church growth trust

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Disabled access ramps and entrance steps for church buildings

A Church Growth Trust Practical Guide (August 2022)

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1.0 Introduction

This practical guide is prepared for churches that are considering installing or replacing a disabled access ramp to serve the main entrance of the building. It can also be used as a resource to check the compliance of previously installed ramps or steps with current guidance. New standards have been steadily introduced and revised in recent years, and some older installations can often benefit from being updated.

A well-designed entrance ramp can benefit the whole of the community using the premises, not just wheelchair users. Elderly persons, those with walking or mobility difficulties, parents with pushchairs and prams and those with visual impairments can all benefit. Also, the risk of accidents can be reduced.

Ideally, the ramp should be located where it can readily be seen on approach to the building, so that visitors may be aware that a ramp is available. Unfortunately, this is not always practical when adapting existing buildings so, where the ramp may be hidden from sight, e.g. around a corner of the building, directions to it should be clearly signed at the approach to the building.

It is worth taking time to consider the appearance of the completed installation and the materials used, aiming to make the approach to the building attractive. For example, the use of "bolt together" handrails or balustrades may provide a "quick fix" and cheap option but may also give a utilitarian and unwelcoming appearance to the church's main entrance.

The guidance in this paper refers to external ramps and steps to a main entrance and is not intended to cover internal ramps and steps, the requirements for which may vary slightly. In particular, the requirements for minimum widths which would be dictated under means of escape regulations depends upon the number of persons using that particular escape route. These is also no requirement for tactile approach warnings for internal steps, but comments regarding colour contrasts will still apply.

By necessity, the physical arrangements for providing access for disabled and other persons requires a substantial amount of dimensional information. Where possible, this is included in the text of this document but Approved Document M to the Building Regulations includes many diagrams which illustrate the dimensions quoted in this paper. Details of how to obtain Document M are included in Section 19.

2.0 Legislation

2.1 Planning permission

When existing church premises are to be altered, planning permission is required if it is proposed to materially change the external appearance of the building. Planning permission is therefore clearly required where new external doors or windows are to be installed. Whether the installation of a ramp or steps constitutes materially altering the external appearance can be subjective and can depend upon the scale, size and appearance of the proposed ramp or steps. Obviously, where a proposed ramp is very long or extensive it could easily affect the external appearance. Opinions on whether permission is required can therefore vary between local authorities and it is therefore advisable to check with the local planning department for an opinion on whether planning permission is required.

Where the building is a Listed Building, then it is almost certain that Listed Building Consent would be required and early discussion with the local conservation officer is advisable.

2.2 Building Regulations

The installation and design of entrance ramps and steps are covered by the current Building Regulations. The Regulations refer to a set of "approved documents". Approved Document K covers steps, stairs and ramps generally throughout all kinds of building. More specific requirements are given in Approved Document M "Access to and use of buildings". This is commonly referred to as "Doc M" or "Part M". Under the Building Regulations a new church building would be required to provide access into the building which complies with both Part K and Part M.

Where the building is an historic building, Document M acknowledges that the need to conserve the special characteristics of such buildings needs to be recognised. Also, that the aim should be to improve accessibility where, and to what extent, that is practically possible. It therefore follows that, in the case of historic buildings, there may be some compromise to be made in the normal accepted guidance regarding disabled access. Under Part M, it may be worth noting that the term "historic building" not only includes listed buildings, but also those situated in a conservation area and those buildings which are of architectural and historic interest.

Where a church extension is planned and the access to the existing building does not comply with the Regulations then, as a minimum, satisfactory access must be provided into the extension. This matter is often overlooked in the early design stages or when preparing planning applications as the application under Building Regulations usually follows at a later stage.

The provision of suitable access will also be required under Building Regulations where there is a material change of use to a public building. Under the Building Regulations, Regulation 2, the definition of a "public building" includes a place of public worship. Any church considering purchasing an existing building for conversion to a place of worship would therefore be well advised to investigate the detail of Building Regulations on this matter. The conversion may not simply require seeking permission for change of use under planning permission but, may require the church to carry out some substantial alterations to disabled access and facilities, not on a voluntary basis, but as a legal requirement under Building Regulations, which is likely to have financial consequences.

Where a church property already exists, but has no accessible facilities, there is no requirement under Building Regulations to provide such facilities if no other alterations are being undertaken. However, if the church voluntarily installs such facilities, they would need to comply with Part M and Building Regulations approval needs to be obtained.

However, the duty to provide suitable access to existing buildings will usually be covered by the Equality Act 2010, which has now replaced the Disability Discrimination Act. Under the Act, service providers (in this case the church) have a duty to make reasonable adjustments to ensure that disabled persons are treated no less favourably than those without disabilities. This includes altering or adapting physical features of the building, including the approach to entrances, where it is reasonable to do so. Whether it is considered reasonable to do so can depend upon several factors, including physical constraints and costs. What may be reasonable for a large church or organization may not be reasonable for a small chapel. For further information please refer to the CGT separate practical guide.

