chart - Size Requirements

Determine property type:



Planning Permission

Planning Permission Flow Chart - Special Requirements



Building Regulations

What are Building Regulations?

Building Regulations are a set of standards which have to be followed in the building of a structure. They are not related to the structure's actual location and should be considered as a separate issue to Planning Permission.

Please note that the information which follows relates only to sites in England and Wales. Separate Building Regulations exists for sites in Scotland. The existence of local By-laws may also need to be considered.

A conservatory is exempt from any controls laid out under Building Regulations if it meets the following requirements:

- The floor area is less than 30m^2. (Schedule 2: 1992 Reg.: 9)
- It is built at ground level. (Schedule 2: 1992 Reg.: 9)
- It is glazed in accordance with the requirements of Part N of the Building Regulations.
- It is separated from a habitable room by a door.

If any of these requirements are not met then Building Regulations Application will be required. In all cases however, it is sensible to check with the local authorities concerned that the proposed base and structure are adequate.

Please note: If the conservatory is in the proximity of a balanced flue, the Gas Safety Regulations (1984) SI/1984 No. 1358 may be relevant.

If a Building Regulations Application is required:

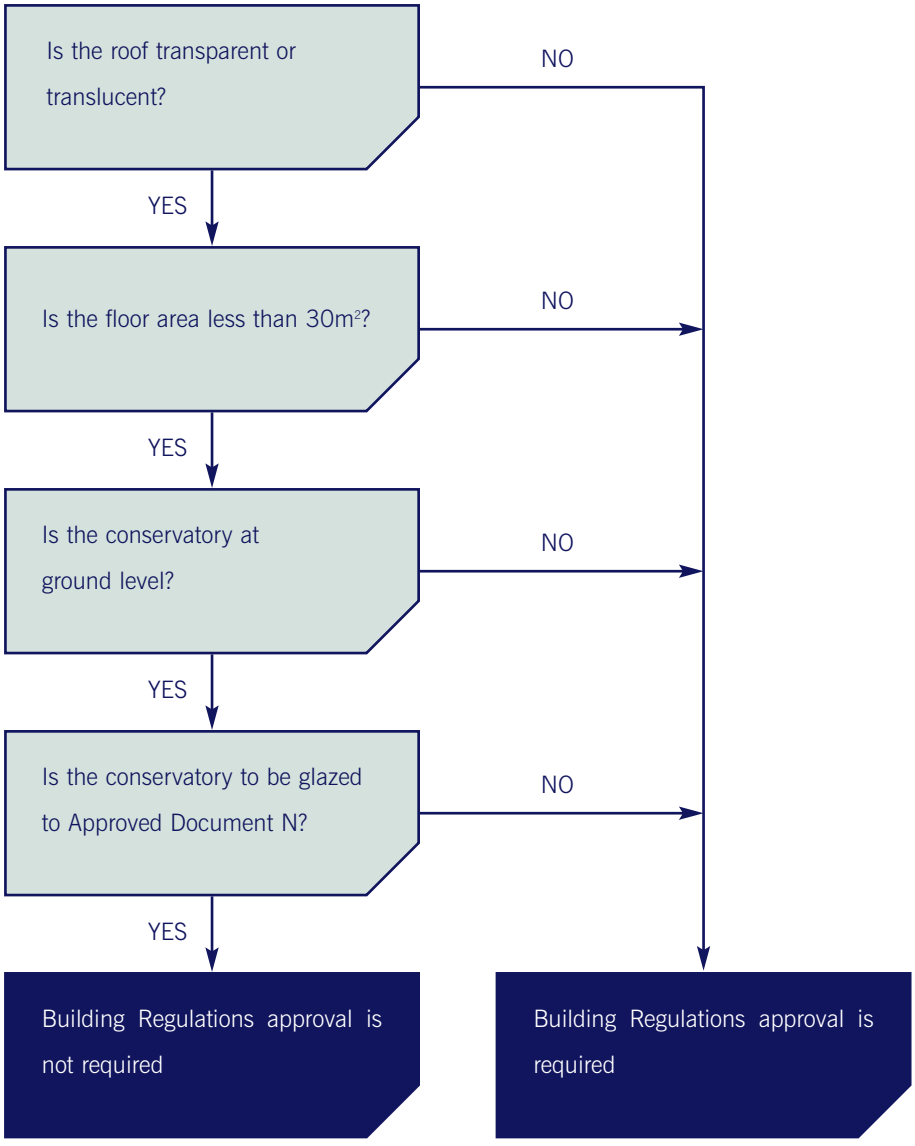
If a Building Regulations Application is required, then the Local Authority Building Control department must be contacted. The matter will be dealt with by a Building Inspector, who will:

- Check the drawings to confirm that they meet the requirements of the Building Regulations.
- Inspect the Building works to ensure you are building in accordance with the Building Regulations.
- The Building Inspector is empowered to force work to be re-done if it not satisfactory. This service requires a fee to be paid to cover both the submission costs and the subsequent visits of the Building Inspector.

A flow chart for the Building Regulations is provided overleaf.

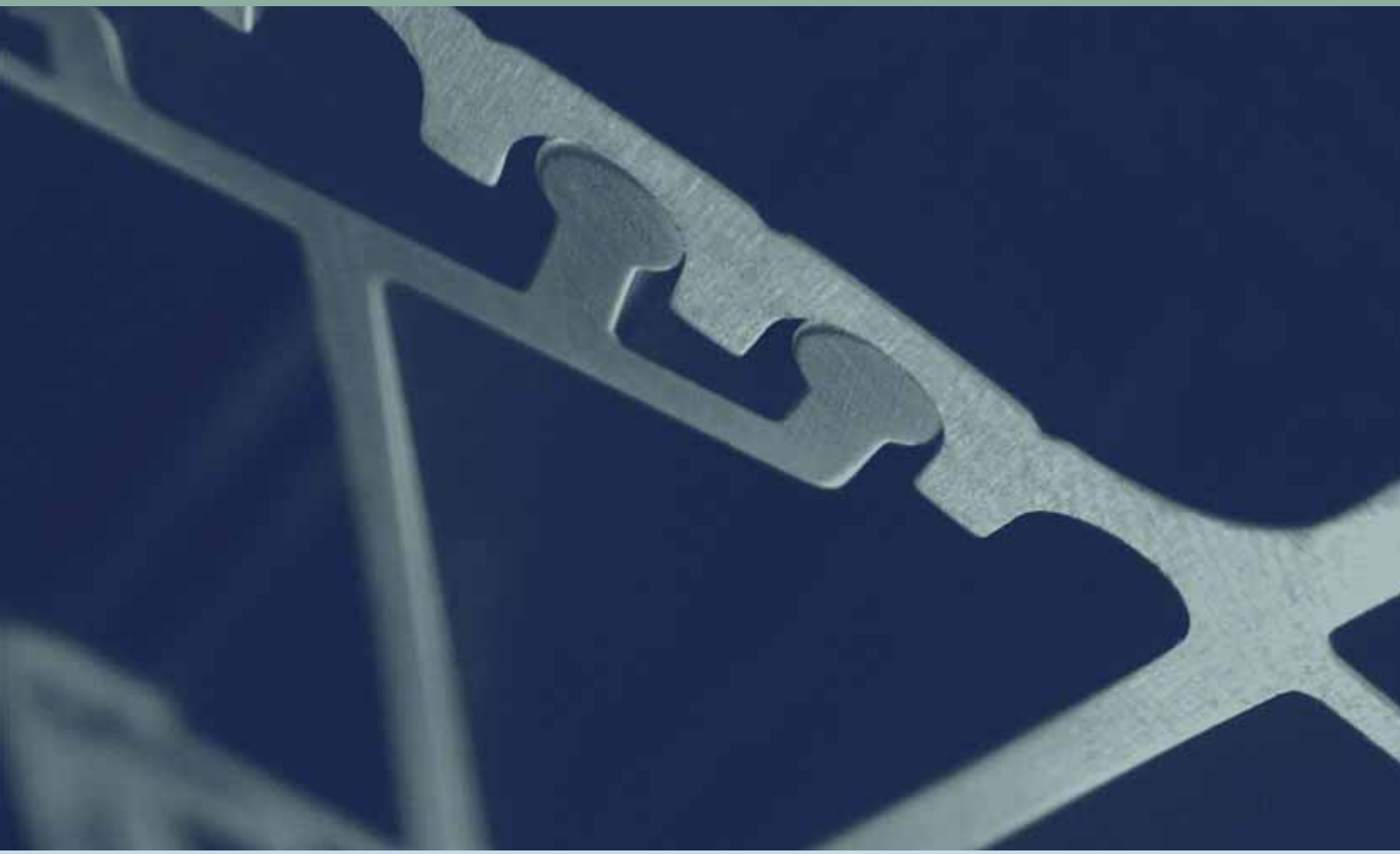
Building Regulations

Building Regulations Flow Chart



Section Three

VISITING AND ASSESSING THE SITE



Visiting and assessing the site

Introduction

Upon visiting the site and before commencing the survey, the surveyor should take into account a number of factors to prevent problems and difficulties occurring later. These factors, as well as a number of other important considerations which are best dealt with during the early stages, are outlined in this section.

Essential equipment

To carry out a survey effectively, certain basic equipment will be required:

1 A clipboard with A4 graph paper, pencils and pens.

2 Tape measure (10m or above).

3 Spirit level (1.2m or above).

4 Angle finder (digital if possible).

5 Ladder. A folding ladder may be preferable.

6 Digital or Polaroid camera.

7 Manhole cover lifting tools.

8 String line and plumb bob.

9 K2 technical guidelines.

10 Check list.

11 For larger projects, laser-levelling equipment is recommended.

Making an appointment

It is important that you make an appointment to carry out the survey during daylight hours and whilst the homeowner is present.

Introduce yourself to the homeowner

It is good practice and good manners to always introduce yourself to the homeowner. If possible, you should also produce some form of I.D. as this will portray a professional image and help to put the customer at ease. In addition, it is advisable at this stage to check your documentation against the customer's to ensure all details match and that no misunderstandings have arisen during the sales and order process.

Before commencing the survey, make a note of the type or property

Is it?:

- Terraced.
- Semi-detached.
- Detached.
- A flat.
- A bungalow.

The type of property will naturally affect the site in a number of ways – including how it can be accessed, the impact on neighbours, etc.

Visiting and assessing the site

When you are in the vicinity of the site/property, you should also be aware of:

- Width of access roads.
- Width restrictions into and on the site.
- The position of bushes.
- Overhanging trees.
- Overhanging cables or wires.
- The position of gates and posts.

All these elements could hamper delivery and contractors vehicles.

In addition, you should consider whether sufficient space will be available for building materials to be delivered and stored without restricting access for the homeowner and their neighbours. You should also ensure that everything possible is done to minimise inconvenience to the customer and to protect their property from damage.

Accessing the site through the property

When the only means of access to the site for the conservatory is through the property, you should always advise the customer on means of protecting items on the thoroughfare such as furniture, decorations and flooring. It is advisable to recommend to the homeowner that anything that can be moved should be moved.

Builder's barrows

Consider whether there will be sufficient access to the site for a builder's barrow either:

- Down the side of the property.
- From an alleyway to the side or rear of the property.
- Will permission be required from a neighbour to use their land for access?

Skips on site

As part of the construction process, waste skips may well be required. If this is the case, you should think about their location. If a skip is to be located on the customer's drive is it likely to damage the drive's surface? Where this is a risk, suitable sheet material should be used to provide protection.

If the skip is to be located on the highway, this should be identified on the survey document, (a permit may also be required from the local authority). Skips left on the highway overnight will require suitable lighting.

Mixing materials on site

Will the installation team be mixing concrete by hand or will ready mix be delivered, and if so, where can such materials be dropped? Where can other materials be stored? (It is good working practice to cover the area that is going to be used with a tarpaulin or other suitable material).

The installation team will require the availability of water and electricity supply. Are these readily available externally or from the garage? If not, access to the property will be required during the construction process. Depending on the size of the project, temporary storage may be required for the delivery of the conservatory, roof and glass.

Think about the neighbours

If either the surveyor or the installer will need to step onto a neighbour's property during the survey or conservatory's construction, permission should always be sought first. This permission must come from an appropriate adult – such as the property owner or their spouse. You should also consider and address any parking problems that may occur as a result of the installer's van(s).

Visiting and assessing the site

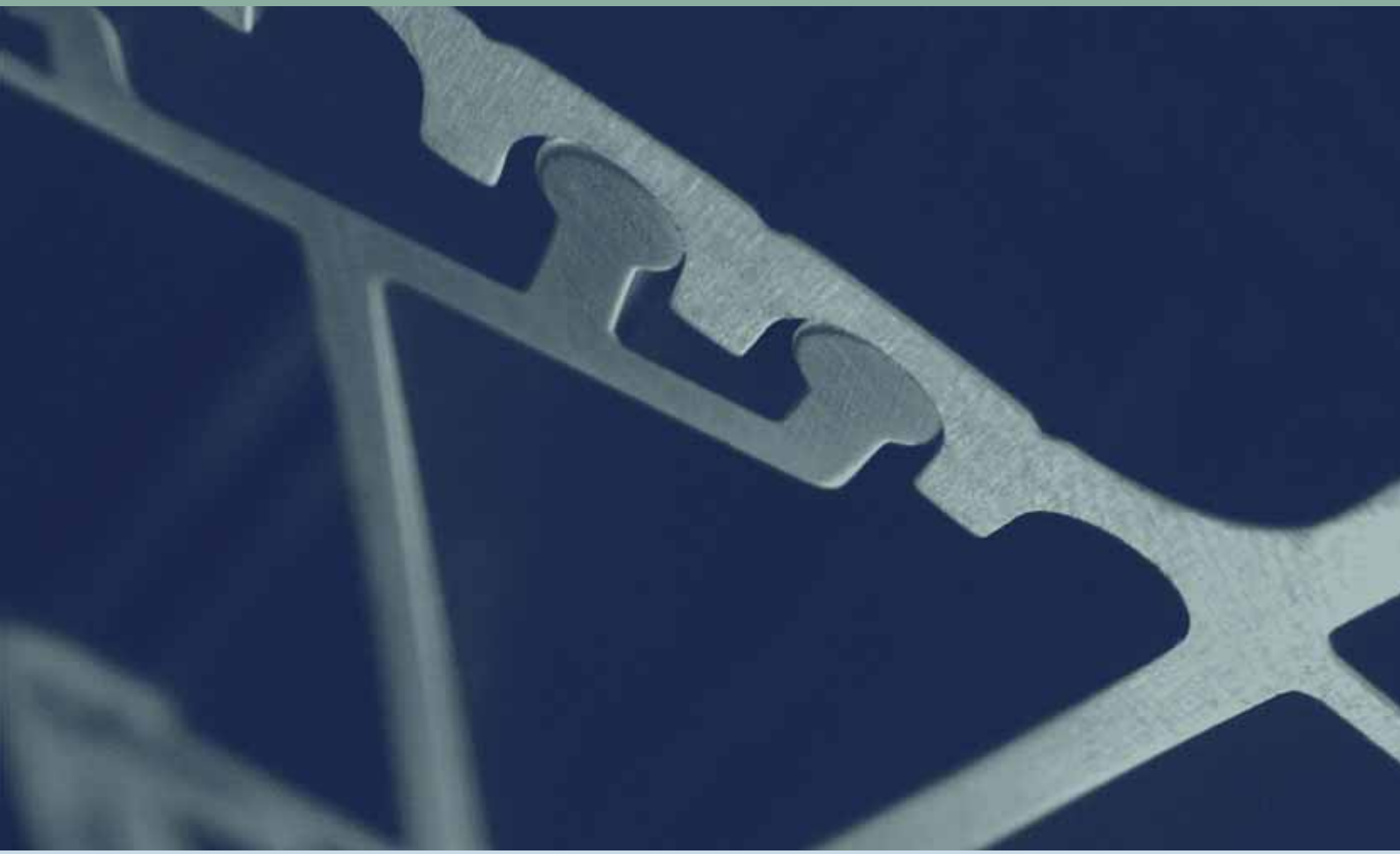
Some final considerations

At this initial stage, attention should also be given to the following and what affect they might have now you have seen the property/site in question:

- The intended type of frame finish and roof design.
- Planning permission.
- Building regulations.
- Type of fixings.
- Type of glazing.
- If the conservatory specified will be fit for purpose.
- Methods and extent of making good.
- Any alterations that are required to structural openings.
- Means of access.
- Use of power.
- Price.
- Checklist.

Section Four

THE SURVEY



The survey

Having conducted an initial assessment of the site and confirmed the suitability of the intended conservatory and its specification with the details held by the homeowner, you are now ready to commence the survey. To help you do this without overlooking any important aspects, we have broken the process down into a number of sub-sections.

Initial questions

Upon examining the intended site, a number of questions that should be asked:

- Will there be an existing building to demolish and who will be responsible for the demolition – customer or contractor? This will need to be clarified before any work commences.
- Within the existing building are there any services that may need temporary or permanent disconnection?
- Who will be responsible for the removal or relocation of any trees or plants that may be on the proposed site?
- Will the removal of tree(s) from the site contravene any tree preservation orders (TPO)?
- Is there already a structure in place? If so, when it is removed will the new structure cover the same area or is remedial work required? This may involve removal or replacement of timber fascias, Tyrolean render dash or any other external finish. Again who will be responsible for this work?

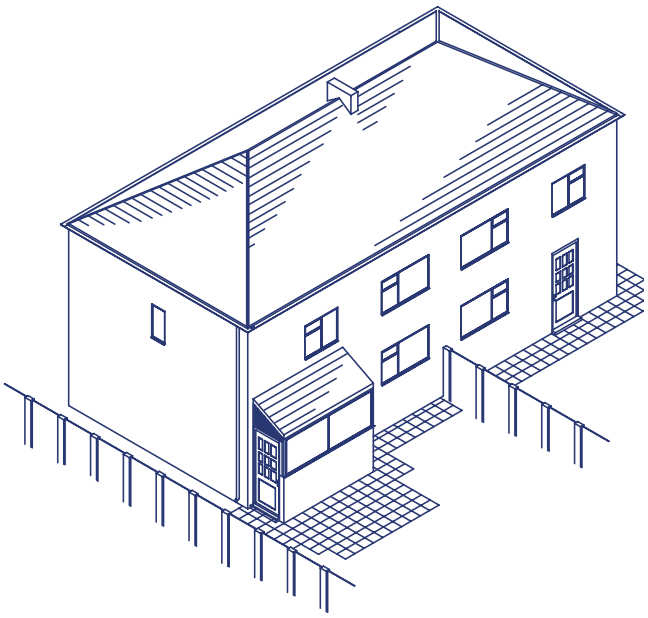
Ground movement

At this stage it is advisable to assess whether the intended site is subject to ground movement. Check for any cracks on patios, property walls and boundary walls. If these are present, they should be photographed, noted and brought to the attention of the homeowner.

These cracks should also be monitored to ensure whether there is an on-going problem. This can be achieved by a number of simple techniques including:

- A simple line drawn across the crack which will reveal any further movement.
- Glass tells tales. When bonded across cracks they instantly show movement as the glass will crack.

Typical property



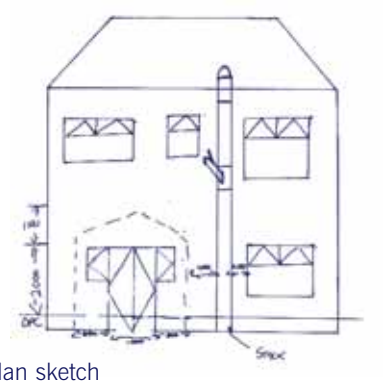
Site plan and elevation

Accurate and careful line diagrams of the specific elevations of the property against which the proposed conservatory is to be installed should be drawn out on paper. (There is nothing wrong with sketching this on loose paper and making separate notes, however this could lead to some vital information being omitted. The use of pre-printed sheets with all the relevant points to be considered set out as tick boxes can help to minimise the risk of important omissions. A full set of such sheets is provided at the back of this guide.)

