Design & Conservation Guide No. 1

Brickwork and Mortar

If your building is listed, this guide should be read in conjunction with Design & Conservation Guide No. 10: Listed Buildings.

Introduction

Most buildings in Islington are of brick construction. Within the borough there are examples of many different types of brick – dark purple early Georgian bricks, the common London yellow stock bricks, red Edwardian bricks, blue engineering bricks, pale gaults, soft red voussoir bricks, even a few rare examples of Tudor brick. From time to time brick requires maintenance.

Bowing or bulging walls

Many old walls in Islington have suffered movement in the past and are no longer as built. Only in very severe cases is it necessary to demolish and rebuild i.e. where a building is structurally unsound and is beyond stabilisation.

It may be that any movement stopped a long time ago and the wall is now stable; or strapping or tie bars may be an effective and cheaper method of restraining the wall, preventing any further movement. The latter allows the existing fabric to be kept. Planning permission will be needed for substantial part or full demolition if the property is located in a Conservation Area. Listed Building Consent is also required if the building is listed.

Brickwork bonds

Bricks laid along the wall (showing their sides) are called 'stretchers' and those laid across the wall (showing their ends) are called 'headers'. Originally builders would have mixed them at random, but gradually they developed more regular patterns known as bonds. Over the years a variety of bonds emerged, driven by considerations of strength, cost, ease of laying and fashion. The most widely used brickwork bond in Islington is Flemish (Figure 1). Other bonds include English (Figure 2); and English Garden Wall (Figure 3).

Figure 1 Flemish bond
Figure 2 English bond
Figure 3 English Garden Wall bond
Rendering and painting

The covering of existing brickwork with paint, pebble-dash or stone-cladding (Figure 4) is strongly discouraged. In Conservation Areas this would require an application for Planning Permission which is unlikely to be granted.

The majority of Islington’s Conservation Areas are under an Article 4 direction which restricts permitted development rights to the fronts of properties.

Proposed painting of areas of unpainted brickwork on a listed building will not be permitted.

Painting or rendering destroys the original appearance of brickwork, and once applied is very difficult to remove. Paint or render can prevent the brick from breathing and trap moisture inside and also brings its own, more frequent, maintenance requirements. Some bricks have hard spots which reject paint and will require constant recovering.

Cracked and spalling brickwork

Brickwork sometimes appears to be badly cracked, or the surface is flaking or spalling - usually due to inappropriate mortar or moisture within the brick freezing (Figure 5). Where brickwork is in poor condition there are various techniques of repair, such as refacing, cutting in new bricks or applying a clear silicon finish. It is recommended that specialist advice is sought to determine the most appropriate treatment. If the works are substantial an application for Listed Building Consent may be required where a building is statutory listed.

Pointing and repointing

It is important that correct tools are used for pointing and repointing of joints between brickwork. New mortar should be packed firmly into the joint and surplus mortar struck off so that it is flush with the edge of the adjoining brick. When the mortar is starting to set it should be compacted with a brush to leave a rough slightly recessed surface. It is important that the brick edges, however worn, are not covered with mortar, or the joints will look wider than they should.

Figure 4 Example of ‘Stone’ cladding (left of picture) in Islington

Figure 5 Spalling brickwork
really are. The most vulnerable part of the brickwork is the jointing where the mortar between the bricks is liable to weathering. Repair or replacement of the mortar is known as repointing. The width of the joints after repointing should be no wider than they were before.

When using lime mortar it is beneficial to moisten the brick slightly before pointing, which will help the mortar set evenly and at the right speed.

Many builders like to use their own particular finish, such as ‘bucket handle’, ‘struck’ or ‘weathered’ pointing, the last two achieved with an angled trowel. **NONE** of these finishes are appropriate for old brickwork. They result in the joints appearing as a rigid network superimposed on the bricks, which detracts from the brickwork. Instead, the pointing should fade into the background.

Successful repointing depends on good preparation (raking-out). All the old soft and crumbling mortar should be removed and the joints taken back to at least the same distance as the width of the joint, or 15mm behind the face of the brick. Use a narrow scraping tool, not a hammer and a chisel, and **never** an angle grinder or powered circular saw. It is essential that the sharp edges (known as arises) of the bricks are not scraped or rounded off. Damage will make neat repointing very difficult. If only a small area of brickwork needs repair, the rest should be left well alone. Only if the majority needs repointing is it worth doing all, for the sake of uniformity.

**Soaking**

It is essential to give the raked-out joints a good soaking. This prevents the wall from sucking the moisture out of the new mortar. Use a gently pressured hose. Avoid working in frosty weather where freezing could cause damage to bricks and new mortar. Avoid soaking the ends of any timber joints or tie bars built into the brickwork, as this may encourage rot.

**Choice of mortar**

With old bricks avoid using cement-rich mortars. These are hard and inflexible, which puts stress on the bricks, fails to allow for any natural movement and does not allow moisture in the brick to escape. This can cause severe damage, such as flaking or spalling of the surface.
For repointing, use a lime-based mortar, which is porous and flexible, and allows the bricks to breath. As a general rule, cement should not be used in mortar, but the mix shall be made of lime and sand and should ideally be no stronger than 1:3 (hydraulic lime: sharp sand). The use of a hydraulic lime may also be appropriate but this should be discussed further with Council’s Conservation Officer prior to proceeding. Avoid using artificial pigments in trying to match new mortar with the existing. Colours are difficult to get right and may fade. Lime mortar may look too white when new, but a few years of natural weathering will tone it down. Where extensive areas of repointing are proposed on a listed building an application for Listed Building Consent may also be required. In this regard, consultation should occur with Council’s Conservation Officer prior to works proceeding.

Where fine joints exist such as in the case of ‘tuck’ pointing a more sensitive approach should be adopted (Figure 6).

![Figure 6](image-url)
Cleaning of brickwork

Brick cleaning can be a damaging process, and is not always recommended. In an old terrace which has weathered uniformly cleaning an individual building may also be visually undesirable (Figure 7).

Cleaning is a specialist job. Sand blasting or abrasion is not recommended as this may remove the surface of the brick. Chemical cleaners may also erode the brick and/or the mortar. Simple water washing, either by hand or spray is always the best method. In all cases it is best to consult expert advice.

Listed Building Consent is normally required for the above works and advice should be sought from Council’s Conservation Officer prior to proceeding.

Figure 7  Inappropriate appearance of brickwork following cleaning. Note the colour of the adjoining ‘weathered’ brickwork
Useful contacts

Islington Council - Planning & Development Management Service
Website: www.islington.gov.uk/services/planning
Email: planning@islington.gov.uk

Islington Council - Building Control
Website: www.islington.gov.uk/services/planning/building-control
Email: building.control@islington.gov.uk

Historic England
http://www.historicengland.org.uk

The Society for the Protection of Ancient Buildings
www.spab.org.uk

Building Conservation Directory
www.buildingconservation.com