2.3 Access Strategy

The information in Building Regulations Approved Document M is largely based upon BS 8300:2001. The status of Document M is that it illustrates only one way in which the

regulations regarding access to the building can be met. If the applicant or building owner wishes to deviate from the guidance in Part M, or to provide alternative solutions, the onus is upon them to show that the alternative proposals are appropriate.

It used to be a recommendation within Part M that, when submitting the Building Regulations application, a written Design and Access Statement was provided to accompany the drawings. This has been revised in recent years. Part M now indicates that the provision of a written Access Strategy is not a requirement but can prove useful in some circumstances.

The Access Strategy can be used to explain why, for the specific project in hand, it is unreasonable or impractical to meet the standards given in Doc M, or where, and for what reason, there has been deviation from the guidance and what alternative solutions have been adopted. The Statement may also cover the outcomes of discussions with other parties, such as the conservation officer, local access officer and those discussions, together with particular constraints of an existing site or building, have impacted upon the proposed design. Further information is given in the General Guidance Section 0 of Document M.

Any variation from Doc M guidance needs to be agreed with Building Control. If a case is made for a significant deviation from the guidance (e.g. width or gradient of ramps) it is advisable to undertake early discussions with Building Control if the deviations are fundamental to the design. Justification of the deviation in an Access Strategy document does not mean that the argument is accepted by Building Control.

3.0 The 10-year exemption from further changes

Under the Equality Act 2010, if a service provider, (e.g. a church) alters a physical feature of a building, such as the approach to the main entrance, in order to fulfil their duties arising from the Act and they do so in accordance with the edition of Approved Document M which was current when the work was carried out, then they are exempt from having to undertake any further alterations to that work for a further 10 years, should the guidance in Document M change following completion of the work.

The 10-year exemption runs from the date of completion of the work. Apart from the legal requirement to obtain Building Regulations approval, the benefit of doing so is that it can be shown exactly when the work was undertaken, in order to benefit from the 10-year exemption.

However, apart from obtaining Building Regulations approval, it is essential, upon completion of the work, to obtain a “completion certificate” from Building Control in order to confirm the actual date of completion. Many Local Authorities and Approved Inspectors do not issue a completion certificate automatically and will only do so if specifically requested and this is often overlooked.

4.0 Level Access

4.1 Building approach and ramps

Ideally, all public buildings should have “level access”, without need for ramps or steps, but this is clearly impossible in all circumstances and can be governed by levels on the site, gradients of public footpaths etc. The term “level access” has a specific definition under Part M and means a building approach which has a gradient of 1 in 60 or less along its length or 1 in 20 or less with level landings.

Guidance on gradients of ramps is given in Section 8 but, when considering the construction of a ramp it is financially worthwhile first considering if the approach can be made at a flatter gradient of less than 1 in 60 or 1 in 20 with landings, rather than a ramp. This clearly takes a greater distance to achieve the same rise in level required to the entrance door but, if sufficient space is available to take a longer approach, it may prove more economic. As the approach is not considered to be a ramp, the construction is far simpler. Items such as handrails, balustrades and raised kerbs required for ramps are no longer necessary.

For example: A rise of 333mm would require a ramp 5m long at a gradient of 1 in 15. (See section 8). However, if the approach could be re-graded to gain an approach of just over 6.6m in length, the gradient would be less than 1 in 20. It could well be more economic to re-grade the approach path for a distance of just 6.6m than to construct a ramp 5m long, which would require handrails, kerbs etc.

4.2 Level thresholds

This document does not cover the requirement of main entrance doors, but the requirement for a level threshold is worth noting as it directly affects the setting out height of the top landing to a ramp.

Level access with regard to door thresholds means that a maximum raised threshold of 15mm is permitted and any upstands of 5mm or more should be chamfered, which is intended to avoid tripping.

This precludes the use of the vast majority of UPVC doors as the sill will generally exceed 15mm in height. Timber doors and frames can be manufactured without the customary hardwood sill, but some form of proprietary threshold strip will be required between the door and ground to prevent water ingress. This should be checked carefully as many such threshold units on the market exceed the 15mm maximum height or are not chamfered. This presents a trip hazard and is not therefore suitable for use on church buildings. Aluminium or steel door manufacturers can usually readily provide a low threshold of 15mm or less with their systems.

5.0 The need for both ramp and steps

While ramps are essential for wheelchair users, they are not necessarily safe and convenient for ambulant disabled persons. Some people who can walk but have restricted mobility, e.g. those wearing callipers, may find it easier to use steps than a ramp. Adverse weather conditions can also make the risk of slipping on a ramp greater than that on steps.

Document M therefore advises that it is always beneficial to have steps available as an alternative to a ramp, and contains further guidance that, where the rise of the ramp exceeds 300mm, clearly sign-posted steps should also be provided.

