



No 1 Morlais Buildings

Pontmorlais

Merthyr Tydfil

Repair and Cleaning of Stonework Methodology Document

Date 18/12/2024

Planning Ref – P/19/0314

Condition 3 in line with policies BW6 & BW7

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Issued by Atrium Planning Consultants

This document is to read in line with:

Existing Elevations & Plan – PL002

Proposed Elevations & Plans - PL003

Proposed Shopfront Elevation – PL004

Planning Application – P/19/0314

Design and Access Statement – October 2019 – Ferguson Mann Architects

Description

No1 Morlais Building lies within the Pontmorlais area at the northern end of the Merthyr Tydfil Town Centre Conservation Area. The character area of Pontmorlais described in the Merthyr Tydfil Town Centre Conservation Appraisal (June 2009) is concentrated around the Pontmorlais High Street which is a continuation of what is now the more commercial end of the High Street to the south.

The building is 3 storey with a very distinctive frontage, baroque style gable forming a very strong presence at this end of the High Street. Historic photographs and surviving physical features evidence the fact that buildings 1 to 6 were built as a terrace with identical architectural features including:

- Distinctive brick ‘dutch’ style brick gables with limestone dressings
- Pedimented double sash decorative window with limestone dressings at second floor
- Full height arched headed tripartite timber window/ glazed screen at first floor with fixed central light and opening casements each side with egg & dart moulded stone cornice above.
- Decorative horizontal stone banding at each storey with full height stone pilasters with carved head detail with carved stone ball finial and capping
- Stone surround to shopfront with fluted pilasters and very ornate carved pro

Proposed Work

- Remove masonry paint finishes from all stone features.
- All stone cills to be repaired.
- Repair second floor sash window including repairs to central mullion.
- Reinstall stone fascia panel to first floor.
- Shopfront pilasters be repaired and redecorated. Any missing stone features to be reinstated. Any new to match existing.

Method and quality statement

- Stonework

General information

- The need to clean a building is commonly perceived as being critical for its wellbeing. Such a physical act is driven by aesthetic considerations often without considering the after-effects or consequences properly. With this in mind careful consideration must be given before attempting to clean a building
- The methods for cleaning stone are similar to those for cleaning brick, but it is vital that you identify the type of stone to be cleaned and what you are trying to remove.
- Stones vary in their resistance to cleaning and there are some very soft stones used in buildings. The softer the stone, the greater the risk of damage when cleaning.
- The iron content of the stone could also be important when assessing the risk of staining. Consideration must also be given to how the removal of dirt will affect the weathering qualities of the stone and what remedial works might be necessary to both the fabric and the jointing of the surface.
- Always test the cleaning method on a small, inconspicuous area of the stone before cleaning the entire surface. This will help you determine if the cleaning method is safe for the stone and if it will produce the desired results.

Stonework (New & Repair)

General

- Stone sourcing should form part of the design and specification stage of any repair project. Identifying suitable sources of replacement stone at this stage will enable the work programme to remain on course and within budget.
- Stone sourcing for historic building repair must take the following factors into account:
 - Contents the replacement stone should be similar in colour, texture, physical, chemical and mineralogical properties to the original
 - Any intervention must not harm the original building fabric nor the significance of the structure
- Matching stone is often not straightforward. Although it may be possible to distinguish common stone types (sandstone from slate, or Bath limestone for example) on the basis of colour and texture, there are many subtle colour differences, textural changes and variations, such as striations and sedimentary structures, variable grain sizes, porosities and cementation, and even mineralogical incompatibilities within generic stone types. These fine details may be critical to a successful repair, but their recognition requires considerable expertise.
- The Natural Stone Directory (published biennially) currently lists about 275 quarries producing building stone in the UK. Other quarries supplying building stone can be found in the Directory of Quarries & Quarry Equipment and in the Directory of Mines and Quarries. The British Geological Survey and freelance stone consultants can also help locate appropriate current sources of stone.