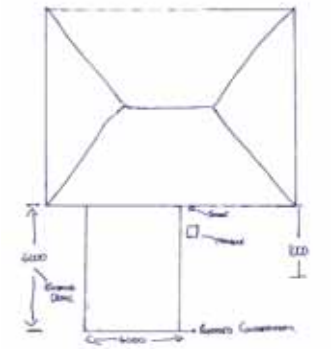
In all cases, your diagram should clearly show the location of:

- Manholes.
- Rodding points.
- Drains.
- Windows/Doors.
- Service pipes.
- Any other obstructions.

Typical site elevation sketch



Typical site plan sketch



In addition, the diagram should highlight:

- Bell cast and render stop detailing as this will determine whether add-ons to the frames will be required.
- Architectural brickwork.
- Corbelling.

You should also:

- Mark on the elevation drawings the dimensions between features and the shape of the proposed conservatory.
- Take site photographs to endorse the site survey.
- Ensure the overall height of the conservatory (including Lead flashings) will fit under the existing windows, eaves and fascias and any other obstacles.
- Try and take some form of brick sample. This will help you to ensure that brickwork used on the conservatory will match or complement the existing bricks employed on the house. (See section on wall design.)

Important considerations concerning boiler flues

Flues for either balanced or fan assisted boilers must never be vented in to a conservatory. The efficiency of the boiler could be affected if positioned too close. In addition, the safety of the property's residents should always be your primary concern. **If you have any doubts or reservations, ring either British Gas Services Ltd or Corgi Technical Services.**

Another important consideration is that the heat generated from gas boiler flues can affect building materials such as PVC-U and polycarbonate. If appropriate, the fitting of a heat deflection device may be advisable providing it is fitted in accordance with Corgi and/or British Gas regulations.

British Gas state that a minimum clearance of 300mm should be allowed for below or to the side of an open window or other openings such as airbricks, whilst a distance of 600mm should be used in conjunction with a natural draught flue. (Maximum heat input up to 60kW.)

Checking the back wall

It is important to check the back wall to assess how vertical it is and whether it is subject to any degree of sloping. This can be done quite easily with the aid of a long spirit level or with a long straight edge and a smaller spirit level.

If the back wall leans in: (Diagram 1)

When the external house wall leans backwards towards the property then the ridge will need extending (see diagram 1). It is important to remember that as the ridge will be extended, the end wall bar and frames will be away from the wall. An appropriate method of filling the resulting void will need to be fabricated. Alternatively, frame extenders and firring pieces could be used. Where timber firring pieces are employed they should be treated with a suitable preservative and flashing over with a code 4 Lead or other suitable flashing product.

If the back wall leans out: (Diagram 2)

When the external house wall leans out, away from the property, then all the conservatory base work will have to be brought forward to compensate (see diagram 2). The amount by which it should be brought forward can be obtained using this formula:

Height to underside of eaves + roof height = X

As an example:

2100mm (height to underside of eaves) + 929mm (roof height) = 3029mm

To obtain the height to the underside of the eaves, measure vertically up from the centre of the proposed conservatory, from the DPC to the pre-determined height X. From this point drop a plumb line and measure the distance from the plumb line to the property wall, add this measurement given to the projection dimension. The roof height can be obtained from the K2 software or by using trigonometry.

Diagram 1

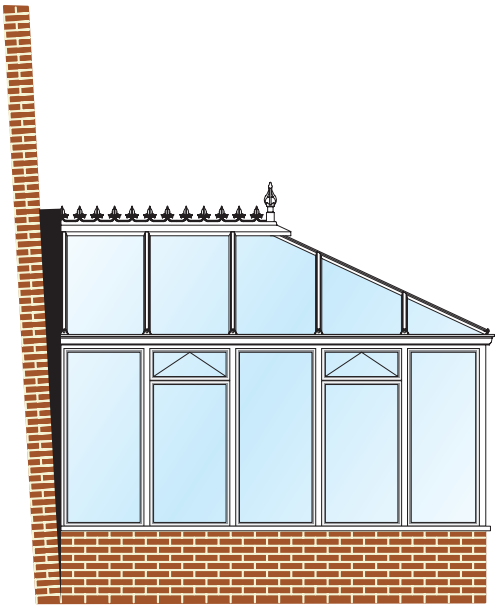
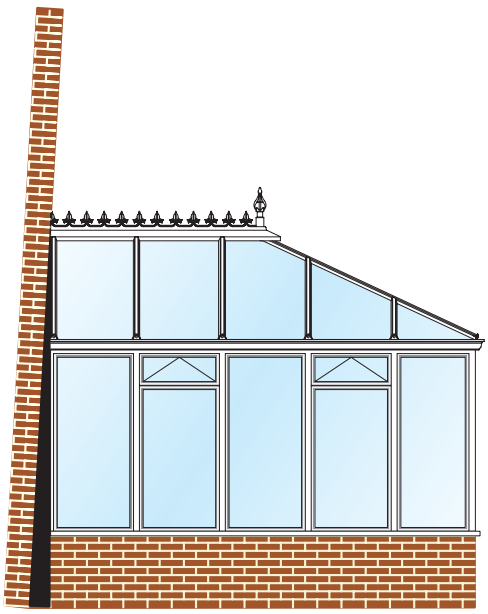


Diagram 2



Best practice base work survey

Ground quality

Having completed all the above ground surveying, it is now necessary to dig a test hole to assess the condition and quality of the ground. Poor ground will require the footings to be deeper thus increasing the amount of concrete brick and block required. This in turn will increase the cost of the job or reduce the amount of profit.

As a guide:

- Water bearing clay/soil will require a minimum footing depth of 900mm.
- None bearing soil requires a minimum footing depth of 600mm.

In addition, if trees are situated close to the proposed site of the conservatory this will affect the type of foundations required.

Check with the Local Building Control Officer

It is advisable to contact the local Building Control Officer as he or she will have information about the area that may be invaluable. Such information may cover:

- Whether the area may have once been a landfill site. If so, the base construction should be designed so as to prevent the ingress of methane or radon gases into the completed conservatory.
- What type of foundation the property is constructed on such as strip foundations, raft foundations, stepped foundations, special foundations or if it has been built on piles. (See section on building works to show construction methods.)

Existing drainage

It is essential that you do everything you can to identify and plot any underground drainage. As part of this, you can visually check neighbouring gardens to establish which direction drains run in. You should also lift manhole covers to check the depth and direction of drainage.

Best practice base work survey

Site conditions

If applicable, you should take note of which direction the ground falls – whether it's towards or away from the property.

Ground which falls towards the property (Diagram 3)

If the ground falls towards the property, extra earth will need to be excavated from the site. A retaining wall will also need constructing to give support to the remaining bank of high ground. At the base of this wall, a land drain should be installed and then back filled with aggregate (see diagram) before being run on to a soak away (see section on building works). Naturally, this work will entail additional costs.

Ground which falls away from the property (Diagram 4)

Where the ground falls away from the property, you will need to ensure that single or French doors are constructed on a platform or landing. The width of this platform/landing is determined by the width of the opening door leaf(s) plus 400mm (see diagram). This will allow the customer to step out in safety on to the platform/landing before walking down the conservatory's steps.

Single or French doors that open onto the ground that falls away will require the construction of a platform/landing. The width of the platform/landing is determined by:- The width of the opening door leaf/s plus 400mm (see diagram 5).

This allows the customer to step out in safety on to the platform/landing before walking down the steps.

Steps

As a rule of thumb, every increase of 150mm in height between the floor level of the conservatory and the external ground level requires a step. When the height of the steps is greater than 600mm, Building Regulations demand they are accompanied by a hand rail or balustrade. The height of the handrail should be between 900 and 1000mm from the pitch line of the steps.

Diagram 3

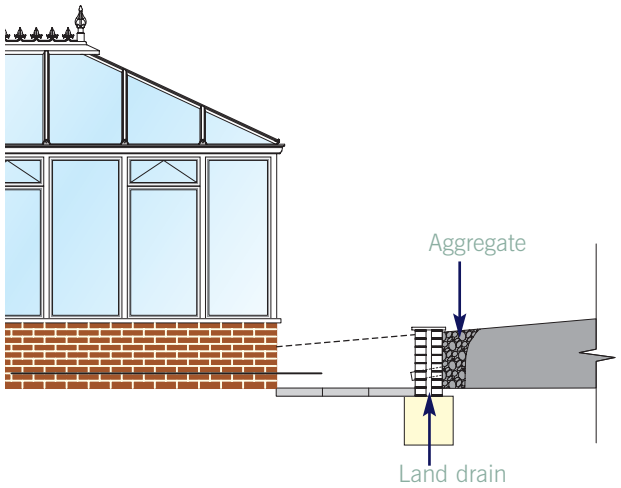


Diagram 4

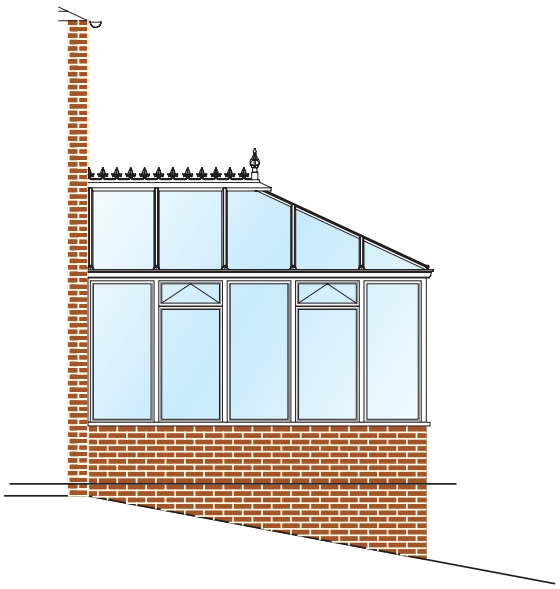
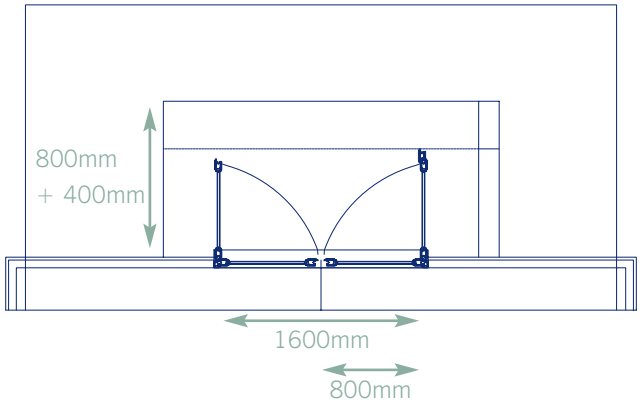


Diagram 5



Base design

Important points

In designing the base of the conservatory, a number of essential points need to be considered:

- The Datum point. This point is usually a measurement from a fixed point, i.e. a corner of the building or door, window or patio reveal.
- Ground levels. You need to determine whether the ground level falls towards or away from the property. If the ground level falls towards it, you should think about whether a retaining wall will be required and whether a gravel trench of 150mm by 150mm will be required to prevent moisture bridging the DPC.
- Clearance. If the land falls towards the property, then you must also ensure enough earth is excavated to allow access to the conservatory and to allow its door(s) to open (the minimum clearance required is 400mm). The use of a retaining wall can help achieve this.
- Internal base finish. If the land falls away from the property, is it on such a gradient that a timber suspended floor would be more appropriate due to the amount of aggregate required to back fill the base? Suitability and cost should always be uppermost when designing a base.
- Single or double doors. If these open out onto ground that falls away, a landing or platform will have to be created. This landing or platform will have to comply with Building Regulations Approved Document K1, which states that doors may swing across a landing but only if they leave a clear space of at least 400mm. This allows a person to step out onto the landing without fouling the door(s).
- Floor levels. Ensure that the conservatory floor level will be level with the existing floor level within the property.

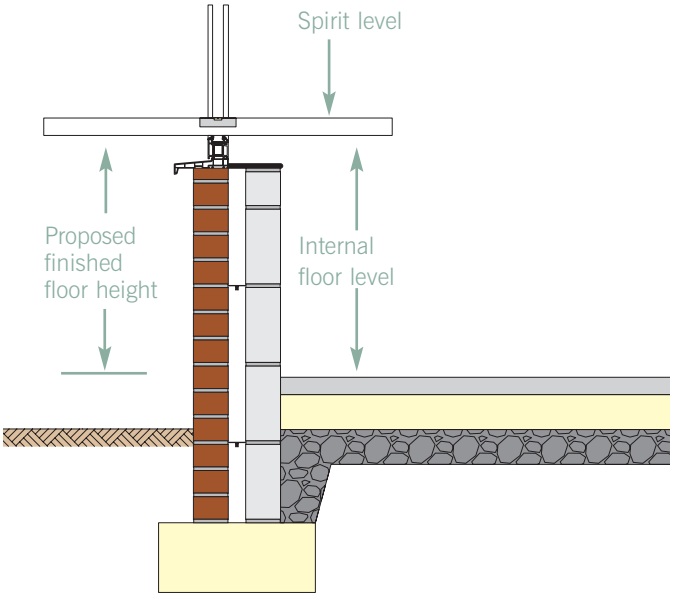
Floor levels

When designing and creating a base, it is important to ensure that the floor levels in the conservatory and the floor levels in the property will match.

If there is an existing door from the property to the area where the conservatory base is due to be situated, determining this is a relatively easy task. However on many occasions, there may only be a window present. Where this is the case, you can determine and mirror the existing house floor level using the following method:

Open a sash window or remove a glass unit in the relevant area within the property. Rest a suitable length spirit level on the bottom of the window frame so that it is half inside the property and half out of the window. Adjust the level until the bubble is centralised. Now measure the distance between the spirit level and the floor level of the property. All you must do from this point on is ensure that you mirror this measurement on the other side of the open window, onto the external wall. (See diagram 6)

Diagram 6



Wall design

The main styles of wall design used in conjunction with conservatories are:

- Dwarf or knee cavity wall conservatories.
- Full height frame conservatories.

Dwarf or knee cavity wall conservatories

This is the most common wall design used with conservatories and consists of cavity walls between 450mm and 600mm in height (measurements are taken from the internal floor level). Bearing in mind your responsibility to the customer, you should inform them that this type of wall reduces the amount of usable floor space due to the thickness of the cavities and the internal brick or block work.

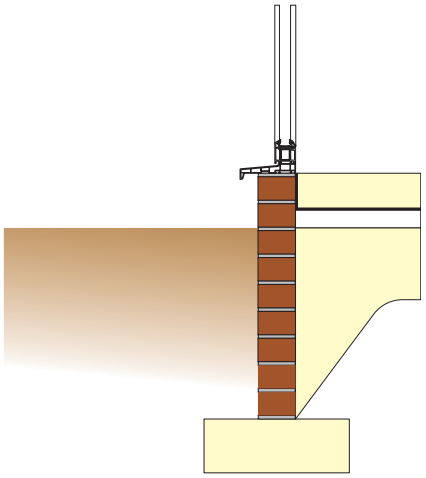
At the surveying stage a brick sample should have been taken so that a brick match could be obtained. This will allow the bricks employed in the conservatory's base work to match those in the rest of the property in terms of colour and size. Extra attention must be paid to the height of the original bricks as they could be either metric (65mm) or imperial (3"). Choosing the wrong size of brick for the base will cause problems as they will not line through correctly with those of the main property.

Finally, you must also ensure that a waterproof barrier can be created between the property's DPC/DPM and that of the new base's DPC/DPM.

Full height frame conservatories

This style has no dwarf or knee cavity walls. Instead it allows the frames to extend down to the outer brick leaf - usually at DPC height. This style allows for more usable floor area.

Diagram 7



Foundation/base work details

Diagram A

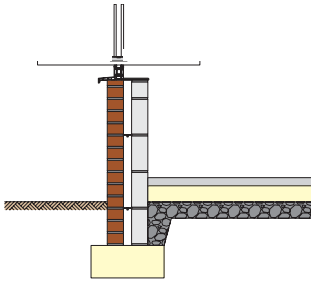


Diagram B

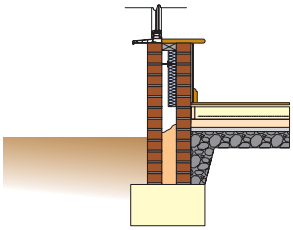


Diagram A and B

When the site is level this type of base and dwarf/knee wall construction is normally used. The external window cill will sit flush with the internal face of the external brick.

Diagram C

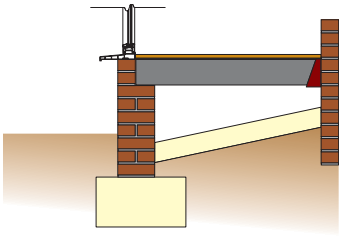


Diagram C

When the site slopes away from the property at a steep or uneven gradient, a suspended timber floor should be used for the base construction. This will prove more cost effective than a back filled design as a substantial amount of hard core would normally be required to level out the base.

Diagram D

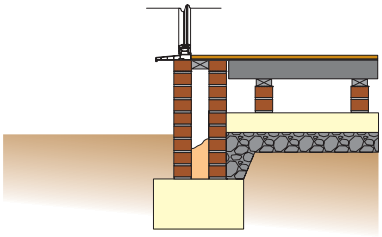


Diagram D

Suspended timber floors are commonly used where there is a considerable difference between the finished floor level of the conservatory and the ground.

Please note: Whenever a timber suspended floor is constructed airbricks should be built into the base work to allow circulation of air under the timbers and prevent dry rot.

Diagram E

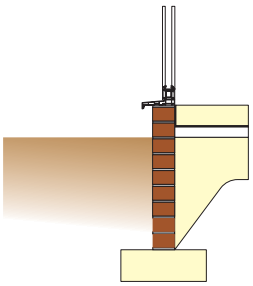


Diagram F

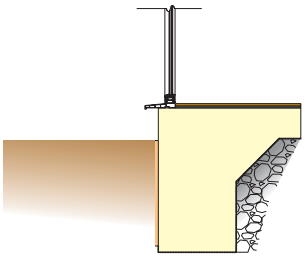


Diagram E and F

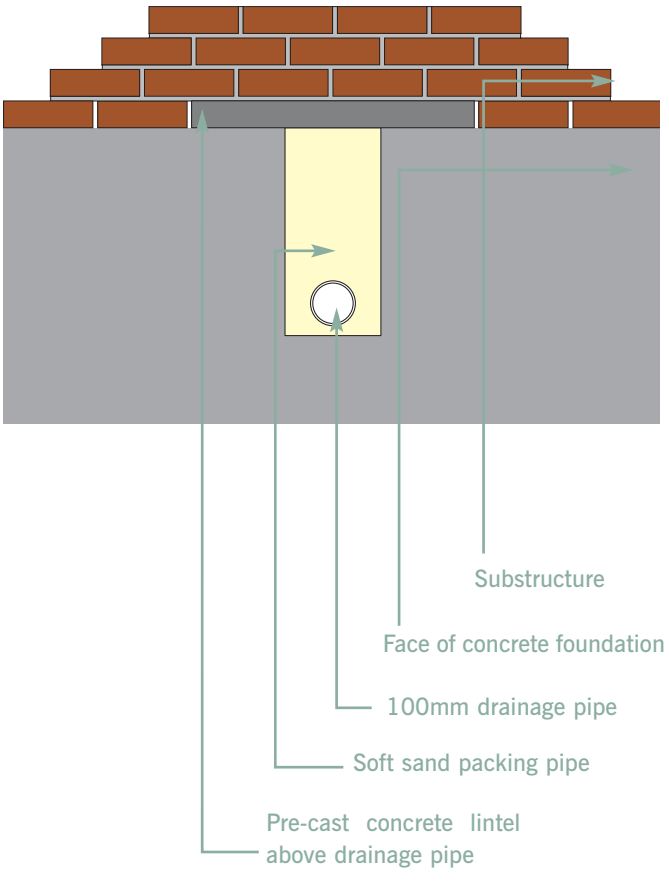
This type of base construction is commonly used when the conservatory is constructed using full height window frames. Usually the DPM is lapped under the conservatory window cill. The external surface or the base can be faced off with tiles or bitumen. Alternatively, they can be designed to allow for the external face to be a brick skin.