6.0 Provision of external platform lifts

Part M requires that, where the total rise to be achieved is greater than 2m, an alternative means of access (e.g. a lift) must be provided. Clearly this will not apply to the majority of church buildings but can sometimes apply where an existing building is being converted to church use.

Even with rises of less than 2m the situation may arise where it is more practical or economic to install a lift, rather than the expense of extensive ramp facilities and the associated cost.

The installation of an external lift will have ongoing maintenance costs and many churches may be concerned regarding the appearance or potential vandalism problems but, where available space is limited for extensive ramps, a lift may be a more practical solution. It is worth noting that the cost arising from the complex construction of retaining walls for a ramp of substantial height together with the cost of balustrades can be more than an external platform lift and may be more visually intrusive.

7.0 Ramp top and bottom landings

The provision of a landing at the top of a ramp is essential. Wheelchair users need to be able to stop at the top landing and be able to open doors without fear of rolling back down the ramp when they release grip from the wheelchair to open the door. A minimum distance of 1.2m is therefore required between the door swing and the top of the ramp.

In new or modern places of worship the main entrance doors will open outwards for means of escape purposes. This may not be the case in some older buildings but, in this instance, it would be prudent to construct a top landing of sufficient size in case the existing entrance door is ever changed or updated to open outwards.

Similarly, a landing of at least 1.2m long should be provided at the base of the ramp, again free of any door swings or obstructions.

Landings should be essentially level. This allows wheelchair users to stop and rest before ascending or descending the ramp. However, as small cross-fall of 1 in 40 is permitted from side to side and a small fall of 1 in 60 along its length, to allow for rainwater run-off. For a landing 1.5m wide and 2.4m long, this would equate to a cross-fall of 38mm side to side and a fall of 40mm along its length.

Regarding the top landing, a common problem encountered with church projects is the need to hold the outward opening doors in the open position for such events as weddings or funerals. The required fall away from the doors can often mean that the floor bolts which secure the doors in the normal closed position do not extend down far enough to engage with bolt holes in the surface of the top landing when they are deployed to the full open position. To overcome this problem, bolts with “extra throw” can be specified, or alternative means of holding doors open, such as cabin hooks, can be employed.

8.0 Ramp width

For Building Regulations purposes, the width of the ramp is measured as the clear surface width between walls, upstands and kerbs. Handrails are permitted to encroach into this width to a limited extent (see Section 10), making the effective width between handrails slightly less than the surface width

Until the 2004 revision of Part M, the required minimum surface width of a ramp was 1.2m. This has since been increased and is currently 1.5m and wherever practicable the guidance of Part M should be followed.

Buildings which have had a ramp fitted previously may still have the narrower ramp. One of the main considerations in increasing the ramp width was to enable wheelchairs to pass on the ramp. One could argue that the ability to pass may not be so critical for a church, where users will tend to all arrive and all depart at the same time rather than, say, a public library where there could be a continual flow of traffic, both in and out. If space is limited and prevents a 1.5m width ramp being

fitted, consideration could be given to making the case for accepting a ramp less than 1.5m wide in the design and access statement (See Section 2). If the proposed width of the ramp is below 1.5m, consideration could be given to providing passing places at an interim landing.

9.0 Ramp gradient and interim landings

Similar to the terminology steps, the height gained by a ramp between bottom and top landings is termed the "rise". The length of the ramp between bottom and top landings is termed as the "going." The going is measured horizontally, not up the inclined surface of the ramp, which will differ slightly.

The ability to ascend a ramp is relative to a combination of how steep the gradient of the ramp is and the length of the ramp. There is therefore a relationship between the maximum gradient of a ramp and its maximum permitted length. The absolute maximum gradient for any ramp is 1 in 12. (This can be readily visualised as a rise of 150mm over a length of 1.8m). A gradient any steeper than this, can significantly increase the chance of slipping in adverse weather.

Part M gives the following limits for ramp gradients:

Going of flight	Maximum gradient	Maximum rise
10m	1 in 20	500mm
5m	1 in 15	333mm
2m	1 in 12	166mm

It is permitted to interpolate between the figures to some degree. Part M includes a graph which assists in this. It can be seen from the above figures that, if the total rise required was 200mm, a ramp at the maximum gradient of 1 in 12 would not meet the guidelines, as this would require a ramp of length 2.4m, which exceeds the 2m maximum.

The maximum length of the ramp is between landings, which allow for rests. It is therefore acceptable to have a 2m long ramp at 1 in 12, followed by an interim landing, followed by another ramp 2m long at 1 in 12. Any intermediate landing should be at least 1.5m long, clear of door swings. So, part of the design in such circumstances would be to assess whether it would be more practical to have two steep flights at the maximum gradient of 1 in 12, with an interim landing, or whether one longer ramp at a lower gradient was more practical.