Treatment

- Identifying a specialist stone mason or stone specialist will be crucial to the project's success or failure
- The repair of damaged areas follows the cleaning process. Potential repairs include removing and resetting existing stones, sourcing original stone in order to replace damaged stones, replacing just part of a stone which is called indenting, and repointing which is the process of repairing stone mortar.
- Where a stone has become partially damaged or affected by the weather but is still basically sound, the stone can be repaired by cutting out the damaged area and letting in a new piece of stone worked to match.

- Where a stone has become damaged beyond repair the complete stone needs to be replaced. Care must be taken in removing a stone(s) that the adjoining stones are not damaged or undermined and made unsafe.
- Following a detailed assessment by a skilled stone mason as mentioned above, any excessively friable and/or eroded masonry is to be carefully cut back and dressed back by hand, making sure no damage is caused to surround surfaces, an indent repair will be carried out where necessary using dressed stone to match exactly existing and adjacent and secured by means of stainless steel dowels, grouted and pointed in Lime mortar to match exactly the specification of existing and adjacent.
- New work - Stone should match the original in colour, texture, geological type, porosity, and hardness. It should also perform similarly to the original stone. Mortar should match the original in colour and materials, bed and joint sizes should match the existing.
- Copy the surface finish on the new stone to match the original, this should come apparent once the stone has been cleaned. Working the stone on site is the best way to replicate an existing style

Stonework (Clean)

General

- Physical methods: these include brushing and rubbing, washing and steaming, wet and dry abrasives (commonly referred to as, or surface redressing).
- Chemical methods: applied as liquids or poultices, these may employ the use of alkaline treatments, acidic treatments or organic solvents, singly or in combination.
- Special techniques may promote the use of impregnated sponge, laser technology, ultrasonic equipment, heat lances, gypsum inversion, bacteria, poultices or gels, and surfactants (degreasants or soaps).
- Not all treatments are appropriate for all materials, and extreme care needs to be exercised when deciding which system to adopt. Due to the need to minimise the risk of damage, the 'do not clean option' should also be borne in mind.
- Care needs to be exercised when contemplating the consequences of washing chemicals into underlying masonry during rinse-off stages, and the question of how to stop 'wash-in' occurring on porous stone surfaces when 'washing off' chemicals should also be addressed

- Preparation and trials should be carried out well before the main cleaning operation. Trials should be carried out on a limited and less conspicuous area of stonework.
- As the principal areas of concern and risk are at the point of operation, most of the new systems have been designed to make sure that operatives have total control over what is happening.
- Working with very low water volumes or air pressures, and with a range of nozzles, a variety of new agents are offered. These include spherical nodules of calcium carbonate for use on limestones, and fine particle aluminium silicate for use on sandstones and granites. Calcium carbonate, olivine and calcium silicate abrasives are also available
- Avoid high pressure cleaning methods they can do untold damage to stonework

Treatment

- The need for trial areas to establish the optimum methods and understand any adverse impacts from cleaning. The selection of a proposed cleaning method and its justification.
- The methodology for treatment will be defined by the results. Trials must always start with the gentler options (such as intermittent sprays using minimum water, poulticing and wet air abrasion) but it is also imperative that the method is being used in a sensitive way by somebody aware of its possibilities and limitations.
- The following cleaning methods are considered potentially safe for limestone buildings, although all methods have their place in conservation or for special circumstances.
- Nebulous Spray or Intermittent Mist Spray Washing From fixed nozzles - This method applies the lowest quantity of water for the minimum time to soften the surface dirt. The dirt is then removed by gentle brushing (natural bristle brushes are least damaging). This is a carefully monitored process to avoid saturation of walls, such as may happen with a domestic hose or power washer.
- Poultices - This method is appropriate in cases where pollutant blemishes that are not soluble in water have to be removed and for the restoration of finely detailed stonework. A poultice is made from clay, paper pulp or latex with a variety of chemical additives that are deemed suitable for removing specific types of soiling.
- Abrasive spray techniques and superheated pressure systems - These are very useful in certain circumstances but as they normally rely on the use of handheld equipment there is an increased risk of removing surface patina from the stone. There is also the possibility of an 'over-cleaned' appearance which could harm the character and appearance of the building.