Foundations

Bridging over the existing drains

If an existing drain passes through the foundations, you must ensure the foundations are lower than the bottom of the drain. A chamber must also be formed above and around the drain. When the base concrete has set and before the brick/block work is laid, this chamber should be filled with sand as it will provide support and protection to the drain but without overly restricting future access. Finally a pre-cast concrete lintel should be placed over the chamber to protect it from any collapse.

Bear in mind that all new drains must meet and have Building Regulation approval. You should also check to see if the property is connected to a main or combined drain.



Positioning of doors

Door positioning

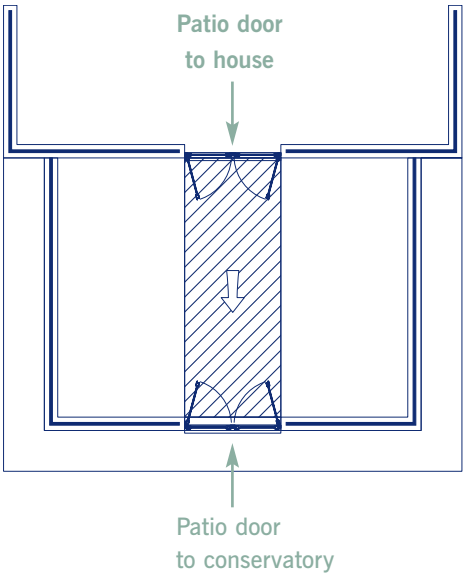
Customers frequently ask for doors to be located in the front facet of Victorian style conservatories. If at all possible, you should dissuade them from doing this. The reasons why include:

- The facet size may be insufficient to allow for doors and this could affect the stability of dwarf walls if they are required.
- By positioning the doors on the front facet you are creating a corridor effect from the house doors to the conservatory doors. Realistically, no furniture can be placed in this 'corridor' and the usable area within the conservatory is effectively reduced.

Flagging/Block paving patios

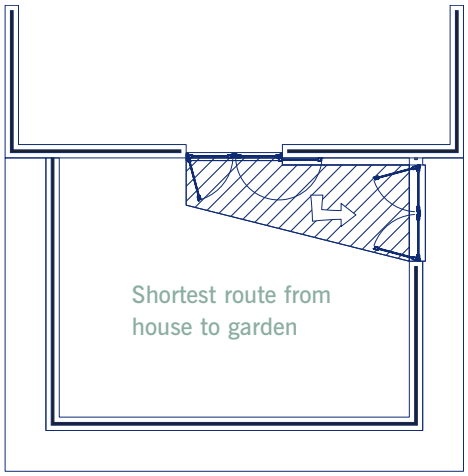
It is important to remember that when laying any solid paving materials around the perimeter of the conservatory, a gap should be left of at least 100mm in width and 100mm in depth. This should then be filled with gravel. This will prevent water from bridging the cavity and prevent rain water from bouncing off the paved/blocked area and onto the facing brick.

Example A



Route from house to garden requires passageway through furniture

Example B



Requirements for glazing

Before looking at the requirements for glazing a conservatory, it is probably worth considering the different conservatory styles:

The Victorian

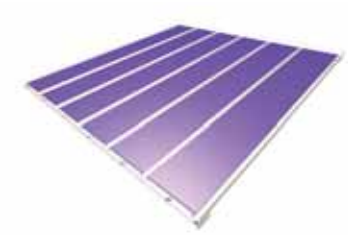
With its choice of three or five facet fronts, a Victorian-style conservatory can be adapted to suit any size or style of house.

The Georgian

The Georgian style conservatory typically has a square end. As a result it offers the maximum amount of interior floor area making it the perfect choice when the amount of space available to build on is limited.

Lean-to/Sunroom

The Lean-to also referred to as a Sunroom, is the ideal solution for those homeowners keen to realise a more understated or contemporary look. The roofs on a Lean-to can extent to a very low pitch and the style can complement almost every type of property.



Gable

Gable conservatories are recognisable from their rectangular floor plan. A major feature of this style is that the front elevation windows extend to meet the roofs apex. This helps to maximise the feeling of light and space.

Bespoke

Most conservatory companies can mix and modify the popular designs listed above to create a truly individual conservatory. Alternatively, customers can, in many cases, commission their own design.

Considerations for glazing a conservatory

North facing conservatories

North facing conservatories require efficient insulation and heating due to the fact that they receive little direct sunlight in the winter months. The use of an insulating glass in the windows and Celsius glass in the roof is advisable. If radiators are to be used to heat the conservatory, Planning Approval must also be sought (unless they can be isolated from the rest of the central heating system).

East facing conservatories

East facing conservatories are perfectly positioned to enjoy the early morning sun. However they could also be exposed to easterly winds.

South facing conservatories

This is regarded as the ideal position for a conservatory as it will receive the highest levels of sunlight throughout the year. At times however, temperature levels could become unbearable due to the sun being magnified through the roof glazing material. An effective solution to help alleviate this potential problem is to use Celsius or Celsius+ glass in the roof.

West facing conservatories

West facing conservatories are perfect for those customers looking to enjoy the summer sun in the afternoon and evenings.

For all types of conservatory

Toughened or laminated glass should always be used when:

- The bottom of the glass is situated 800mm or less from the finished floor level.
- The glass in a door is situated 1500mm or less from the finished floor level.
- The glass is adjacent to door jambs to a distance of 300mm or less.

Cavity trays and Lead flashing

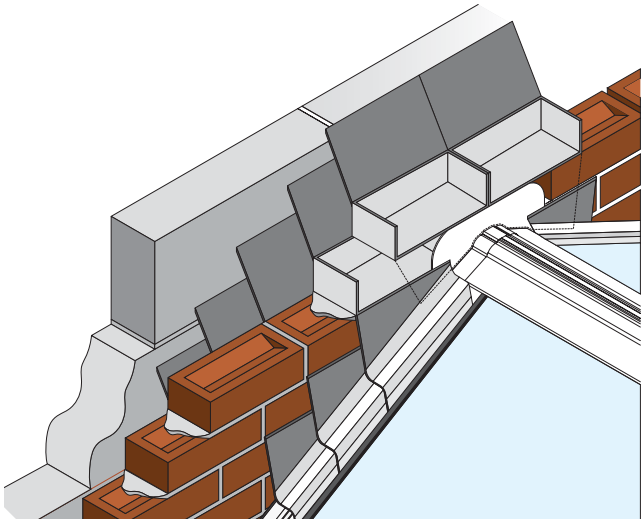
Cavity trays

When the proposed conservatory joins to the existing building, the original external wall will become an internal wall. As such, consideration must be given to the condition of its brickwork and to any windows, fascias and soffits. If the brickwork and/or mortar is porous or perished, this could Lead to the wall being susceptible to water ingress.

In this situation the installation of a cavity tray system is advisable to prevent moisture entering the new conservatory. There is a cavity tray system for virtually every application and if you are in any doubt about which system to use, simply contact your local building supplier or distributor.

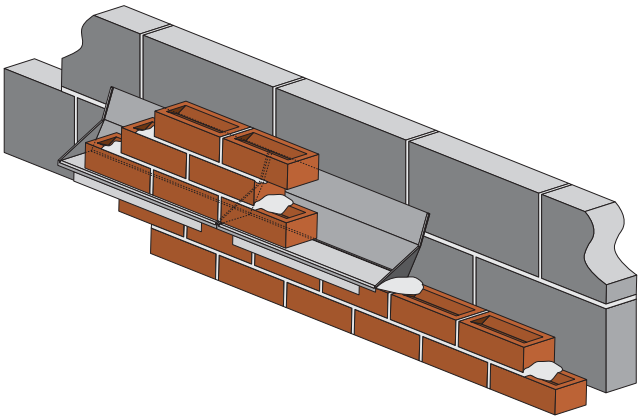
Installing cavity trays – Victorian/Georgian conservatories

To install a cavity tray within a Victorian or Georgian conservatory, start by marking out the wall against which the conservatory will be constructed. This can be done either by using the information contained within this guide (see information on Mark and Grind) or by forming an A-frame template. The relevant bricks should then be removed using an angle grinder and the individual cavity trays installed and bedded on mortar. The bricks should then be replaced. The process should be repeated for the full length of the bars creating a continuous DPC barrier. Replicate the process on all relevant walls.

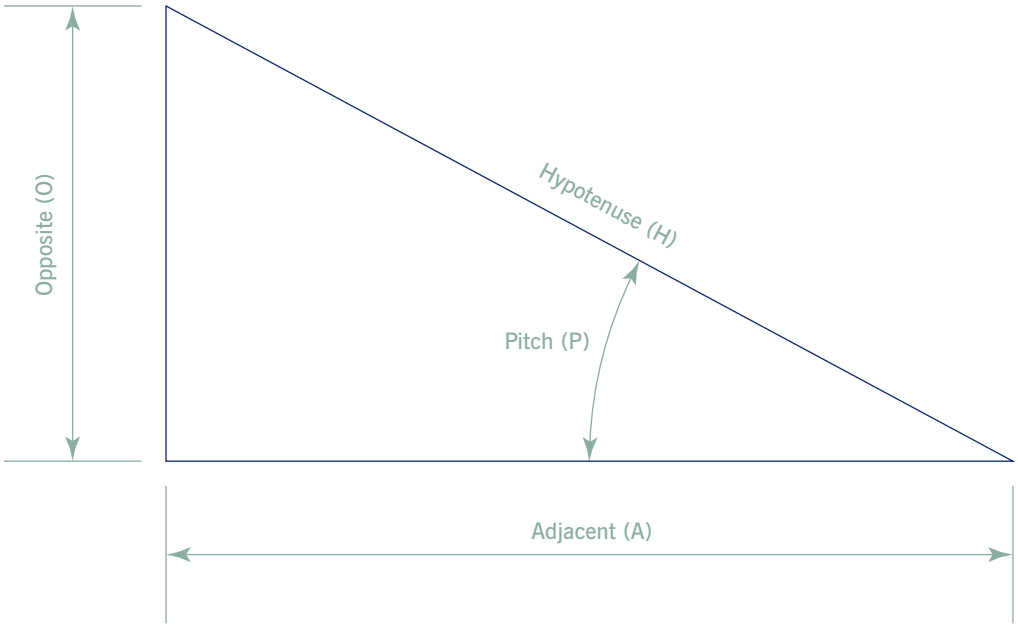


Installing cavity trays - Lean-to/Sunroom conservatories

Using the information supplied on the conservatory specifications, mark out the course of brickwork to be removed. Using an angle grinder carefully remove the mortar joints between the bricks to a distance of 600mm. Insert the cavity tray and replace the brickwork. Repeat the procedure until the full length of the Wallplate has been covered.



Typical calculations



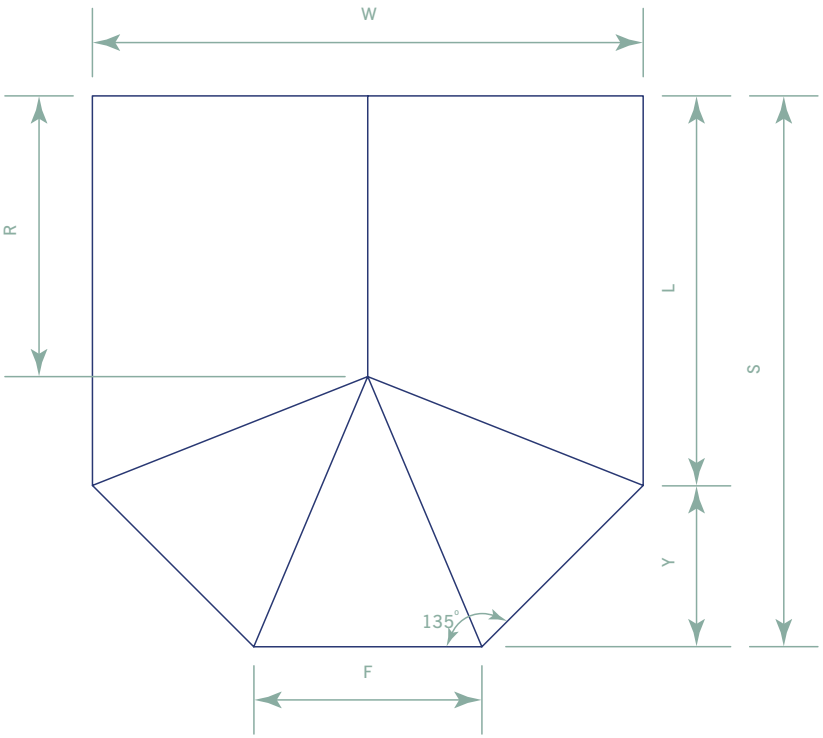
Length ‘O’	=	Length ‘A’	x	tan ‘P’
Length ‘A’	=	Length ‘O’	÷	tan ‘P’
Length ‘O’	=	Length ‘H’	x	sin ‘P’
Length ‘H’	=	Length ‘O’	÷	sin ‘P’
Length ‘A’	=	Length ‘H’	x	cos ‘P’
Length ‘H’	=	Length ‘A’	÷	cos ‘P’

Typical calculations

3 Segment/Equal Facets

W = Width
S = Overall Projection
F = Facet Width
Y = Bay Projection
L = Return
R = Ridge

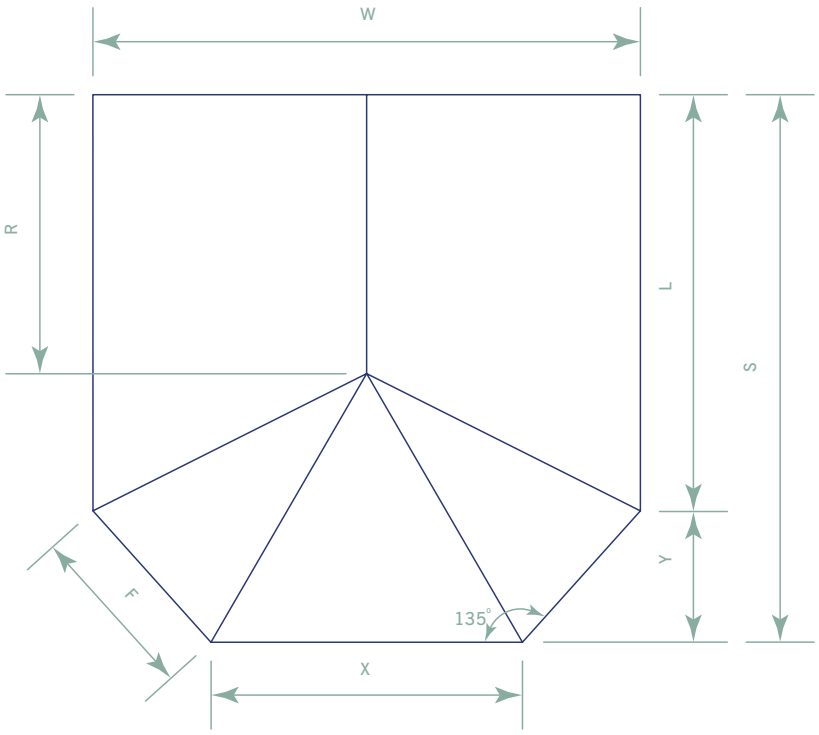
Facet angles=135°
F = W x 0.414
Y = W x 0.293
R = S - 1/2W
L = S - Y



3 Segment/Unequal Facets

W = Width
S = Overall Projection
F = Facet Width
Y = Bay Projection
L = Return
R = Ridge
X = Facet Width
(to be pre-determined)

Facet angles=135°
F = W x 1.414
Y = W - X/2
R = S - 1/2W
L = S - Y

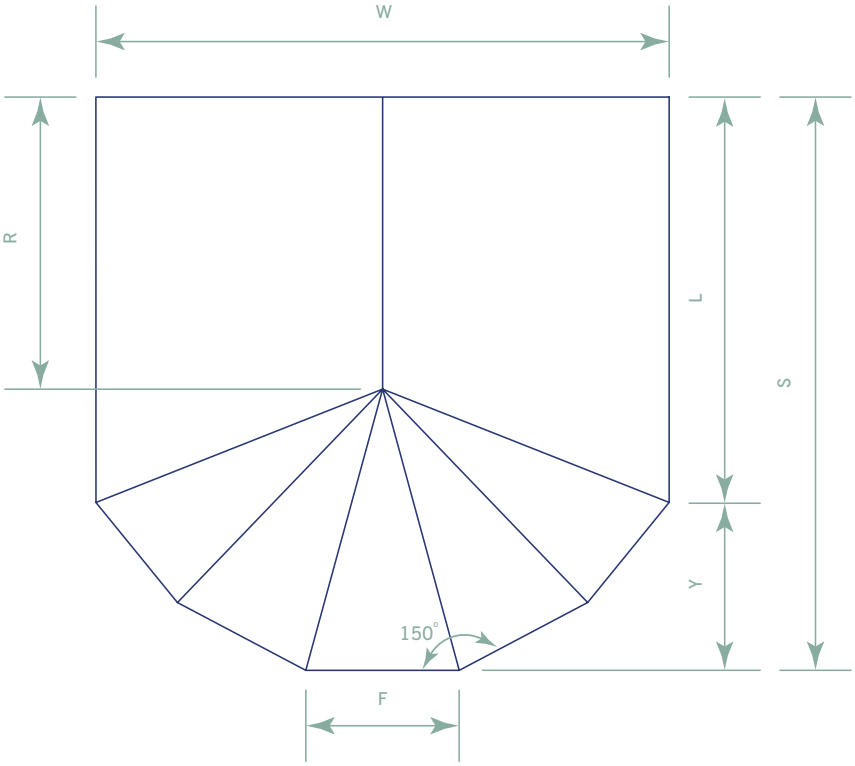


Typical calculations

5 Segment/Equal Facets

W = Width
S = Overall Projection
F = Facet Width
Y = Bay Projection
L = Return
R = Ridge

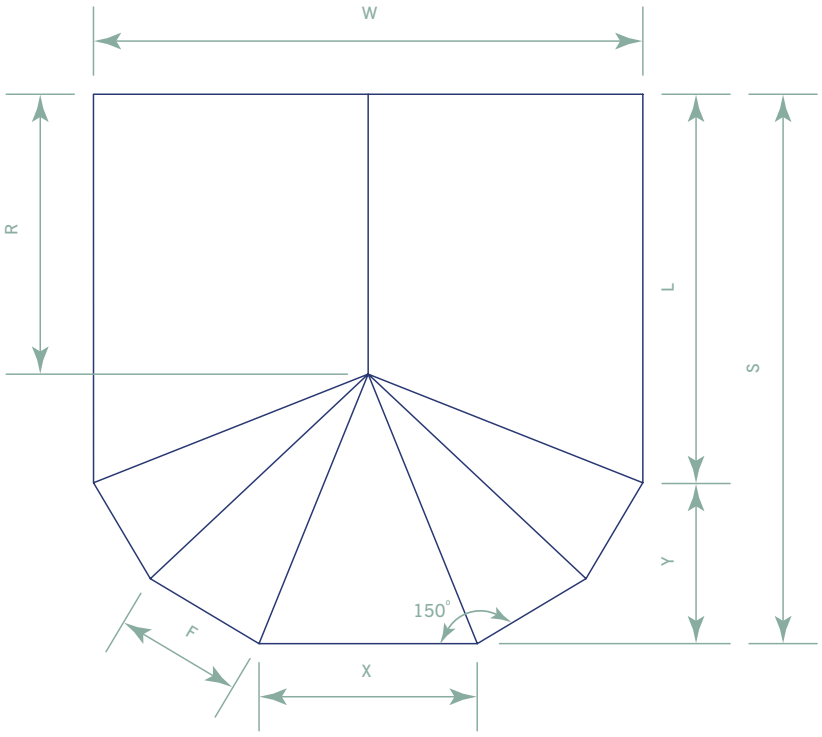
Facet angles=150°
F = W x 0.2679
Y = W x 0.3657
R = S - 1/2W
L = S - Y