As for top and bottom landings, the maximum cross fall on interim landings is 1 in 40 (which would be 38mm if the ramp is 1.5m wide) and the maximum fall along the length is 1 in 60 (which would be 25mm if the landing was 1.5m long)

10.0 Ramp and landing kerbs and upstands

The "open" side of any ramp or landing must have an upstand or kerb, the term "open side" meaning any side which does not abut a wall or the building. The upstand should extend at least 100mm above the surface of the ramp or landing and should contrast visually with the ramp surface to assist those with impaired vision. This is in addition to any balustrade required. The purpose of the upstand is two-fold:

Firstly, it prevents wheelchairs, pushchairs, Zimmer frames or the like accidentally running off the edge of the ramp or landing. Secondly, upstands are useful to persons with impaired vision who use a cane to assist them in navigating paths or surfaces.

When installing upstands, it is important to take into account the rainwater run-off of the ramp and landing surfaces. Providing such upstands all around can trap water and cause pooling or ponding, depending upon the direction of the fall of the surfaces. It may therefore be necessary to include some drainage pipes or channels, or to provide small gaps in the upstand, to allow surface water to drain off and to prevent a build-up of ice in low temperatures.

If the upstand is set to true horizontal level, care needs to be taken when setting the level of the top of the upstand, particularly where there is a fall on the ramp or landing, to ensure that the minimum upstand of 100mm is achieved whilst still allowing for the fall on the paved surface.

There are many ways of forming the upstand, some more visually attractive that others, some more economic than others. The following solutions are suggested, but are by no means exhaustive:

- If brick walls are being constructed to form the sides of a raised ramp, they can be topped by a brick on edge coping. A standard brick, laid on edge is 103mm plus a 10mm mortar joint, giving and upstand of 113mm, which meets the requirement. The colour of the brick can be chosen to provide the required colour contrast with the ramp surface.
- Similarly, for more historic buildings, the use of stone or reconstituted stone may be considered in place of brick on edge but will be more expensive and require advanced order for the purpose made sizes that will be required.
- For ramps which are not a great height above the surrounding ground level, standard 50mm thick paving slabs can be used to form the side walls of the ramp and set on a concrete base to extend the required 100mm above the ramp. This will usually require the slabs to be disc cut to the required line.
- Galvanized steel angles, or other angles of suitable materials, 150mm high can be installed below standard 50mm paving slabs to produce a 100mm upstand.
- Timber upstands may be a cheaper alternative, provided they are fixed securely, but are unlikely to give the same life-expectancy as other products.

11.0 Paving finishes

The frictional characteristics of ramps and landings should be similar to avoid sudden changes in friction of the surfaces being traversed. The surface of the ramps in particular should be slip resistant, especially when wet.

There are many options for ramp surfaces, including tarmacadam, fine gravel embedded in epoxy, brick pavers, all of which are available in various degrees of slip resistance.

Probably the most popular surface finish with small local building contractors is the use of paving slabs, which can be more readily available in small quantities from local builder's merchants and disc cut to shape and size. Most of the major manufacturers of paving slabs include within their range some course-textured slabs which are available in a variety of thicknesses, sizes and colour by order through builder's merchants, but these will usually not be available through local DIY stores.

A concrete finish, with the finish lightly tamped with a timber batten just before setting can provide a textured surface and avoids the need for cutting paving slabs to size. The disadvantage is the practicality of laying the concrete to a slope without it slumping. It also forms a more utilitarian appearance and lessens the choices of colour, for colour contrast purposes, unless it receives a coloured coating, such as specialist concrete or paving paint.

12.0 Ramp handrails and balustrades

12.1 Handrail dimensions and arrangements

Under Part M, ramps and landings must have a handrail fitted to both sides. Disabled persons sometimes have a mobility or dexterity problem on one side and having handrails on both sides provides a choice of handrail to suit their disability. The handrails may be fitted to the wall of the building with brackets or may be supported on vertical balusters, if fitted, on the open side of the ramp.

The diameter and profile of the handrail is important: either circular (32 to 50mm diameter) or oval (50mm wide, 39mm deep, with rounded edges of 15mm min radius). This is to ensure that persons with limited dexterity can grasp the rail. A common mistake is to make the handrails too large (Standard circular mop-stick handrails purchased for domestic staircases are often 63mm diameter, which is too large).

The clearances between the handrail and a wall should be 50 to 75mm, and clearance between the handrail and supporting brackets should be 50mm minimum. This also is to ensure that the rails can be grasped easily. The handrail should not protrude more than 100mm into the surface of the ramp.

If the handrail is mounted on top of a wall it should not be mounted any further than 50mm from the face of the wall to ensure at can be reached easily from the ramp surface. Mounting the handrail centrally on top of a standard 215mm brick wall would place it too far away from the ramp.

