

FREW CONSERVATION

HISTORIC BUILDING
CONSULTANCY & TRAINING

Our ref: CC363

Lighthouse Keepers' (Upper Square) Cottages, Hynish.

Recommended specification and methodology for remedial repairs to chimneys.



Client: The Hebridean Trust c/o ZM Architecture

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I. CONTEXT

- I.1. Craig Frew Building Conservation Ltd. (Frew Conservation) have been appointed by The Hebridean Trust via ZM Architecture to prepare a specification and methodology for remedial repairs to the chimneys to the Lighthouse Keepers' (Upper Square) Cottages, Hynish, specifically the tripartite chimney stack located on the spine wall between units 1 and 2.
- I.2. A site visit, inspection and investigations were carried out by Craig Frew (Frew Conservation) and Nick Blair (ZM Architecture) on 5 October 2023.
- I.3. An email from Nick Blair to Trudy MacKenzie dated 16 November 2023 sets out a summary position from the site investigations, with a link to access our photographs.
- I.4. This document sets out a recommended specification and methodology for remedial repairs to the chimney stack only. Additional recommendations are incorporated within the above email.

2. SUMMARY OF RECOMMENDATIONS

2.1. In terms of the external chimney stonework:

- **The chimney stack requires to be fully repointed to depth** due to the presence of open joints, cracked pointing, inappropriate repointing, and the presence of degraded bedding mortar, all of which are contributing to water ingress into the chimney flue and saturation of adjacent masonry wall fabric. All defective and inappropriate mortars should be cut out and raked out. Joints should be flushed out with water to removed and debris but allowed to dry prior to repointing.
- **The mortar flaunching to the chimney pots requires to be renewed** due to cracks and gaps permitting water ingress into the chimney flue and saturation of the adjacent masonry wall fabric. The existing mortar flaunching should be cut out and the (stone and chimney pot) surfaces cleaned for reinstatement, applying a bonding coat prior to forming the mortar flaunching.

3. RECOMMENDED SPECIFICATION & METHODOLOGY

- 3.1. For repointing chimney stacks, we recommend Mason Mortar Fine Ashlar Pointing (MMFAP) to be used with their Mortar Gun Kit 3 and the additional Micro Grouting & Injection Conservators Kit. For this work the recommended method of application will ensure that full bed joints can be filled. The mortar has a very high lime content and is feebly hydraulic, however the inclusion of fine carbonates gives the mortar a robust set. Using the 150mm needles can facilitate filling of joints to 160-170mm depth.
- 3.2. For the mortar haunching, we recommend Prompt Natural Cement which, in the specified ratio, will provide a very robust and essentially waterproof mortar haunching detail. Application of a bonding coat prior to forming the haunching is critical to minimise the risks of cracking at the mortar: stone interface.

Mortar	Suitable for	Constituents	Mixing
Masons Mortar Fine Ashlar Pointing (MMFAP) To be used with MM Mortar Gun Kit 3 and 150mm needles.*	Pointing chimney stacks.	CL90: NHL blend with fine fillers (limestone, chalk, and talc) and melamine (the commercial form of casein).	Mix 295-330ml clean potable water per 1kg for >2mm width joints. For finer joints use up to 390ml water per 1kg FAP. Mix at high speed for not less than 1.5 minutes. Allow standing for 5-10 minutes. Remix for a further 1 minute before using.
Prompt Natural Cement (with Tempo set retarder)	Mortar haunching to chimney pots. Also use to apply bonding coat (as a stippled-on slurry) to chimney cope and chimney pot prior to forming of the mortar haunching.	1 part Prompt: 1 part concrete sand (any source)	Use tempo retarder at 1 capful per litre of Prompt. Mix dry sand, Prompt & Tempo first. Add water immediately before use, noting setting times.

*MM Mortar Gun Kit 3 (below left) comes with 50mm & 150mm length stainless-steel needles with an outer diameter of 3.3mm (10 gauge), 4mm (8 gauge), 5mm (6 gauge) or 6mm (4 gauge). The additional Micro Grouting & Injection Conservators Kit (below right) includes the 1.45mm (14 gauge) and 2.67mm (12 gauge) needles (50mm and 150mm length). It is unlikely that the 14-gauge needle will be required for this work.