5 Segment/Unequal Facets

W = Width
S = Overall Projection
F = Facet Width
Y = Bay Projection
L = Return
R = Ridge
X = Facet Width
(to be pre-determined)

Facet angles=150°
F = W x 0.7325
Y = W - X/2
R = S - 1/2W
L = S - Y

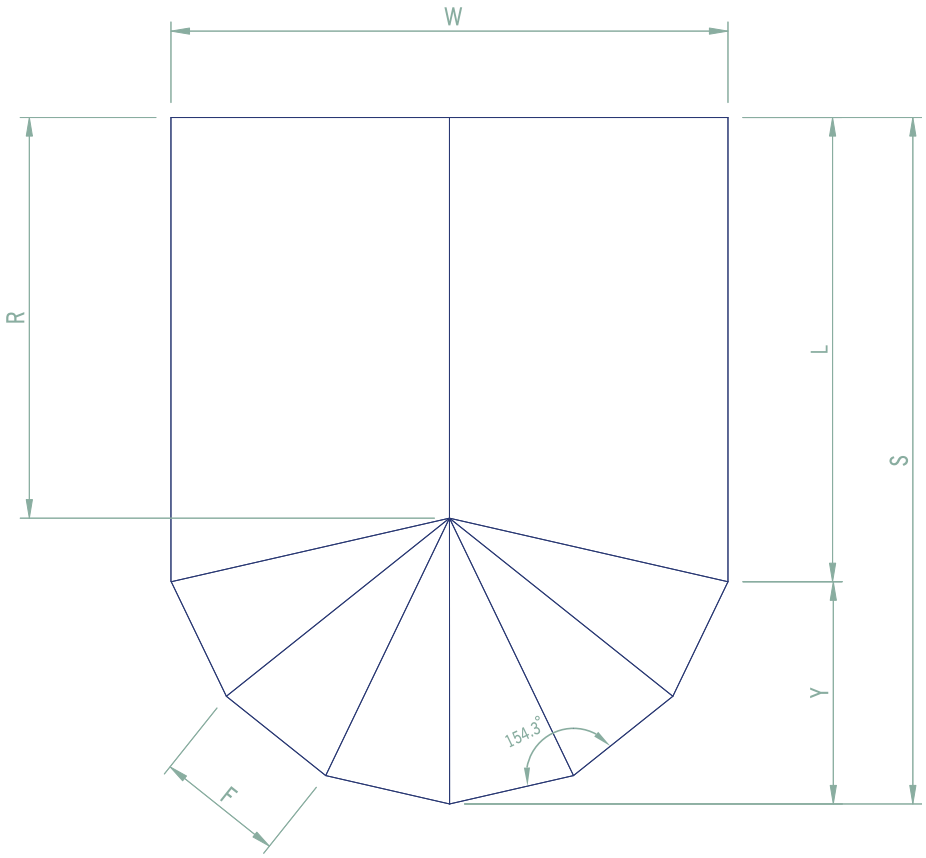


Typical calculations

6 Segment/Equal Facets

W = Width
S = Overall Projection
F = Facet Width
Y = Bay Projection
L = Return
R = Ridge

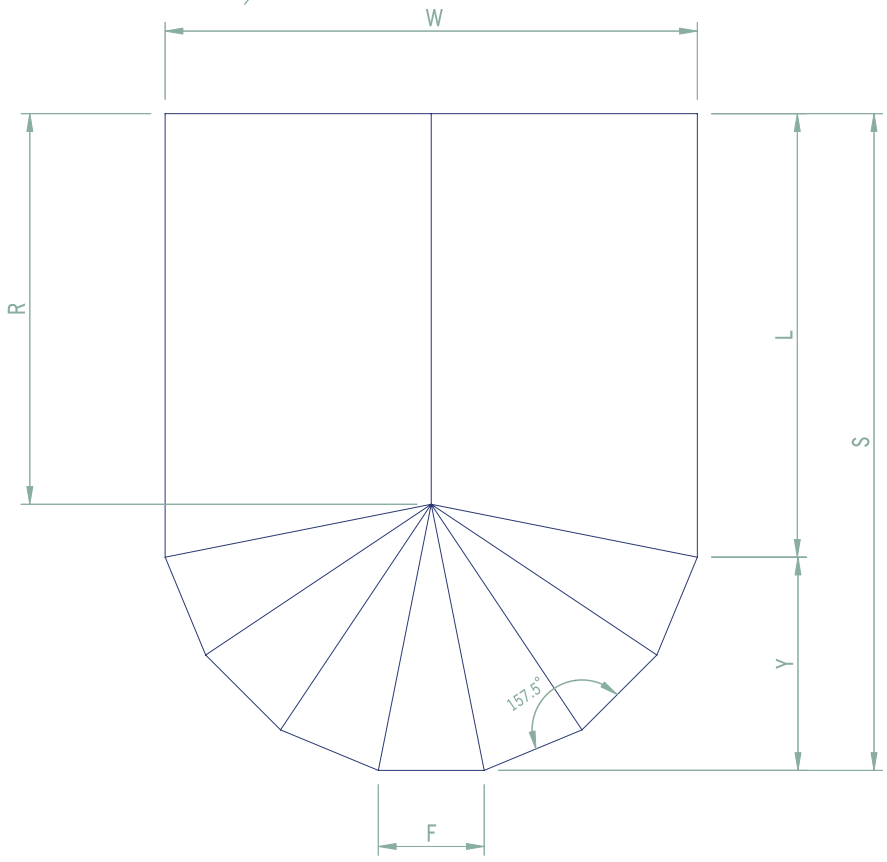
Facet angles=154.3°
F = W x 0.2282
Y = W x 0.3987
R = S - 1/2W
L = S - Y



7 Segment/Equal Facets

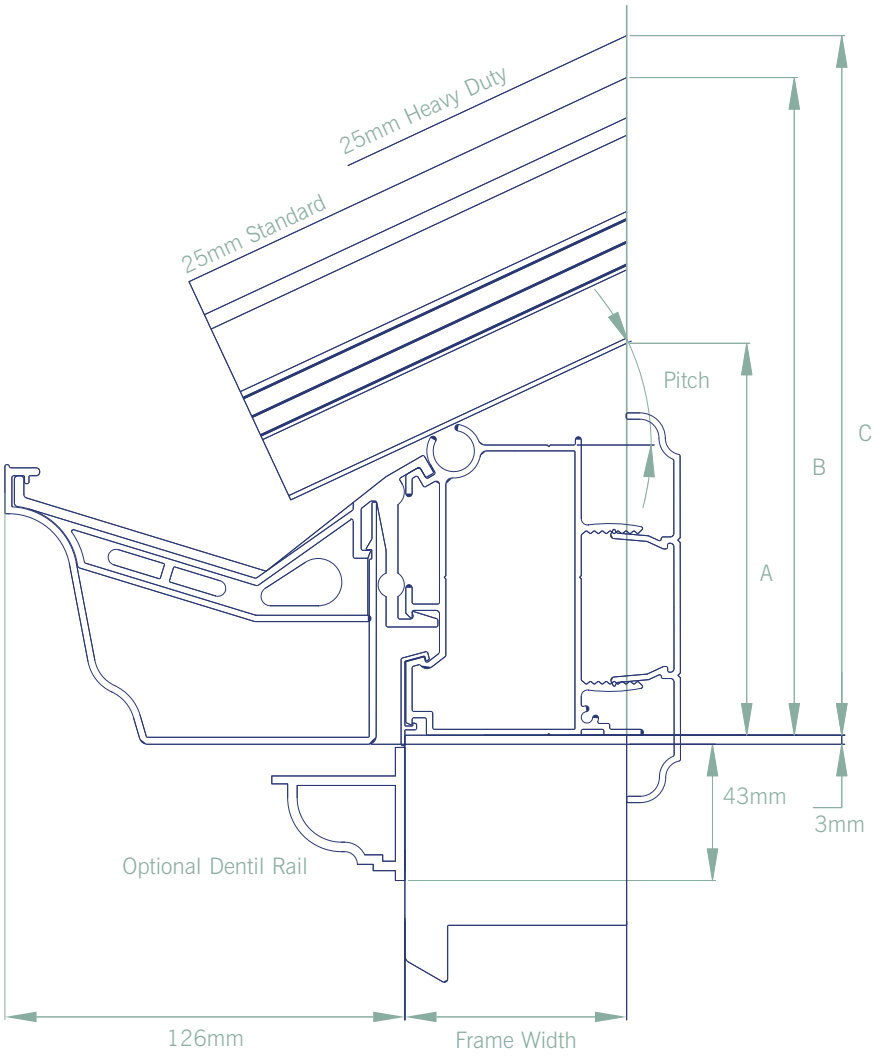
W = Width
S = Overall Projection
F = Facet Width
Y = Bay Projection
L = Return
R = Ridge

Facet angles=157.5°
F = W x 0.1989
Y = W x 0.4005
R = S - 1/2W
L = S - Y



Survey guide
Typical calculations

Eaves Beam



60mm Frames			
Roof Pitch °	A mm	B mm	C mm
5	101	178	190
10	105	183	195
15	110	188	201
20	114	195	208
25	119	203	216
30	124	212	226
35	130	223	238

70mm Frames			
Roof Pitch °	A mm	B mm	C mm
5	103	173	191
10	107	184	197
15	112	191	203
20	118	199	211
25	124	208	221
30	130	218	232
35	137	230	245

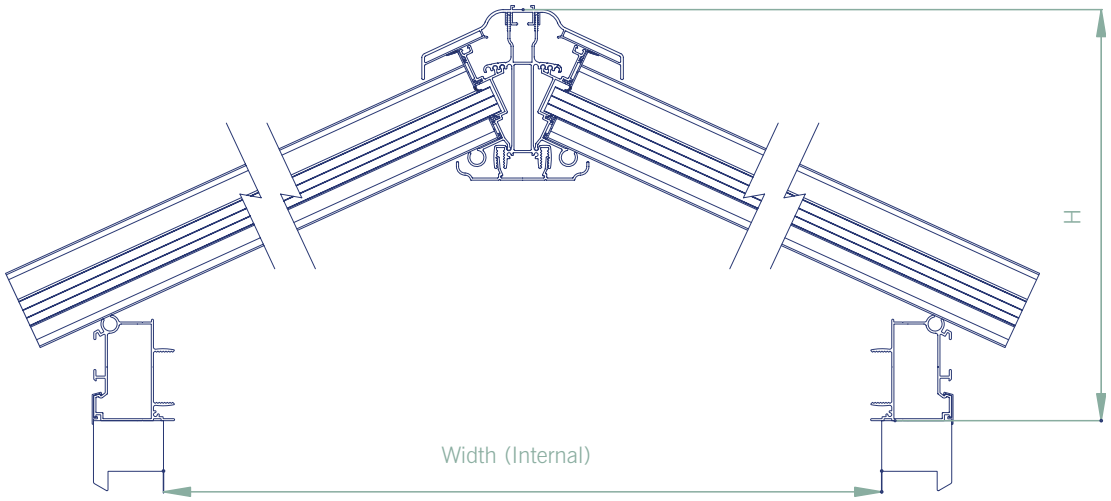
A=underside Eaves Beam to underside of Glazing Bar

B=underside Eaves Beam to Glazing Bar Top Cap (25mm Standard Transom)

C=underside Eaves Beam to Glazing Bar Top Cap (25mm Heavy Duty Transom)

Survey guide
Typical calculations

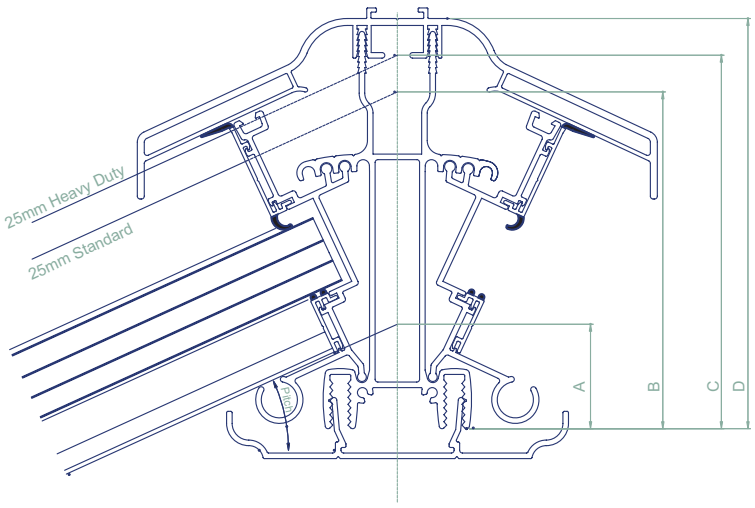
Ridge Heights



	20° Total Height (H)				25° Total Height (H)				30° Total Height (H)				35° Total Height (H)			
	60mm		70mm		60mm		70mm		60mm		70mm		60mm		70mm	
Width	STD	HD	STD	HD	STD	HD	STD	HD	STD	HD	STD	HD	STD	HD	STD	HD
3000	774	787	778	791	927	942	932	947	1098	1113	1104	1119	1287	1302	1294	1309
4000	956	969	960	973	1161	1176	1166	1181	1387	1402	1393	1408	1637	1652	1644	1659
5000	1138	1151	1412	1155	1394	1409	1399	1414	1675	2747	1681	1696	1988	2003	1995	2009
6000	1320	1333	1324	1337	1627	1642	1632	1647	1964	1979	1970	1985	2338	2353	2345	2360
7000	1502	1512	1506	1519	1860	1875	1865	1880	2253	2268	2259	2274	2688	2703	2695	2710
8000	1684	1697	1688	1701	2093	2108	2098	2113	2541	2556	2547	2562	3038	3053	3045	3060
9000	1866	1879	1870	1883	2325	2341	2331	2346	2830	2845	2836	2851	3388	3403	3395	3410

All measurements are in mm unless otherwise stated.

Ridge Heights					
Roof Pitch °	A mm	B mm	C mm	D (STD) mm	D (HD) mm
20	36	116	129	150	163
25	38	121	134	148	163
30	40	127	140	148	163



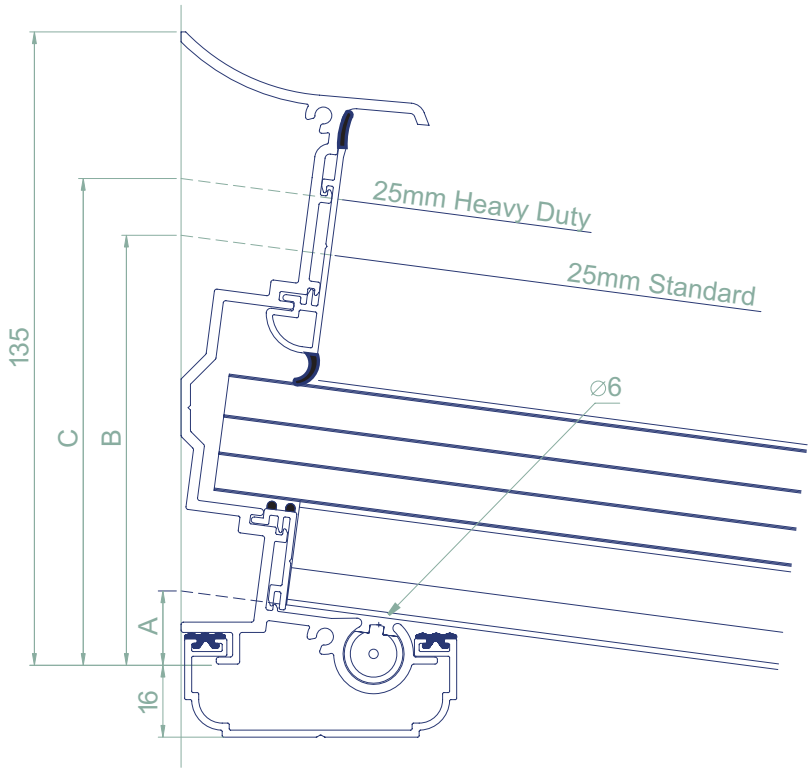
A=underside Ridge assembly to underside of Glazing Bar

B=underside Ridge assembly to Glazing Bar Top Cap (25mm Standard Transom)

C=underside Ridge assembly to Glazing Bar Top Cap (25mm Heavy Duty Transom)

Survey guide

25mm 5 - 10° Wallplate



Roof Pitch °	A mm	B mm	C mm
5	14	89	102
7.5	16	92	104
10	18	94	106

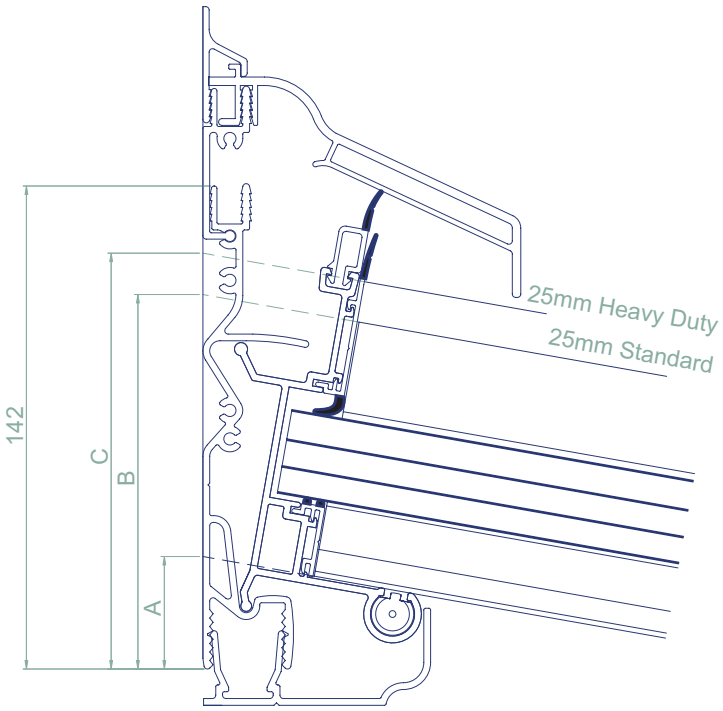
A=underside Wallplate to underside of Glazing Bar

B=underside Wallplate to Glazing Bar Top Cap (25mm Standard Transom)

C=underside Wallplate to Glazing Bar Top Cap (25mm Heavy Duty Transom)

Survey guide
Typical calculations

25mm Variable Wallplate 5 - 17.5°



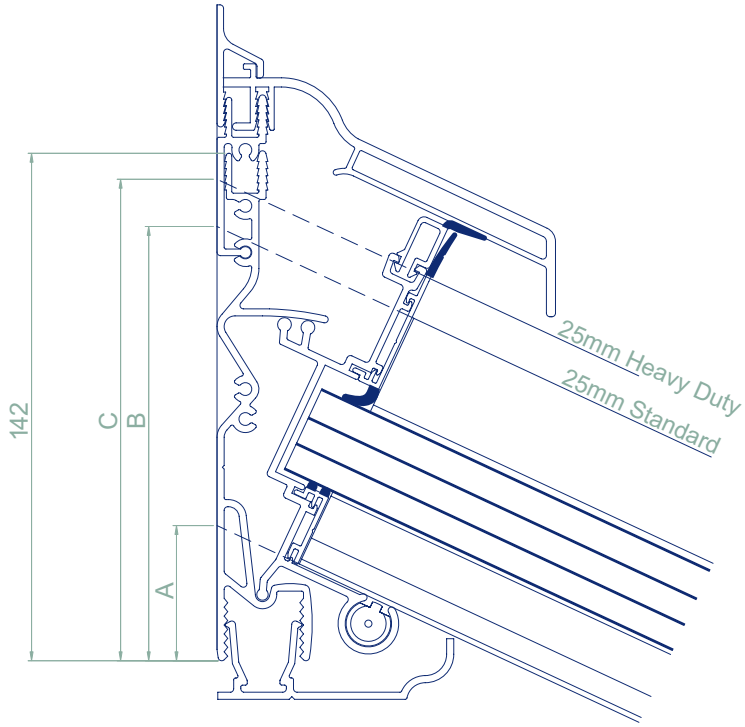
Roof Pitch °	A mm	B mm	C mm
5	32	108	120
10	33	110	123
15	35	113	126