Handrails should be mounted 900 to 1000mm, measured vertically, above the surface of a ramp and 900 to 1100mm above the surface of landings. (See also the section below relating to guarding, as this can directly affect the height of handrails on landings). If the building is expected to be particularly used by children, e.g. a Sunday School Hall or Nursery Area, or by persons of small stature, then consideration should be given to providing a secondary handrail at a suitable lower height.

Where the handrails are fitted on a slope to match the gradient of the ramp, they should also extend horizontally for a minimum distance of 300mm beyond the top and bottom of the ramp. This is in order for persons to grab the rail before they commence ascending or descending the ramp and is often overlooked when constructing handrails.

It is easy with handrails of this diameter, for the handrail end to be caught by clothing, e.g. a person's sleeve. The end of each handrail should therefore be terminated in a way to prevent this. This can readily be done by returning the handrail back towards the wall or turning vertically downwards at the ends.

12.2 Handrail materials

Part M requires that handrails should be not cold to the touch and should be slip resistant. They should also colour contrast with the background. There is a variety of material choices, all with differing visual appearance and varying costs. Some will require manufacture before delivery and others which can be formed and assembled on site. The detailed dimension requirements and angles required will result in any manufacturing off-site to be well co-ordinated with site measurements to ensure they fit on arrival. The final dimensions can often not be supplied to manufacturers until work is well progressed. This can lead to a short delay waiting for the handrails or balustrades to be manufactured. The requirement for handrails not being cold to the touch is often overlooked on public buildings and can,

essentially rule out bare metal being used.

Steel or aluminium handrails usually provide the most robust option, but will usually require specialist manufacture, either requiring them to be accurately manufactured prior to delivery, or requiring site assembly by welding or bolting together. There is, however, the problem of being cold to the touch unless they are plastic coated or have some other similar surface treatment.

Timber handrails are more readily available with the timber ordered and machined to size by a local timber merchant. Their greatest advantage is that they can be measured and assembled on site without the need to supply fabricators with detailed measurements and angles in advance. They also meet the requirement for not being cold to the touch. Whilst standing up to the normal wear and tear for their intended use they are, however, less robust when vandalism is experienced. This can be the case, if they are mounted on posts on the open side of the ramp, or landing, without a balustrade below where damage can be caused by climbing or sitting on the handrails. In more vulnerable environments they can also be subject to arson attacks. Although there are some disadvantages to the use of timber, they remain a popular choice with many churches because of their low cost, ease of installation and visual appearance.

There are companies who manufacture handrail components, such as tubes, angles, bends etc which can be ordered and assembled into the required arrangement. These are sometimes manufactured with a steel core, clad in plastic, or sometimes formed entirely from a very rigid GRP or plastic material. The most popular colour choices are white, black or bright safety yellow. They fulfil their purpose but, in some church situations, may be considered too utilitarian in appearance compared to other options.

12.3 The need for guarding

Apart from disabled access arrangements in Part M, Part K of the Building Regulations cover other aspects of ramps and stairs from a safety point of view, including protection from falling. As far as ramps, steps and landings are concerned, a risk of falling occurs where the surface is raised above the surrounding ground level. Even when a perimeter handrail is provided there is the risk that a child could fall between the handrail and the ramp or landing surface.

For public buildings, Part K requires guarding to be provided where the difference in level is two or more steps. As the height of step risers is limited in Part M to 150 – 170mm, this means any difference in level of more than around 300 – 340mm requires guarding to be installed, which is in addition to the provision of a handrail.

The guarding must prevent the passage of 100mm sphere and will therefore usually comprise vertical bars at approximately 100mm centres. Horizontal bars or bars parallel to the gradient of the ramp are not permitted as these can be easily climbed by young children. Other acceptable materials would be solid boards or panels, including glass, provided it is safety glass and robust enough for the purpose.

The guarding must extend upwards from the surface of the ramp, landing or steps, only permitting a small gap of less than 100mm above the surface. For ramps or flights of steps it must extend up to at least 900mm above the surface, which generally matches the required handrail height.

For landings the guarding must extend up to 1100mm high.

Having to include guarding below the handrail can add significantly to the cost of the handrails/balustrades. It is worth noting that the guarding is only required on the sections of ramp or landing where the height difference with the adjoining ground exceeds 300 to 340mm and so it need not be required on some of the lower sections.

An economic alternative to providing guarding is to raise the surrounding ground level adjoining the ramp or landing so that the difference in level is less than 300 to 340mm. This can often be readily achieved by forming a raised planting bed alongside the ramp or landing and can be quite attractive, providing care is taken to ensure the species of plants are selected to ensure there are no thorns or similar sharp features near to the ramp. Any such proposals should be discussed and agreed to be acceptable with Building Control ahead of constructing them.

13.0 Effect of ramps and landings on damp proof courses

When adding a ramp to an existing building, it is important to consider the possible effect on the damp proof course of the building. Damp proof courses should generally be located no less than 150mm above the surrounding ground level, as rain can bounce back 150mm when hitting the ground and saturate the wall. The position of the existing damp proof course should be checked in relation to the floor level. A new ramp or landing will come up to floor level, at least within the close proximity of the building, and it therefore likely to reduce the gap between the surface and the damp proof course to less than 150mm.

There are a number of possible solutions to this problem depending upon the building construction, particularly upon whether the wall is solid or of cavity construction. It is suggested that specialist advice is taken. For some kinds of building it will be necessary to cut out the wall and insert a new damp course at a higher level. For other buildings, it may be practical for a damp proofing specialist to install a chemically injected damp course.

The extent of wall which may require work to the damp proof course can be reduced by locating the ramp away from the building so that the existing ground level immediately adjoining the building is not affected. However, where the ramp or landing, by necessity, needs to come up to the building at the door position, some work to the damp proof course is likely to be required.

14.0 Tonal contrast

Apart from wheelchair users, persons with other disabilities are likely to use the approach to the main entrance. Part M therefore specifically requires visual contrasts in the following locations, which will affect the choice of materials used:

RAMPS AND LANDINGS

Tonal contrast is required between the sloping surface of the ramps and the level surface of the top and bottom landings and with any intermediate landings, if provided. If paving slabs are being used it is a simple solution to use one colour for the ramp surface and one colour for the landing surfaces. Alternatively, use different materials for ramp and landing which have colour contrast.

If both ramp and landings are formed from the same material e.g. concrete, the use of a specialist concrete floor paint or tarmacadam paint can be considered, but care should be taken to ensure it has a slip-resistant surface finish.

The disadvantage of a paint finish, rather than self-coloured materials is that it will obviously wear out and thus, require recoating from time to time.

UPSTAND KERBS

The colour of the upstand kerb should contrast visually with the ramp and landing surfaces. Again, a concrete or masonry paint solution can be employed but, if bricks are being used to form the upstand, consideration can be given to what colour is used. A wide variety of brick colours can be ordered, including blue/black, red, brown, yellow or buff. It should therefore be a relatively simple matter to select a colour which contrasts with the chosen ramp or landing material.

HANDRAILS

Handrails should contrast with their background, especially if mounted on the wall. If using timber handrails, it may not be satisfactory to simply use a natural finish timber against the finish colour of the wall e.g. a natural sapele (a popular African hardwood) timber does not contrast well with a brown of dark red brick wall.

Timber handrails can be coated with an opaque timber stain of a wide variety of colours but ensure that a stain of durable quality is selected to ensure that the wear factor associated with a handrail will not require very frequent redecoration. Note that the more recent tendency towards water-based stains may be considered more environmentally friendly and more acceptable from Health and Safety implications; they do not support the better wear characteristics of traditional solvent-based products. Aluminium and other metal handrails can be provided with a polyester powder coated (PPC) finish, which can be finished to a range of colours, offering good options to provide the necessary contrast.

15.0 External steps: dimensions and profiles

15.1 Width, height and going dimensions

In a similar manner to ramps, external steps to buildings are covered both by Part M regarding access issues and Part K, regarding safety issues and protection from falling.

Under Part M, the minimum width of steps or stairs should be 1200mm between walls, kerb upstands or strings. If paving slabs are being used as the surface, it may be worth considering increasing the width of 1200mm slightly to allow some tolerance in fitting the paving slabs with joints, without the need for cutting.

However, Part B, which relates to “Fire Safety” will prescribe minimum widths of escape routes and minimum widths of stairs. Part B is a complex document and gives staircase dimensions for differing types of buildings, different number of storeys, and considers whether simultaneous evacuation or phased evacuation is adopted. The exact width should be determined by agreement with Building Control prior to construction.

Most small places of worship will be classed as a “place of assembly”, will be single storey and will plan for simultaneous evacuation. Upon these assumptions, under Part B, steps of 1200mm width would facilitate escape for 240 persons. If the number of persons exceeds 240, the following guidance is given in Part B.

Number of person's	Minimum width of staircase	
240	1200mm	(Minimum width under Part M for churches)
260	1300mm	
280	1400mm	
300	1500mm	
320	1600mm	
340	1700mm	
360	1800mm	

The rise of each step should be between 150 to 170mm, which is considerably less than a domestic staircase. There is a provision to agree differently to this with Building Control if there are particular constraints in levels where adjacent to existing buildings.

The going of each step must be between 250mm and 400mm, which is considerably greater than that for a domestic staircase. The approved documents also note that the normal relationship between the dimensions of the rise and going is that twice the rise plus the going (2R + G) should equal between 550mm and 700mm. If the staircase design proposed sits outside of these limits, it should be discussed with Building Control as it may not be acceptable.

There should be no single steps as these can be difficult to identify and can cause stumbling or tripping. For a public building there should be a maximum of 12 in a flight. If the maximum number of risers is installed, intermediate landings of at least 1200mm long must be provided between flights. If there are space constraints in an existing building that would mean that these parameters could not be met, any concessions should be discussed and agreed in principle with Building Control prior to undertaking any works.