A=underside Wallplate to underside of Glazing Bar

B=underside Wallplate to Glazing Bar Top Cap (25mm Standard Transom)

C=underside Wallplate to Glazing Bar Top Cap (25mm Heavy Duty Transom)

25mm Variable Wallplate/Half Ridge



Roof Pitch °	A mm	B mm	C mm
5	32	108	120
10	33	110	123
15	35	113	126
20	36	117	130
25	38	122	135
30	40	128	142

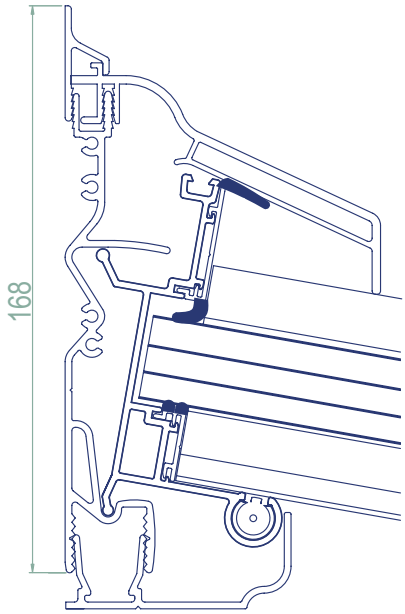
A=underside Wallplate to underside of Glazing Bar

B=underside Wallplate to Glazing Bar Top Cap (25mm Standard)

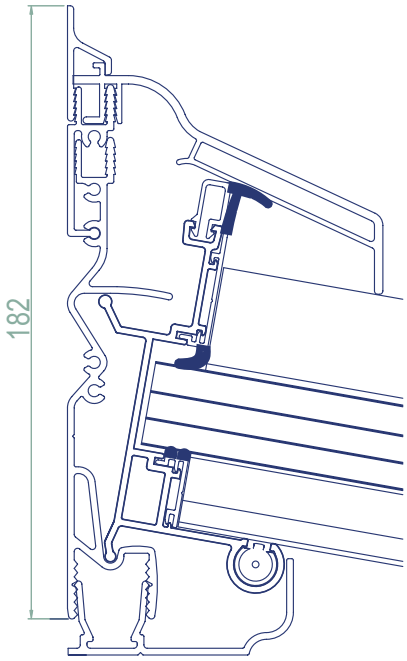
C=underside Wallplate to Glazing Bar Top Cap (25mm Heavy Duty)

Survey guide
Typical calculations

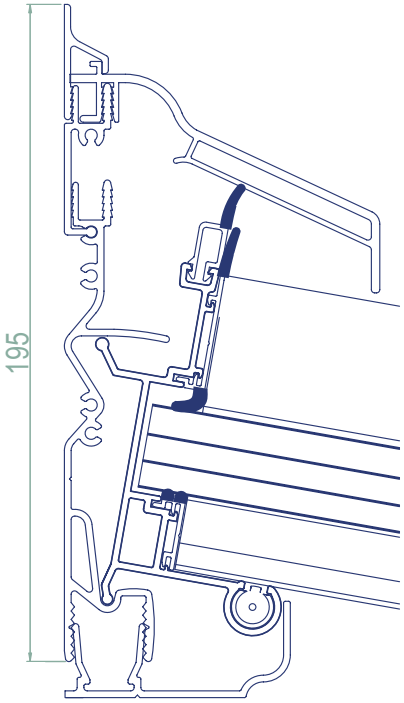
Total height from bottom of Wallplate to top of Aluminium Flashing Section



Wallplate with no Adaptor



Wallplate with Adaptor in position one



Wallplate with Adaptor in position two

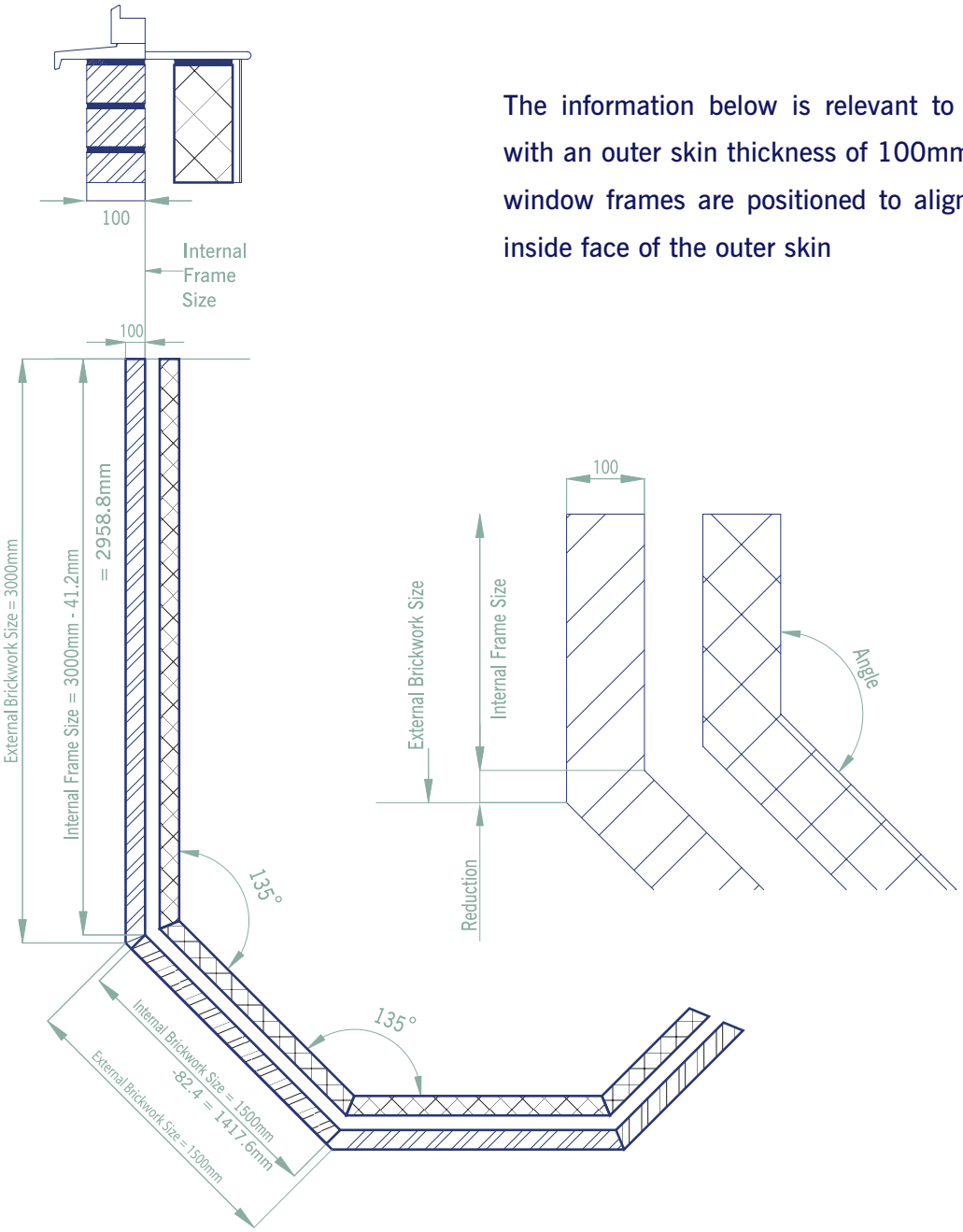
25mm STANDARD

Wallplate Pitch °	5	10	15	20	25	30
Adaptor/ Position	Position 2	Position 1	Position 1	No Adaptor	No Adaptor	No Adaptor

25mm HEAVY DUTY

Wallplate Pitch °	5	10	15	20	25	30
Adaptor/ Position	Position 2	Position 2	Position 1	Position 1	Position 1	Position 1

External brickwork to internal frame size relationship



The information below is relevant to brickwork with an outer skin thickness of 100mm only and window frames are positioned to align with the inside face of the outer skin

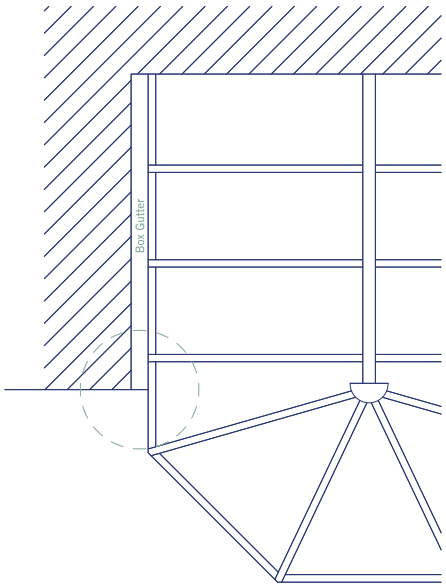
Corner Reductions - External Brickwork to Internal Frame Size

Angle (°)

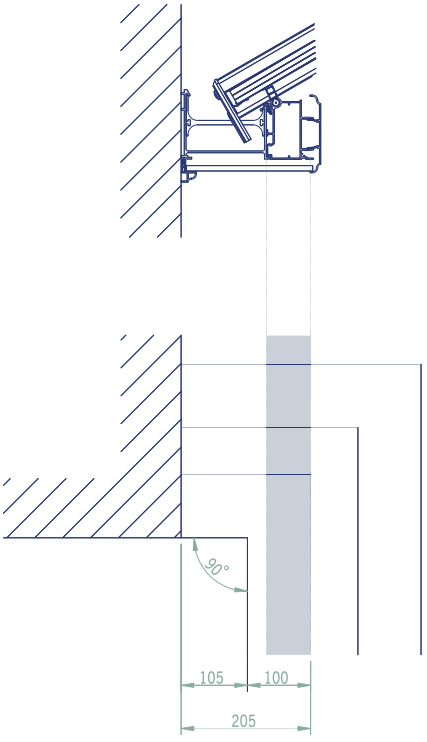
90	100	110	120	130	140	150	160	170	180
100	90	80	70	60	50	40	30	20	10	0

Reduction (mm)

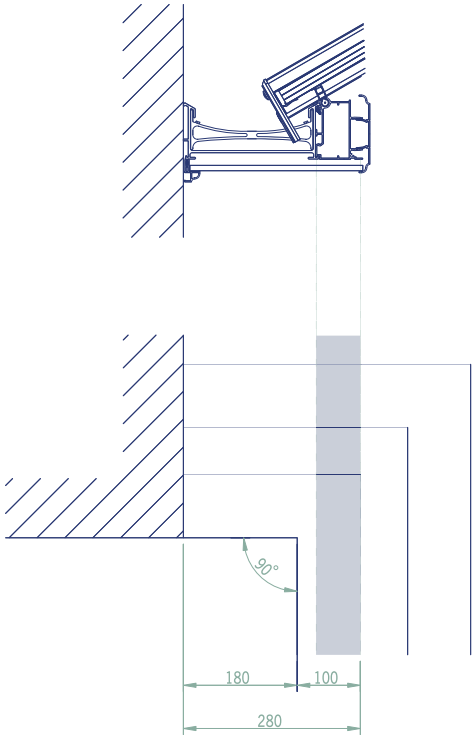
Box Gutter setting out details 90°



Sizes stated below are relevant to 70mm frame widths and an external brick thickness of 100mm

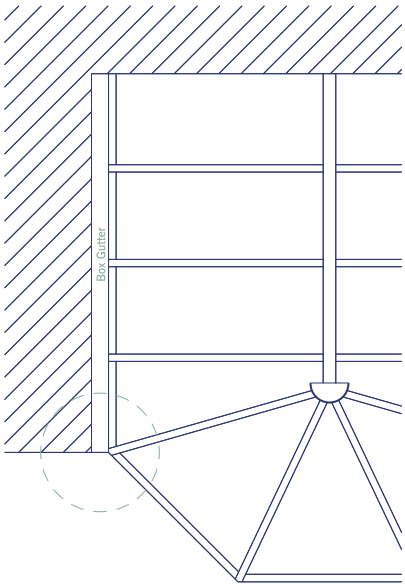


135mm Box Gutter

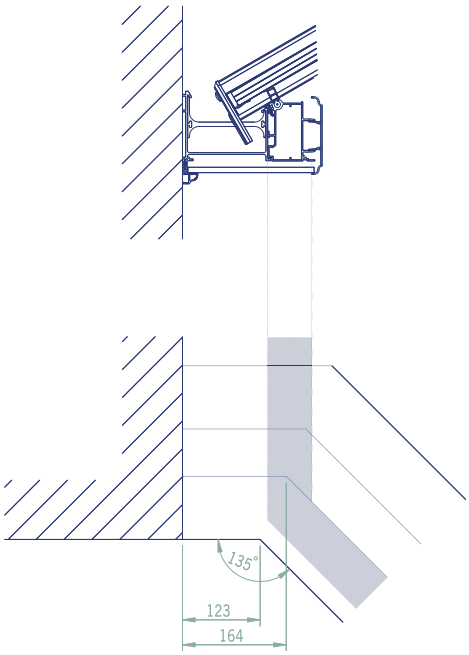


210mm Box Gutter

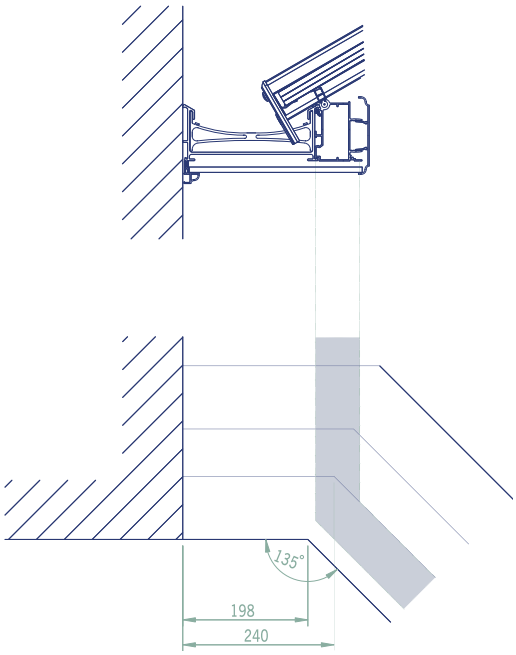
Box Gutter setting out details 135°



Sizes stated below are relevant to 70mm frame widths and an external brick thickness of 100mm

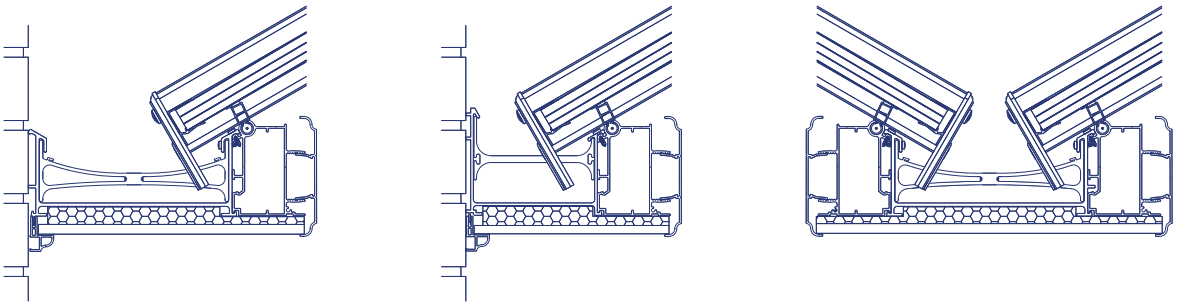


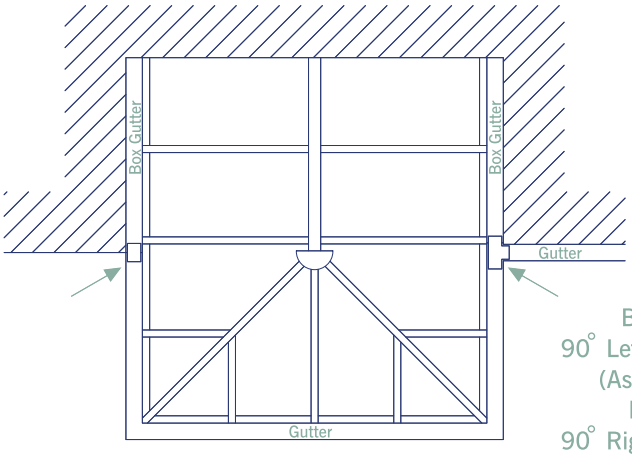
135mm Box Gutter



210mm Box Gutter

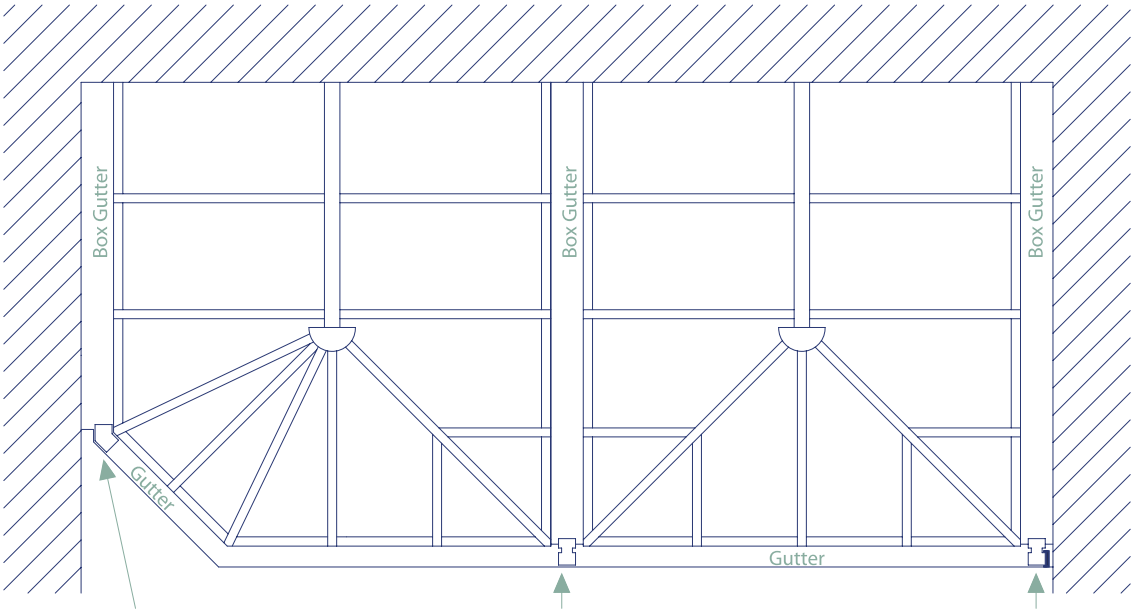
Box Gutter Adaptor selection guide





BGA 1
Inline Left Hand
(As shown)
BGA 2
Inline Right Hand
(Opposite to shown)

BGA 12
90° Left Hand Inline
(As shown)
BGA 11
90° Right Hand Inline
(Opposite to shown)

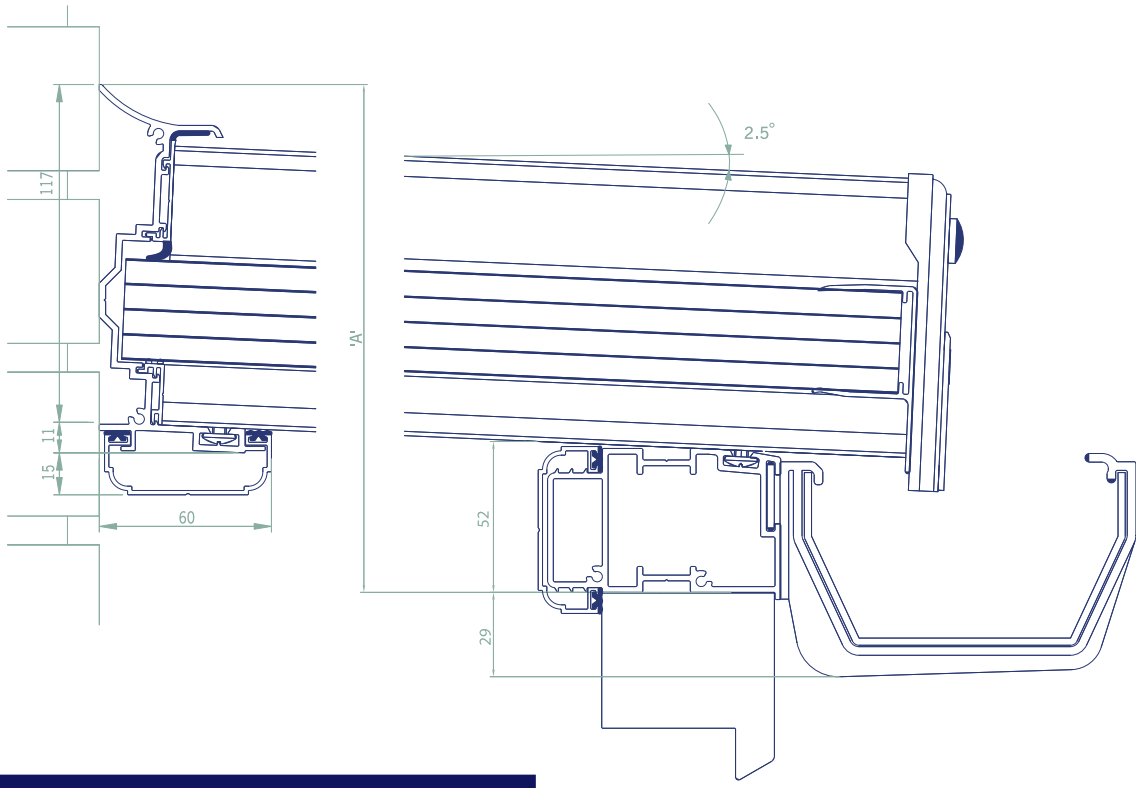


BGA 5
135° Left Hand
(As shown)
BGA 6
135° Right Hand
(Opposite to shown)

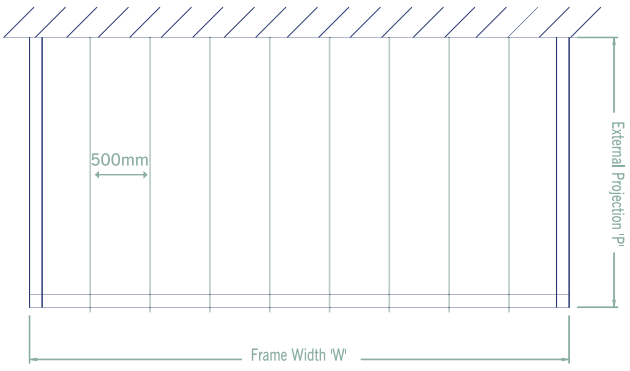
BGA 9
Universal 'T'

BGA 9
Universal 'T'
with Stop End

Survey guide L2 in a pack



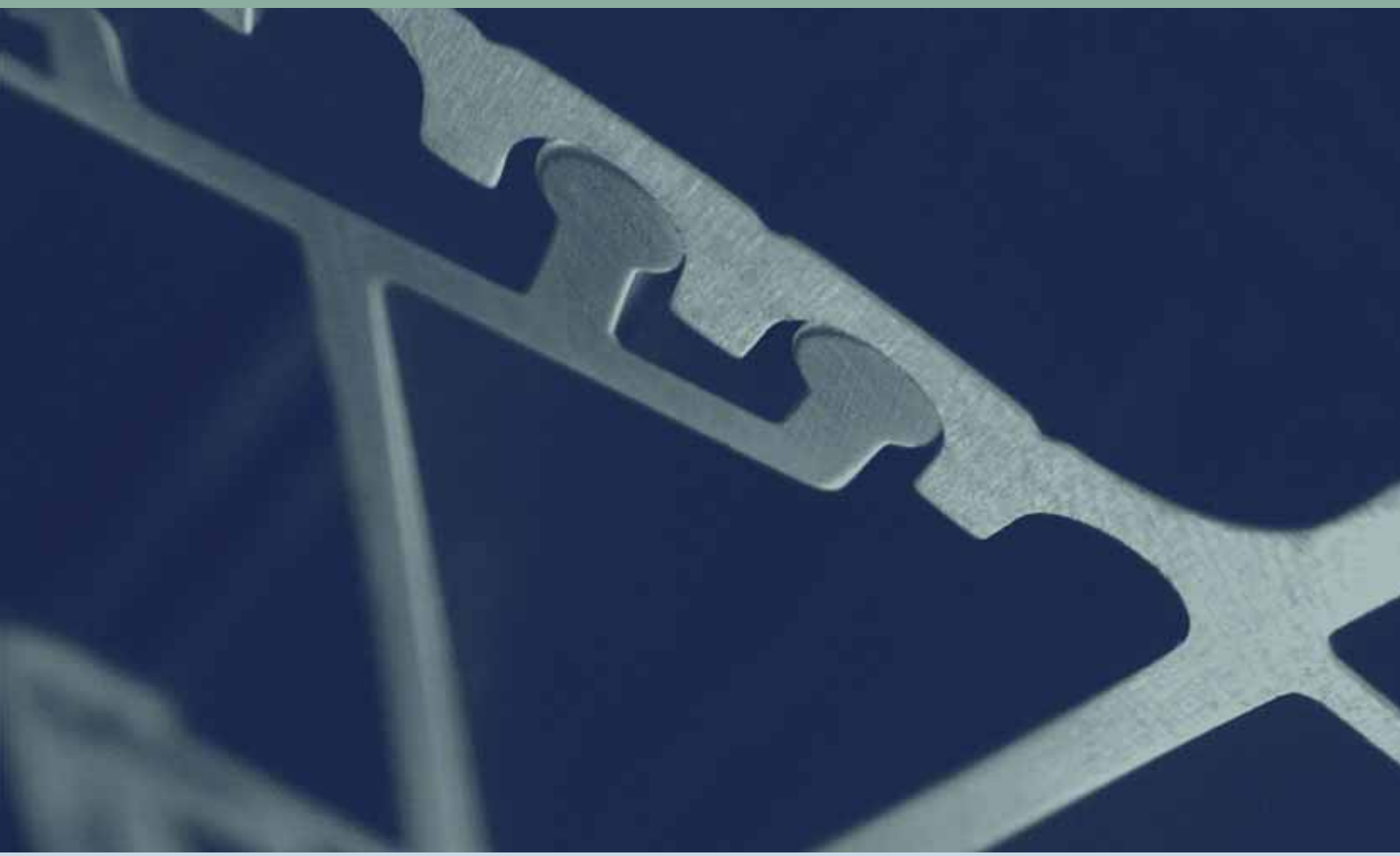
External front frame projection		
Modular Projection mm	External Projection 'P' mm	Dimension 'A' mm
2000	1976	252
2500	2476	274
3000	2975	296
3500	3475	318
4000	3974	340
4500	4474	361
5000	4973	383
6000	5972	427



External front frame width to use standard panel widths	
Modular Width mm	External Width 'W' mm
1500	1552
2000	2052
2500	2552
3000	3052
3500	3552
4000	4052
4500	4552
5000	5052
5500	5552
6000	6052
6500	6552
7000	7052
7500	7552
8000	8052
8500	8552
9000	9052
9500	9552
10000	10052
10500	10552
11000	11052
10500	11552
12000	12052

Section Five

CONSERVATORY INSTALLATION - FROM FOUNDATION TO FINISH



Conservatory Base installation

All competent companies have a set procedure for conservatory installation. Work is scheduled, managed and controlled to ensure the contract is completed within the agreed time scale.

It is recommended that you break down the sequence of events into a number of key stages to help you keep the project on track:

1 Confirm with the client that the location, specifications, style and dimensions are all correct. When this has been agreed, ask the client to sign the contract.

2 Check that you are complying with any statutory requirements (see Section 1 of this Guide).

3 Confirm the availability and delivery date of base work materials.

4 Schedule the set out of the site and the excavation of foundations. (Where Building Regulations apply it is advisably to inform the local building control officer at this stage).

5 Install the conservatory base up to DPC/DPM level. (Where Building Regulations apply, contact the local Building Control Officer).

6 Construct dwarf walls if required.

Base Installation

When constructing a conservatory, the one area that can cause the most problems and also prove extremely expensive to rectify is the base work. The base work of a standard conservatory should be constructed to the same exacting standards as a small extension, even though they are usually exempt from building regulations. If these regulations are used as guidelines you can avoid expensive problems in the future.

Drainage

Locate and establish the depth of any drainage pipes that cross the area of the proposed conservatory. Relocation of any drainage pipes should be done in advance of the conservatory base being laid. When a foul drain is to be relocated, the local Building Control department will need to be contacted as such work must comply with Approved Document H (Drainage and Waste Disposal). In many areas of the country, regional water authorities have taken responsibility for underground foul drainage and your request may be passed on to them.

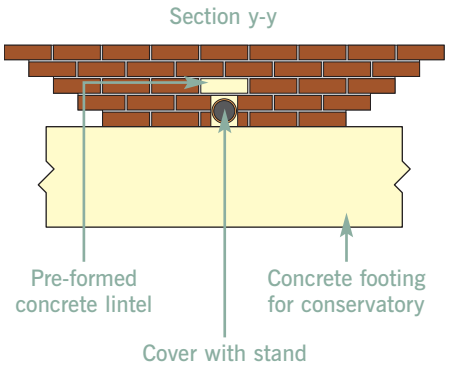
Protecting underground drains

By and large, the majority of conservatories are situated to the rear of a property – an area that is also home to most houses' kitchens, bathrooms and utility rooms. This inevitably means that drainage and pipework is frequently encountered. When it is not practical to divert the drainage around the conservatory then bridging over or encasing the drain will be required.

Strip foundations

It is recommended that when a drain passes through strip foundations, the two are kept separate. This will allow for different rates of settlement between the drain and the foundations. (See diagram 23)

Diagram 23



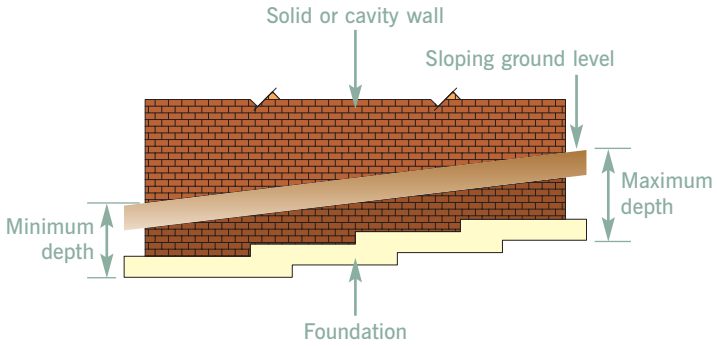
Trench fill foundation

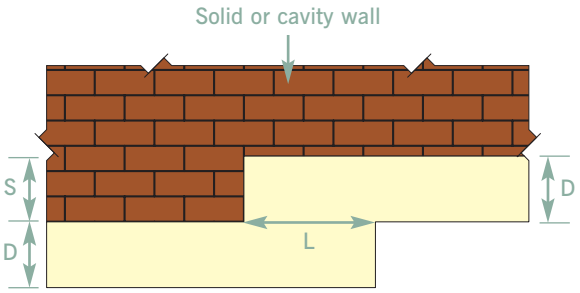
When a drain has to pass through a trench fill foundation, a pipe duct or box should be located in the foundation trench before any concrete is laid. This duct or box should be of such a size as to accept the drainage pipe with ease. Care must be taken when positioning the ducting as once the concrete has been laid, the ducting cannot be moved. Placing reinforcing rods in the concrete directly above the ducting will act as a lintel and give added support to the ducting.

Stepping foundation

Stepping foundation

Stepped foundations are usually considered in the context of strip foundations and are usually on sloping sites to reduce the amount of excavation and materials required to produce an adequate foundation.





Double seal manhole covers

When an existing manhole falls within the proposed conservatory site, you have two options. Firstly, you can relocate the manhole away from the conservatory base. If you do this, you must involve the local Building Control department as approval is required in England and Wales.

The second option is to use a doubled sealed manhole cover. This entails raising the original manhole to the height of the conservatory floor level. The condition of the existing manhole should be noted and any remedial work carried out.

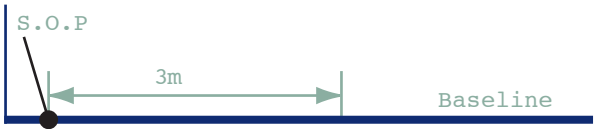
Ideally, depth of step (S) should be in multiples of brick courses with a maximum depth no greater than D.

Minimum overlap (L) =2 x S, D or 300mm whichever is the greater.

Setting out footings

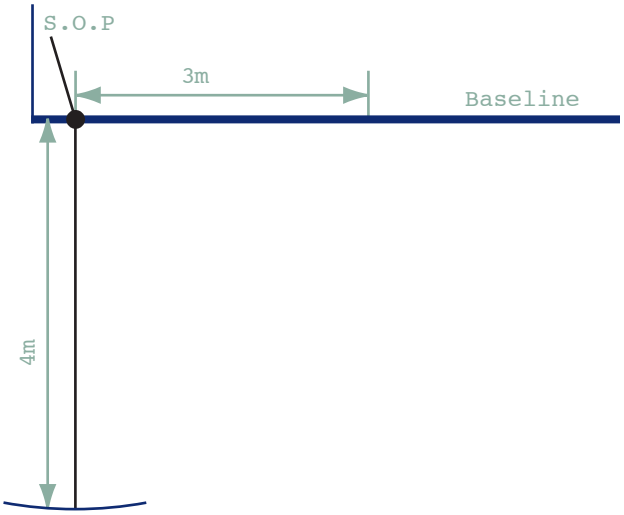
Stage 1

Choose a location to use as a setting out point (SOP). This is a start point from which to establish the outline of the site. You now need to establish a base line. This could be parallel to the main building. From the SOP measure along the base line a distance of 3m and mark this point.



Stage 2

Now return to the SOP. From this point and working at right angle to the baseline, measure and mark a distance of 4m and scribe an arc on the ground.

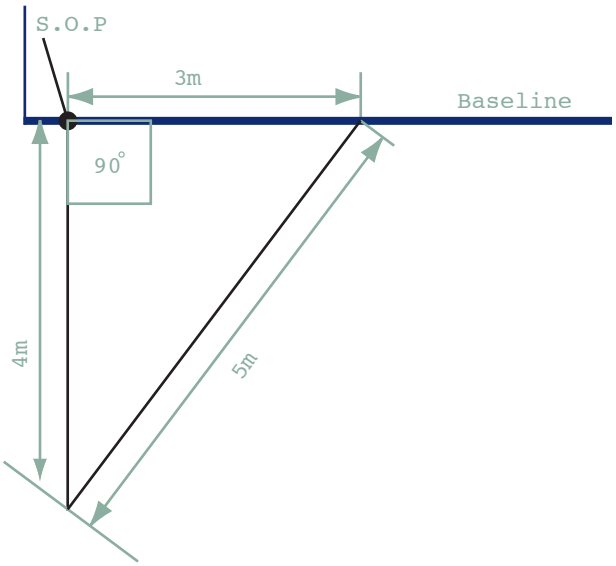


Stage 3

Place a tape measure on the 3m point on the baseline. Now walk towards the 4m arc extending the tape as you go. Where the 5m mark on the tape bisects the 4m arc, insert a stake. THIS GIVES YOU A RIGHT ANGLE.

Stage 4

Repeat this on the other three corners. Follow up each measurement by stretching a line between each post/stake to mark out the outline.



Stage 5

A final check to determine whether the base is square would be to measure across the diagonals, if the two dimensions correspond you can be sure the base is set out square.

Installation - building work

Guidelines on relocating a manhole

The new manhole base should be 100mm below the level of the foul water pipe, and approximately 1m².

1 Lay a base slab of 100mm thick concrete on which to construct the manhole.

2 Lay PVCu or terracotta pipes on to the new base slab and brick up two courses.

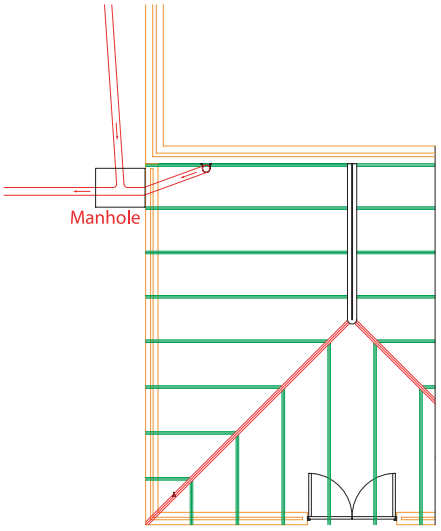
3 Back fill from the pipe to the top of the brickwork forming inverted sides. Proceed with the brickwork to the required height (z – z).

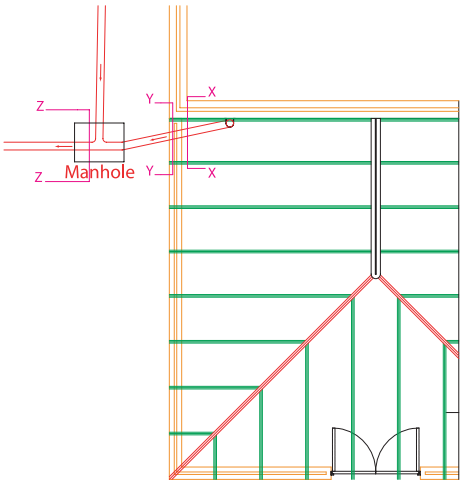
4 Carefully remove the brickwork from the old manhole chamber to the level of the drainage pipes.

5 Uncover pipes from the old manhole. Extend the pipework from the old manhole to the new manhole and re-cover with 100mm of concrete. Where the pipe work passes through the conservatory base wall, revert back to the details in this guide titled “relocating Underground Drains”.

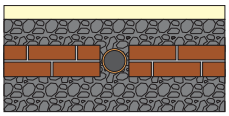
6 Cover old manhole to comply with building regulations (x –x).

Please note: All work connected to the relocation or modification of manholes and underground foul pipes comes under the jurisdiction of the local Building Control department.



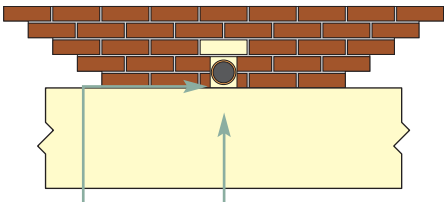


Section x-x



Dismantle old manhole and cover as shown

Section y-y

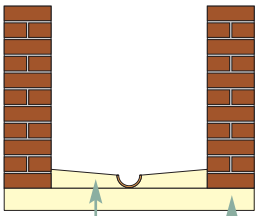


Pre-formed concrete lintel

Concrete footing for conservatory

Cover with stand

Section z-z



100mm concrete for manhole base

Fine concrete smooth finish

Soakaways

A soakaway is a hole excavated in porous ground which accepts rainwater discharged from roofs and paved areas. The hole is constructed so that water which collects in it is able to seep into the surrounding subsoil. To work effectively a soakaway must be designed with the following factors in mind:

- The absorption rate of the subsoil.
- The area to be drained.
- Whether the soakaway would be able to cope with a freak or ten year storm.