15.2 Step profiles and colour contrasts

The geometric profile of steps is particularly important for disabled persons, especially those with mobility problems, those wearing callipers and those with impaired vision. For this reason, the usual arrangement employed in domestic stairs of providing a "nosing" (where the tread slightly overhangs the vertical riser at the front of the tread) is to be avoided. Disabled persons can easily catch their foot under the nosing and stumble.

Part M therefore states that it is preferable to have no projecting nosing arrangement, with a flush right angle junction between the vertical riser and the horizontal tread. If, however, a projecting nosing is necessary, it should not overhang by more than 25mm and the junction at the underside should be tapered or sloped so there is not a horizontal overhang upon which the toe of a shoe could catch.

For visually impaired persons, the chances and consequences of a misplaced footing on steps is far greater than when entering or leaving a ramp. For this reason, there is a specific requirement for all nosings to be made apparent by a contrasting strip 55mm wide and 55mm deep on each tread and riser. This can be achieved by using materials of contrasting colours or can be achieved by fixing a pre-manufactured nosing profile or angle which meets the size and colour contrast requirements. Such nosings are available from manufacturers of floor trims, such as Gradus, but selection needs to ensure that the product is suitable for external use as many similar products are designed for internal use only.

For the same reason of preventing the catching of feet or tripping, the steps must have a solid riser and not be of an "open" riser design, which is typically seen on many external fire escapes, and sometimes in existing dwellings

16.0 External steps: matters in common with ramps

Many of the issues relevant to ramps previously identified earlier in this paper also apply to steps. These include the following:

LANDINGS

The information in Section 7 regarding top and bottom landings for ramps is also applicable to steps. If possible, it is advisable to design the top landing layout so that the steps are at 90 degrees to the main entrance. This reduces the possibility of a wheelchair user exiting the main entrance and inadvertently going off the top step of the landing.

The requirements for sizes and frequency of intermediate landings for steps varies to that for ramps and is covered in Section 15.1

UPSTANDS

The requirement referred to in Section 10 regarding upstands to ramps does not specifically apply to steps, but it will apply to any landings associated with steps.

In the interests of continuity of appearance, and to avoid any gaps larger than 100mm below the guarding balustrade, it is often convenient to include an upstand to any steps to match that fitted to ramps, but this is not mandatory.

PAVING FINISHES

The information in Section 11 regarding surfaces of ramps is also applicable to steps and their landings.

HANDRAILS AND BALUSTRADES

The information in Section 12 regarding handrails and balustrades to ramps and landings also largely applies to steps, including dimensions, materials, guarding and also including the requirement to extend the handrail 300mm horizontally beyond the top and bottom nosing of the steps.

The height of the handrail for steps is 900 to 1000mm vertically above the pitch line (i.e. a line drawn at an angle to connect the nosing of each tread), which is the same required height for ramps.

An additional requirement for steps is that, if the width of the steps is 2000mm or above, an additional intermediate handrail is required to sub-divide into flights not less than 1000mm wide.

EFFECT ON DAMP PROOF COURSES

The information in Section 13 regarding the effect on any damp proof course of the building also applies to steps.

TONAL CONTRAST

The information in Section 14 regarding tonal contrast for ramps and landings also largely applies to steps. There is the additional requirement regarding making apparent the step nosings as identified in Section 15.2. If practical, it is also desirable to contrast the surface

of the stair treads with that of the top and bottom landings and with any upstand kerbs. The comments previously made regarding colour contrast for handrails against their backgrounds also equally applies.

17.0 External steps: tactile approach warnings

Persons with impaired vision require advance warning of arrival at the head or foot of steps. The consequences of them falling are far greater than those of inadvertently approaching the head or foot of a ramp, so there are regulations which require the provision of advance tactile warning for steps which are not required for ramps.

Tactile warning takes the form of raised patterned surfaces embedded in, or forming part of, the paving. There are various accepted forms of tactile warning; some patterns are used for advance warning of approaching a vehicular crossing (such as dropped kerbs, pelican crossings etc) and some which warn of approaching tramways, cycle paths etc in urban areas. The approach warning for changes in level or steps is a corduroy pattern comprising ribbed profiles which are 20mm wide and raised above the general paving surface by 6mm ribs. Such paving products are probably not held in stock by local builder's merchants or garden centres but are readily available to order from the major manufactures of paving slabs, such as Marshalls.

It is vitally important that the correct profile of tactile warning is used at the head of steps, i.e. a corduroy pattern. A common problem is that a local supplier will not be familiar with the various forms of tactile paving and their significance and can often incorrectly supply a "blister" paving (circular raised domes of 25mm diameter) by mistake. If installed at the top of a set of steps, this would give the person with impaired vision the information they were approaching a dropped road kerb, which is totally different to the reality of approaching the top of a flight of steps.