You should also contact the local authority as there may be set requirements as to how and where the soakaway must be constructed. You should also involve the local Building Control department as they may be able to advise you on water table height.

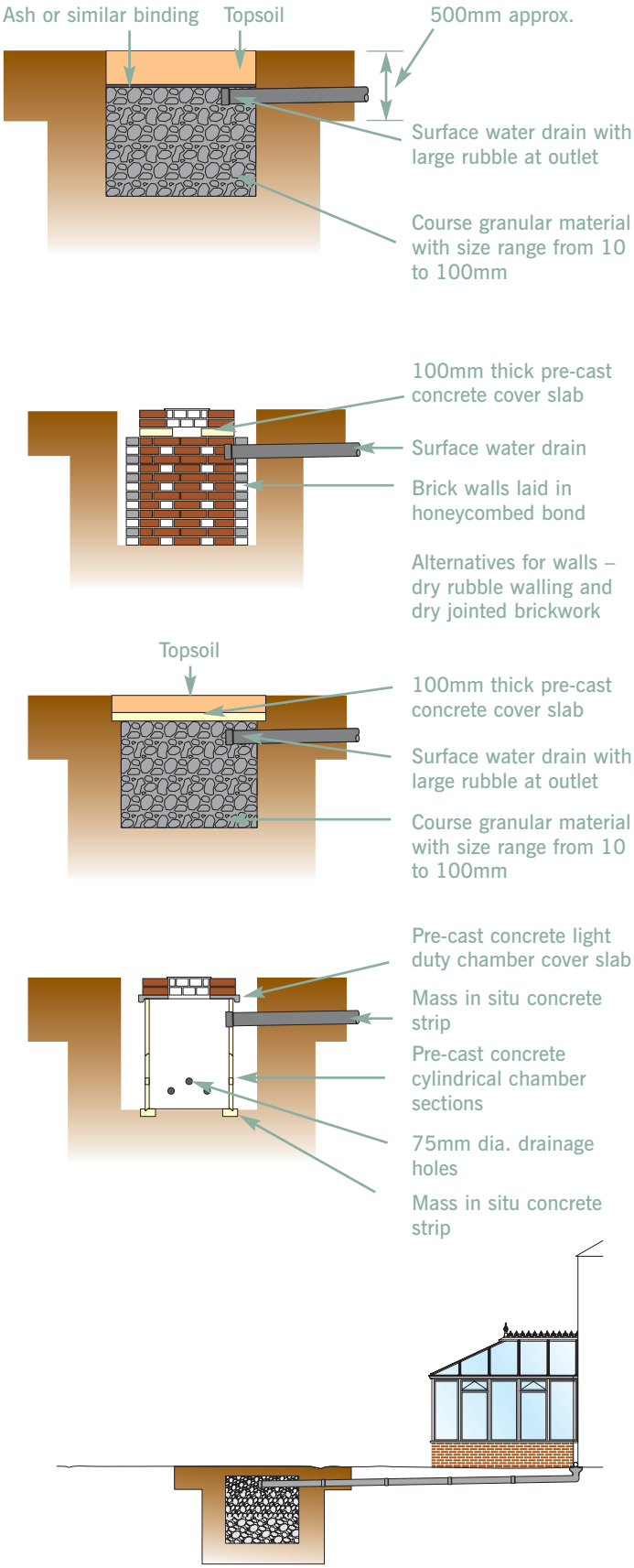
Water absorption and different types of soil

The rate at which water is absorbed in to the ground is almost completely dependent upon the type of soil. Sandy and gravely type soils are suited for use with a soakaway but clay type soils are not.

Calculating the volume of soakaway

When calculating the volume of a soakaway, you must allow for a storage capacity that is equal to a third of the hourly rainfall experienced by the area to be drained. The rate of rainfall corresponding to a two hour storm occurring on average not more than once in ten years is 0.015m.

Therefore if the area to be drained is 150m^2, the required capacity of the soak away is: 150m^2 x 0.015m = 3.375m^2.



Retaining walls

What are they?

Retaining walls are walls used at the boundary between different ground levels where the height of the ground on one side is different to that on the other. This is illustrated below right.

Retaining wall design

To ensure they are effective, great care should be taken in the design of retaining walls. Their performance is dependent both on the condition of the ground being retained and on the ground supporting the wall. The size of the base will also vary according to these ground conditions, however as a rule of thumb it should be equal to between a third and two thirds of the wall's height.

In addition, drainage behind the wall is essential in order to prevent the retained ground becoming waterlogged. This can be achieved by laying a perforated drain along the rear of the wall or by creating holes (weep holes) at intervals through the wall itself.

In short, the following factors must be considered:

- Identify the most appropriate retaining wall type for the situation (see right).
- Design the most economical wall for the conditions.
- Provide supporting calculations to prove the design and to satisfy your local authority Building Control department.
- Ensure the design is safe and stable.

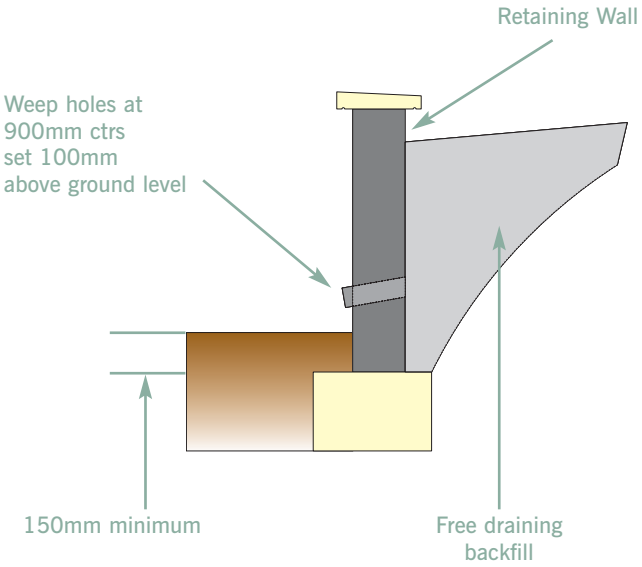
Retaining wall types

Reinforced masonry wall

This style of wall employs reinforcement to offer greater levels of strength than a normal masonry wall. As such, they can resist greater retained heights - typically of between 1.2 and 3.0m.

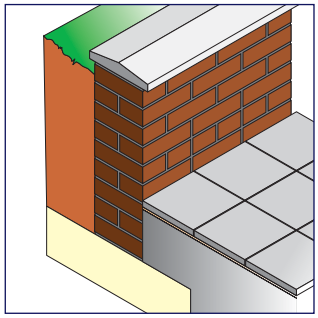
Reinforced concrete wall

Reinforced concrete is significantly stronger and more robust than masonry. This type of wall is also more resistant to water penetration. They are usual constructed at heights of 1.8m or more.

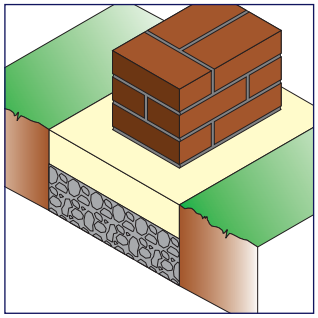


Building earth-retaining walls

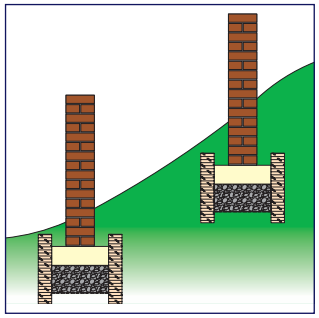
Remodelling the ground



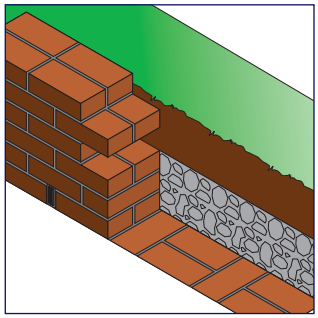
1 It is essential that the retaining wall is rigidly built on firm foundations if it's to hold the earth.



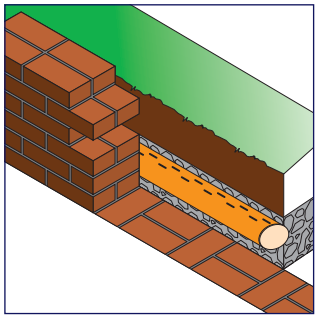
2 Decide on the size of the wall and create the base. The base should extend by half the wall's width on both sides and in depth.



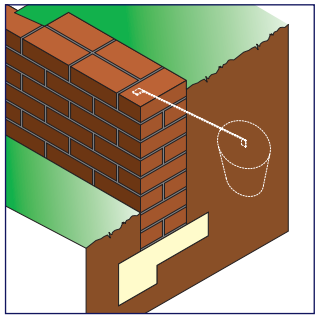
3 Make a series of terraces by casting stepped foundations in timber formwork.



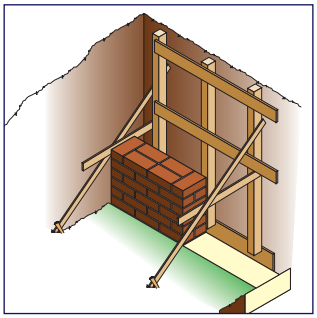
4 Create weep holes (unmortared gaps between bricks) to allow water to drain from the earth retained behind the wall.



5 If the soil is prone to water logging, it is advisable to lay field drains to assist drainage.



6 Stabilise with concrete castings on metal rods. A toe on the strip will also prevent landslides.

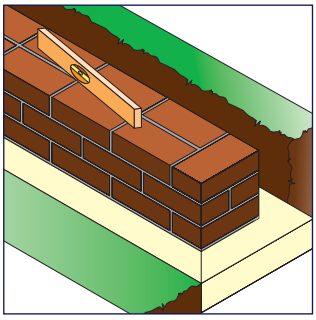


7 You may need to shore up a steep bank using struts and braces while the wall is built.

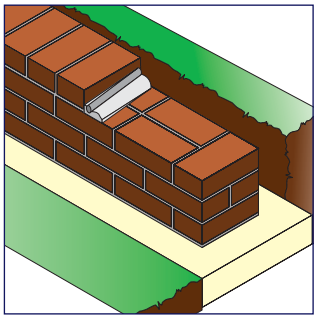
A sloping garden can be difficult to work with. However, creating a series of flat terraces can help to rectify this. If doing this with retaining walls, the walls must have enough mass and sufficient foundations to resist the lateral (sideways) pressure of the earth and any water it holds. For a typical wall measuring 1.2m high, you should build concrete strip foundations along the length of the wall. These foundations should be 500mm (20") wide and 150mm (6") thick and laid in a trench that is 500mm (20") below soil level.

Building earth-retaining walls

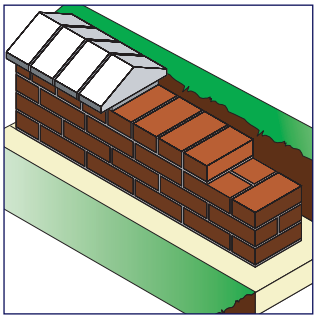
Building the wall



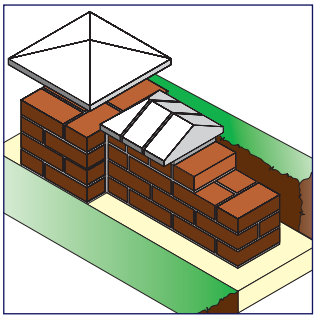
1 Build up the wall below ground level. The example shown uses English Garden Wall bond.



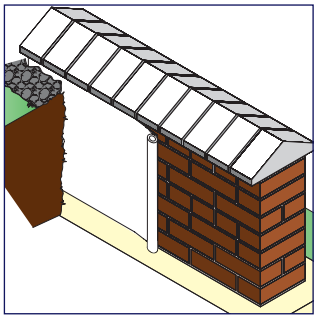
2 At ground level, bed short lengths of plastic pipe at a downward angle to serve as drainage holes.



3 Continue building up the wall (the example shown is utilising Flemish bond) and add bevelled copings at the top.



4 Top the piers with capping stones bedded into mortar to stop water penetration.



5 Tack 250-guage polythene to the back of the wall as a damp proof membrane.

Back-fill with a granular, porous material followed by well compacted soil.

A brick wall built to a minimum thickness of 225mm (9") or one brick thick will provide the strongest structure, however you can use other materials such as stone or concrete blocks. In all cases, the materials must be properly bonded in order to ensure the wall's strength. The most suitable bonds include English, Flemish and English Garden Wall. For increased strength, a stone wall should also lean into the bank.

Walls measuring over 1.2m in height should employ a supporting column at each end. Walls of this height and that extend over a long distance should also use supporting columns at set intervals along the wall's length.

A retaining wall is susceptible to dampness above as well as below ground, due to the pressure of moist earth against it. Providing there is adequate drainage in the structure, which prevents the retained earth from becoming waterlogged, this shouldn't pose a problem. However, it is always best to incorporate a damp proof membrane such as 250-guage polythene or coats of bituminous paint on the back face of the wall. You should also back fill with a granular, porous material such as pebbles or gravel and follow this with well compacted soil.

Setting out step flashing

Introduction

There are numerous ways of flashing the conservatory roof to the host wall. In this section we will go through the processes required to make the Lead work quick and effective. The tables below show the identification and specification and also in which situation each code of Lead should be used.

The term 'step flashing' is given to the flashings which weathers a pitched roof to brick/stonework. There are four main types of flashings used in conjunction with conservatory roofs:

1 Step flashing.

2 Step and cover flashing.

3 Flashing to coursed stonework.

4 Flashing to random/rubble walls.

Before installing flashing, the mortar should be ground out. It is advisable to do the grinding as early as possible as this will prevent the window frames and roof sections from becoming coated in mortar and brick dust - saving you time at the end of the job cleaning.

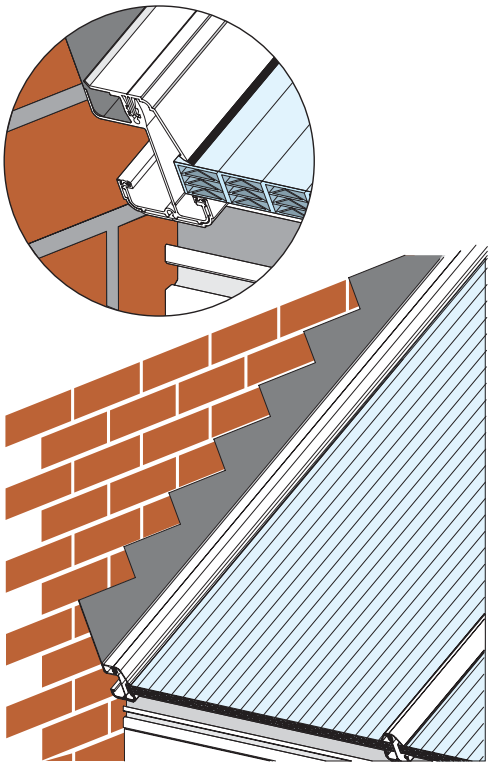
BS specification Code No.	Colour	Thickness (mm)
3	Green	1.25
4	Blue	1.80
5	Red	2.24
6	Black	2.50
7	White	3.15
8	Orange	3.55

Fixing position	BS specification Code No.
Small flats with no pedestrian traffic	4 or 5
Large flats with or without traffic	5, 6 or 7
Gutters - parapet, box or tapering valley	5 or 6
Dormer cheeks and roofs	4 or 5
Chimney flashings	4 or 5
Soaker	3 or 4
Cornices	5 or 6
Valleys, hip, ridge and cover flashings	4 or 5
Vertical cladding	4 or 5
Pipe weathering	4 or 5
Cornice weathering	4, 5 or 6
Damp-proof courses	3, 4 or 5

Setting out step flashing

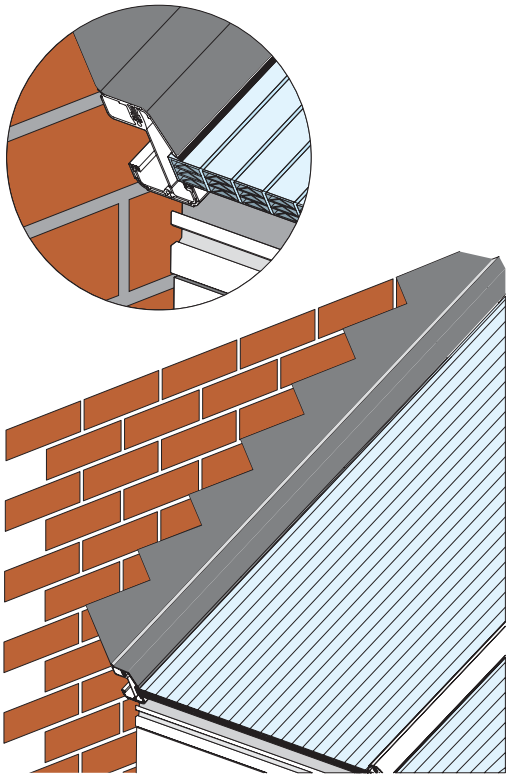
1 Step flashing

Step flashing should be done in runs of between 1.2 and 1.5m. These can be inserted either before or after the Glazing Bars have been installed, however they should always be in position before the glazing materials are fitted. This type of Lead flashing is only suitable for use with materials such as brick, where the horizontal joints are equally spaced and where a drainage channel is available on the Glazing Bar.



2 Step and cover flashings

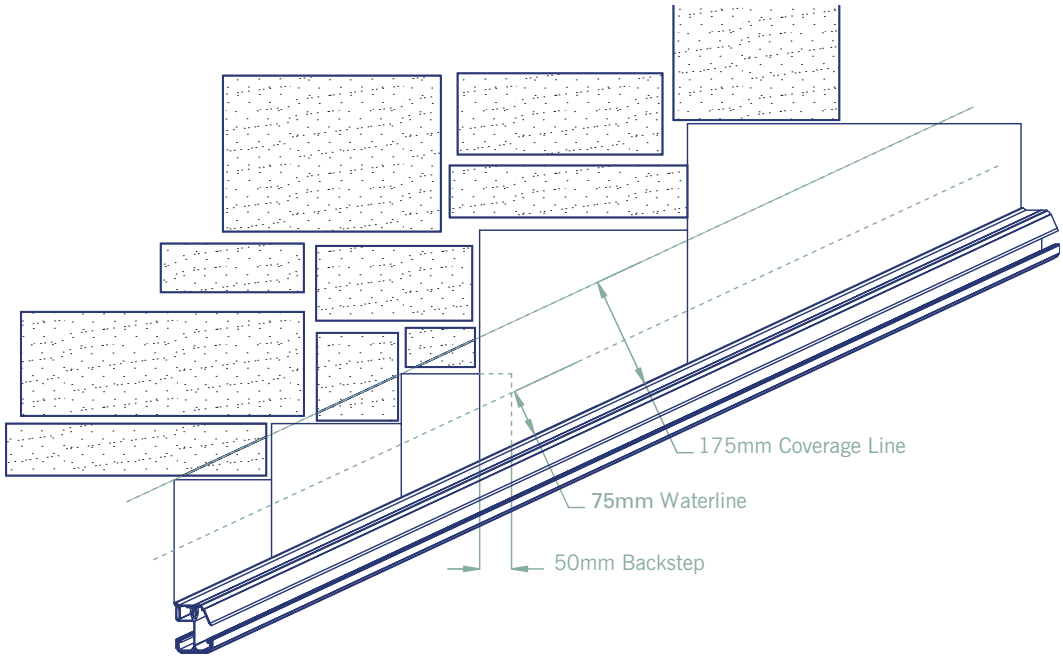
This style of flashing uses the same step finish as standard step flashing as well as the same lengths of material (i.e. 1.2 to 1.5m). Unlike step flashing however, the Lead isn't dressed into a drainage channel but over the Wall Bar Top Cap. Again, the Lead work can be installed either before or after the Wall Bar has been fitted but it can only be dressed down after the glazing material has been installed. This is because the Wall Bar Top Cap must be in place prior to this part of the process.