Corduroy pattern tactile paving should be installed at a set distance commencing 400mm from the top and bottom step in order to give sufficient advance warning of approaching the step. Beyond this 400mm margin, it should extend 800mm at the top and bottom landings and be a minimum of 1200mm wide. However, if at the top landing a conscious turn is required to approach the top step (e.g. a 45 degree turn from the normal flow of traffic) this can be reduced to 400mm. (See also Section 16: Landings)

18.0 Provision for weddings and funerals

In addition to the legal requirements under building regulations regarding required widths of ramps, steps and sizes of landings, in re-arranging the building approach, those responsible for church buildings will wish to consider arrangements for access regarding weddings and funerals. In particular, it will be important that one approach to the main entrance, whether that approach be by steps or ramps, is suitable in width for funeral arrangements which will usually require allowance for a bearer each side of the coffin. This may mean that, despite regulation widths, the church may wish to voluntarily increase the width of either the steps, or the ramp, to allow for this requirement. This may particularly apply to small places of worship where the numbers occupying the church may only necessitate the minimum width of 1200mm wide steps for escape reasons.

19.0 Additional information and further reading

The following documents include information on all matters of accessibility regarding buildings, not just ramps and steps:

- The Building Regulations: Approved Document M "Access to and use of Buildings" Available from the Building Regulations section of the government's planning portal website as a free pdf download www.planningportal.gov.uk/buildingregulations or hard copy available to purchase from stockists of technical construction publications including RIBA Bookshop, telephone 0191 244 5557, www.ribabookshops.com.
- The Building Regulations: Approved Document K "Protection from falling, collision and impact" and Approved Document B, Volume 2 "Fire Safety – Buildings other than dwelling houses." Availability as above.
- British Standard BS8300:2009 "Design of buildings and their approaches to meet the need of disabled people – Code of Practice" with Amendment 1:2010. Available from the British Standards Institute, Telephone 0845 086 9001, www.bsigroup.com. This is a technical document of 230 pages, mainly of use to technical designers. Most of the relevant information for churches regarding ramps and steps is repeated in Document M or other design guides.
- "Designing for Accessibility" published by the Centre for Accessible Environments, Telephone 020 7822 8232, www.cae.org.uk.

Other useful information and contacts:

- Gradus Ltd: Manufacturer of floor trims, including step and stair nosings. Tel 01625 428 922 www.gradusworld.com
- Marshalls Mono Ltd: Manufacturer of landscape materials, including paving and tactile warning paving. Tel 01422 312000 www.marshalls.co.uk

20.0 Photographic Illustrations

Figure 1: An example of a replacement ramp to an evangelical church in Birmingham.

The ramp is long with a low gradient, rather than short ramp at maximum gradient.

Note in particular:

- Tonal contrasts between ramp and landing.
- Tonal contrast between ramp surface and upstand kerbs.
- Tonal contrast between handrail and background.
- Downturn at termination of handrail.
- Large top landing, greater than the minimum requirements, but assists in general “spilling out” of the main entrance after services without congestion.
- Guarding against falling is only installed on the higher sections of the landing/ramp and is not necessary on the lower sections of the ramp as the difference in height does not require it.
- Segregation of pedestrian areas from the adjoining vehicular area for safety of disabled persons and children exiting the building.

On this project, the top landing required extra damp-proofing work where it abutted the wall of the church on the left side but note that the ramp itself is offset away from the main building to avoid and reduce the extent of damp-proofing problems.

Figure 2: New ramp to a Gospel Hall in the West Midlands

For this property, it was impracticable to achieve a satisfactory ramp to the front of the property, due to the proximity of the entrance to the public highway and the difference in levels. The decision was taken to alter the main entrance to the side of the property where a satisfactory ramp approach could be formed.

Note in particular:

- The ramp is of considerable length, due to the height to be gained.
- The long ascent requires the ramp to incorporate an intermediate landing.
- Good tonal contrasts between ramp, upstands, handrails, walls.
- Guarding is only added to the outer handrails above a certain level.
- On this project, the left side of the ramp bridged the damp proof course of the building and damp-proofing work had to be undertaken by a specialist contractor. The ramp also blocked the air bricks which ventilate the timber floor of the chapel and additional telescopic extensions had to be formed to the air bricks connected to new air bricks above the ramp surface, which can be seen on the left of the ramp.

Figure 3: Same project as Figure 3 illustrating step arrangements

Note in particular:

- Tonal contrasts.
- Horizontal extensions of handrails beyond top and bottom steps.
- Guarding against falling to the upper sections of the flight/landing.
- Corduroy tactile warning at approach to top and bottom of steps.
- In this case, blister tactile warning is also incorporated on the approach to the dropped kerb to the vehicular area.

Figure 4: Horizontal termination of handrail.

Figure 5: Vertical termination of handrail.

Figure 6: Example of a lower handrail being installed to facilitate use by children or persons of a low stature.