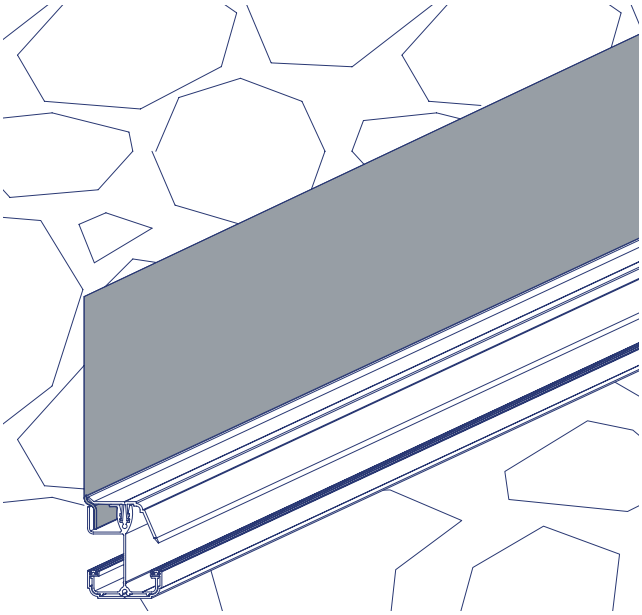


Setting out step flashing

3 Flashing to coursed stone

Where stones are laid to regular horizontal courses, it is possible to use step flashing. However owing to the uneven look of the steps, the preferred method is to use a separate piece of Lead for each step. As with the other types of flashing already mentioned, the Lead can either be dressed into the drainage channel or over the wall bar. There should always be at least a 70mm overlap on each individual flashing.





4 Flashing to random/rubble walls

Where random stonework is used, the best method of flashing is to cut a groove into the stone into which the Lead is to be installed. Again, you can either put the Lead into the drainage channel or form it on top of the wall bar. All runs should be between 1.2m and 1.5m with an over lap of at least 70mm.

Mark and grind

By using information the below you can mark and grind out the mortar required to accept the Lead flashings.

Step 1

Mark on the host wall the height of the window frames. This should be done by firstly marking a vertical line up the host wall from the inside of the outside brick. Repeat this process on both sides of the conservatory.

60mm Frames			
Roof Pitch °	A mm	B mm	C mm
5	103	179	191
10	106	183	196
15	110	189	201
20	114	195	208
25	118	202	215
30	124	212	226
35	131	224	238

70mm Frames			
Roof Pitch °	A mm	B mm	C mm
5	104	180	192
10	108	185	197
15	113	191	204
20	118	199	211
25	123	207	220
30	130	218	232
35	138	231	245

A=underside Eaves Beam to underside of Glazing Bar

B=underside Eaves Beam to Glazing Bar Top Cap (25mm Standard Transom)

C=underside Eaves Beam to Glazing Bar Top Cap (25mm Heavy Duty Transom)

Example Roof Materials Details:

Colours: Mahogany, Unglazed

Finish:

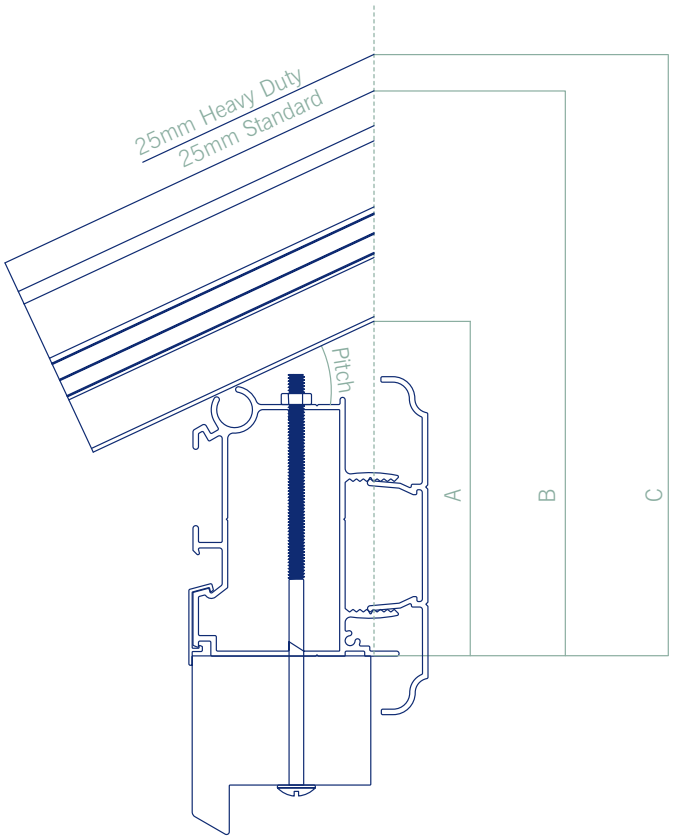
Size: 4050mm width, 5000mm depth

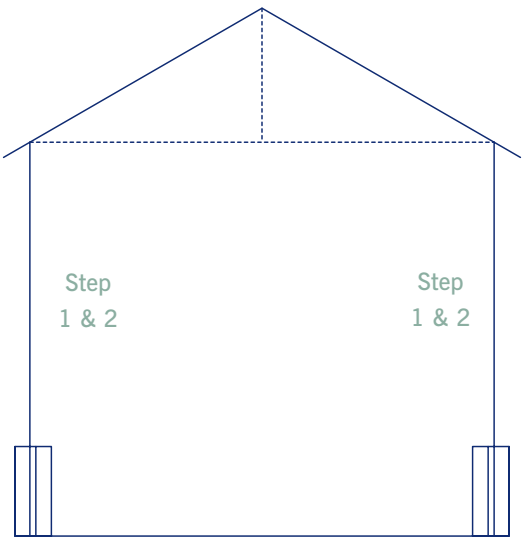
Height: 2100mm windows + 1144/981mm roof

Total: 3244mm

Weight: 217.608kg

Diagram X





Mark and grind

Step 2

Use the information from diagram X to attain the setting out point for the top of the relevant Glazing Bar. Add this height to the height of the window frames.

For example:

60mm window frames, 25° roof pitch with 25mm standard Glazing Bar,

(B) is 202mm. Frame height 1500+202mm=1702mm.

Roof Pitch °	A mm	B mm	C mm	D(STD) mm	D(HD) mm
20	36	116	129	150	163
25	38	121	134	148	163
30	40	127	140	148	163

A=underside Ridge assembly to underside of Glazing Bar

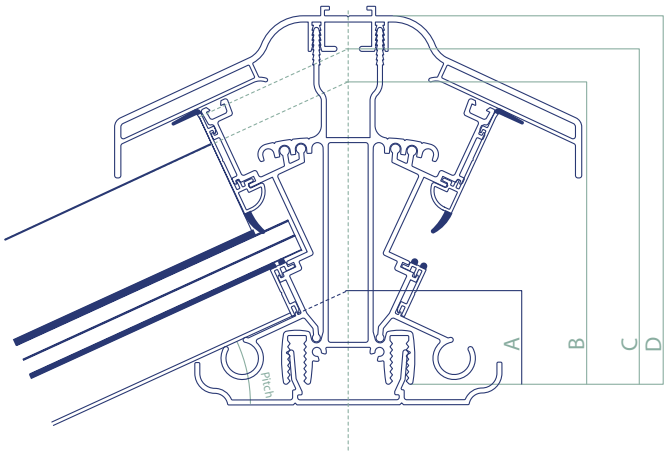
B=underside Ridge assembly to Glazing Bar Top Cap (25mm Standard Transom)

C=underside Ridge assembly to Glazing Bar Top Cap (25mm Heavy Duty Transom)

Step 3

To identify the required position of the centre and underside of the ridge, firstly mark the height of the frames and the roof pitch setting out point on the vertical lines as described in Step 1. Where the window frame height mark bisects the vertical line hammer in a masonry nail. Repeat this on the opposite side. Stretch a chalk line between the two points and ping the line. Next use the information concerning roof material details to find the internal frame size and divide this measurement by 2. This will give you the centre point. From this point use a spirit level and mark a vertical line up the wall. Again using the information from the roof material details, mark the stated height on the line and add to this the height relevant from diagram Y. This line denotes the position of the top of the Wallbar Cap.

Diagram Y



For example:

Roof pitch 25°, 25mm standard Glazing Bar (B)=121mm Ridge height 981mm + 121mm = 1102mm.

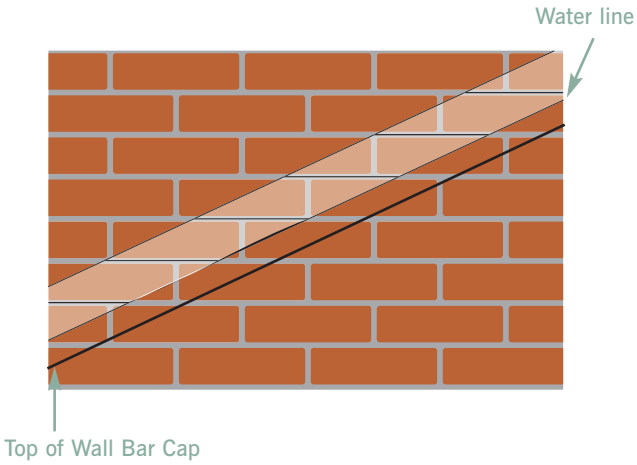
Mark and grind

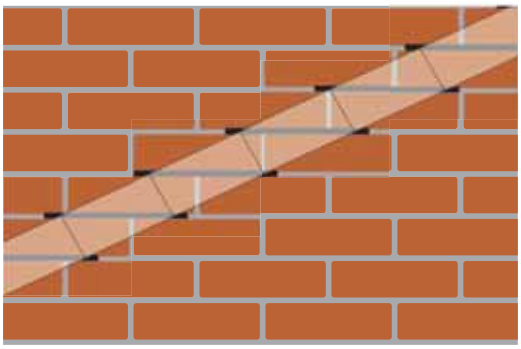
Step 4

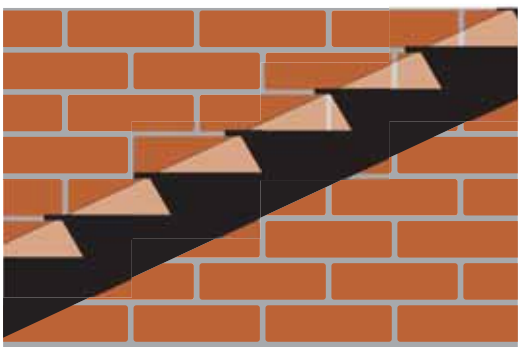
Construct a line parallel to this line at a distance of 65mm. This line is known as the water line.

Hammer masonry nails into the brickwork at the designated points. Stretch a chalk line between these points and mark the wall.

Between the waterline mark and the line indicating the outside edge, follow the mortar joints and join these two lines. (Do this with either a piece of chalk or a pencil or scribe with a metallic object.) With the aid of an angle grinder, grind out the mortar along the marked line. You should go over the waterline and outside edge mark by about 15mm to allow for the radius of the grinding wheel.







Setting out step flashing

Once all the marking and grinding has been done it's time to mark-out the Lead work by following diagram 1 below.

1 Lay the Lead on to the Wall Bar.

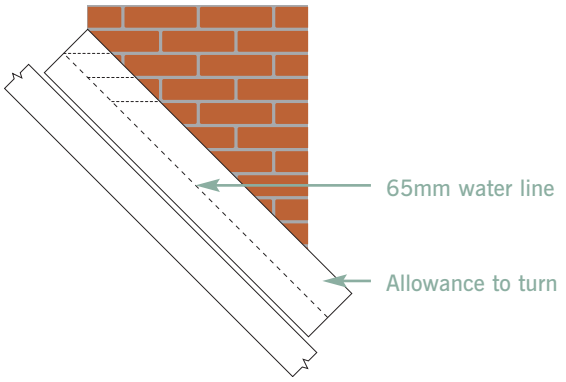
2 Line through accurately the brick joints until they meet the water line.

3 Repeat this all the way down.

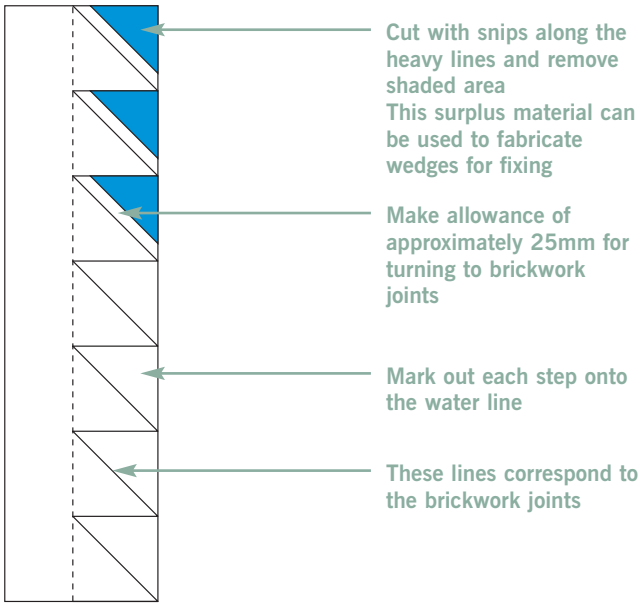
Setting out the flashing from brickwork

A straight edge must be in line with each joint to ensure accuracy.

Diagram 1

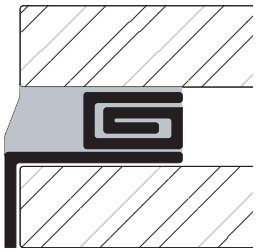


Setting out step flashing



When ready, insert the Lead flashing into the ground recesses and hold in place using pre-made Lead wedges.

Lead sealant



Lead sealant has been especially designed for pointing joints between Leadwork and masonry or brickwork. It gives a permanent, flexible and waterproof joint that can accommodate the different rates at which Lead and masonry expand in-line with changes in air temperature. It is also Lead-grey in colour allowing it to blend in with the Leadwork.

Usually sold in 310ml tubes, Lead sealant is quicker and easier to use than mortar and offers higher levels of adhesion to Lead and masonry. It can also be used in joints with or without damp-proof courses. The average tack time is 30 minutes depending on the ambient temperature.

Handy Hints

- Always thoroughly clean out a joint before applying sealant.
- Prior to Lead Flashings being pointed into joints over 18mm wide they should be fixed using a stainless steel screw and washer at 450mm centres where the Lead is turned up the back of the chase.
- The nozzle on the sealant tube can be cut to suit the width of the joint to be filled. be careful not to cut it too wide at first.
- Keep sealant away from eyes and skin – uncured sealant can cause irritation.

Survey: site inspection

Customer Name: _____ Customer Number: _____

Does the property have any existing extensions? ☐ YES ☐ NO

Does this exceed the maximum allowance? ☐ YES ☐ NO

Details of the extension including location and sizes:

Is there a right of way or public highway within 20m? ☐ YES ☐ NO

Do you believe planning permission is required? ☐ YES ☐ NO

Is there an outbuilding within 5m? ☐ YES ☐ NO

Position of new structure in conjunction to the house:

Is the property listed? ☐ YES ☐ NO

Are there any covenants? ☐ YES ☐ NO

Is the property in a conservation area? ☐ YES ☐ NO

Permitted development check required? ☐ YES ☐ NO

Local Council: _____ _____

Developer: _____ _____

Customer: _____ _____

Surveyor: _____ _____

Date: _____

Note: Please photocopy Survey pages for multiple use

Survey: site details

Using the space below, sketch the site details making a note of all possible obstacles and relevant measurements.

These may be used in the office to cross reference against manufactured sizes but the final decision rests with the surveyor.

Front ☐

Back ☐

Side ☐

Attached Photograph? ☐ YES ☐ NO

Surveyor Signature: _____

Print: _____

Date: _____

Survey: base details

Customer Name: _____ Customer Number: _____

Does the property have any subsidence? ☐ YES ☐ NO

Level Ground ☐ Sloping into property ☐ Sloping away from property ☐

Any existing structure to take down? ☐ YES ☐ NO

Area to be excavated? ☐ YES ☐ NO

Skip required? ☐ YES ☐ NO

Brick match required? ☐ YES ☐ NO

Below DPC required: Brick ☐ Stone ☐ Block ☐

Above DPC external: Brick ☐ Stone ☐ Block ☐

Above DPC internal: Brick ☐ Stone ☐ Block ☐

Angle Squints - Brick match: ☐ YES ☐ NO

If no, would the customer prefer contrast? ☐ YES ☐ NO

Angle required: _____

Match Existing Floor ☐ Step Down ☐ How much (m^2) _____

Floor Finish: Concrete ☐ Tiled ☐ Laminated ☐ Timber ☐

Existing Surface: Water Drain ☐ Soakaway ☐

Move Manhole - Distance: _____

Move Rodding Eye - Distance: _____

Raise and seal manhole? ☐ YES ☐ NO

Raise and seal Rodding Eye? ☐ YES ☐ NO

Move SVP? ☐ YES ☐ NO

Other: ☐ YES ☐ NO

Survey: additional requirements

Customer Name: _____ Customer Number: _____

ELECTRICS

Customer to undertake ☐ Company to undertake ☐

Sockets required ☐ YES ☐ NO

State what kind and how many: _____

Light points ☐ YES ☐ NO

State what kind and how many: _____

Install fan ☐ YES ☐ NO

PLUMBING

Customer to undertake ☐ Company to undertake ☐

Need to move any plumbing (radiator, outside tap, overflow) ☐ YES ☐ NO

Please State: _____

BARRIER

Existing barrier in place? ☐ YES ☐ NO

New opening required? ☐ YES ☐ NO

Brickwork to be removed? ☐ YES ☐ NO How much (m^2) _____

New opening size: Height _____ Width _____

French Doors ☐ Patio Doors ☐

Make good inside? ☐ YES ☐ NO

EXTERNAL WORK

Contractual agreed reinstatement to conservatory? ☐ YES ☐ NO

Re-lay existing flags? ☐ YES ☐ NO

Re-lay new flags? ☐ YES ☐ NO

Area to be re-layed (m^2): _____

Re-stone area? ☐ YES ☐ NO

Area to be re-stoned (m^2): _____

Surveyor Signature: _____

Print: _____ Date: _____

Survey: inside sill plan (layout of base)

Customer Name: _____ Customer Number: _____

Please note: Internal sill dimension measurements are taken from inside the external wall.

Layout

1. Stop end outlet
2. Running outlet
3. Multi - positional outlet

Builders Notes: Please identify where the set out point is.

Is there any other information which will assist?

Style and maximum sizes

Customer Name: _____

Customer Number: _____

Purchase Order Number: _____

Delivery Date: _____

Delivery Address - Company: ☐ Customer: ☐ (please tick)

_____

_____

PROFILE

External Finish
White ☐

Mahogany ☐

Golden Oak ☐

External Finish
White ☐

Mahogany ☐

Golden Oak ☐

External Finish
Clear ☐

Bronze ☐

Opal ☐

Bronze Opal ☐

Extras
Roof Vent ☐

Roof Vent Electric ☐

Rain Sensor ☐

Dentil Moulding ☐

Tie Bar ☐

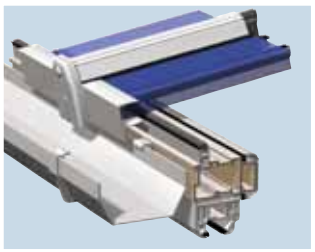
All dimensions are internal frame sizes

Surveyor Signature: _____

Print: _____

Date: _____





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