

LIMITED CONDITIONAL STRUCTURAL REPORT

27th February 2020

Prepared for Joseph Keller
Panorama Living Limited
5th Floor
Digital World Centre
1 Lowry Plaza, The Quays
Salford, M50 3UB



North East Elevation

Project	Newsome Clock Tower, Newsome Mills, Ruth Street, Newsome, Huddersfield, HD4 6JF
Project Number	2020/083
Date	27th February 2020

Our Ref: 2020/083/JL

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Joseph Keller
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5th Floor
Digital World Centre
1 Lowry Plaza
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M50 3UB



Dear Mr Keller,

Structural Conditional Report on Newsome Clock Tower, Newsome Mills, Ruth Street, Newsome, Huddersfield, HD4 6JF

Following the verbal instruction received from yourself we have carried out a non-intrusive visual inspection of Newsome Clock Tower, Newsome Mills, Ruth Street, Newsome, HD4 6JF on 27th February 2020, in order to assess and comment on the condition of the masonry, any movement seen and identify any remedial works required to the structure.

The inspection was carried out during fine dry sunny weather.

No inspection has been carried out to non-structural items such as window frames, doors, fixtures and fittings etc. No inspection has been made to plumbing or electrical installations. No inspection has been carried out to the existing drainage.

The inspection was limited to immediately visible and accessible areas only. No high level access has been carried out, only inspection from internal floor levels and external ground levels. External high level inspection was made using Barr & Stroud 10 x 42 Binoculars.

No intrusive exploratory work was carried out during the inspection. No trial holes to inspect ground conditions or foundations were carried out as part of this investigation.

This report does not provide a comprehensive list of all structural or potential structural defects, which may be present with the property.

No materials testing has been carried out unless specifically stated.

No inspection or testing has been carried out on any defective woodwork, exposed or hidden. Advice should be taken from suitably qualified timber treatment and preservative specialist contractors.

No damp testing has been undertaken, again advice should be obtained from suitable qualified specialists.

No enquiries have been made with Statutory Authorities with regard to Planning or Building Regulations.

No enquiries have been made with the Coal Authority.

The Report of the Inspection is for the sole use of the Client and the Client's professional advisers and should not be reproduced in whole or in part or relied upon by any third parties for any use without the express written approval of SGM Structural Design Ltd.

The findings of this report are based on information supplied by the client. The information has been accepted and used in good faith and unless otherwise stated no attempt has been made to verify the information provided.

The findings and recommendations are considered to be valid and appropriate at the time of preparation.

This report should be read in conjunction with Appendix A for general and detailed photos, showing extensive views of various defects, seen externally, as seen to the naked eye, and using Barr & Stroud 10 x 42 Binoculars.

Reference Position

For the purposes of this report all references to left, right, front and rear are as viewed from Hart Street looking towards the open elevation shown above, ie, looking towards the East Facing elevation. This is actually the South East Elevation on the compass.

Topography

The Grade II listed Clock tower is now a free standing structure located on a former large Victorian Mill complex founded in 1827. The former building was a working mill until 1983. It is believed that an arson attack burned the building down in November 2016 where over 100 firefighters were on hand to tackle the blaze.

The site is now a flat wasteland.

No information is available with regard to the ground conditions or geology on the site.

General Description and Form of Construction

The clock tower is of traditional construction for the time. the shaft measures 6.06m x 6.9m externally at ground floor level. The natural stone external walls are built of a hard 'gritstone' form of sandstone. External walls are in the order of 650mm thick, built up of stone external leaf with brickwork internal leaf. these walls will most likely be rubble filled.

The flight of stairs is constructed of natural sandstone treads spanning between the internal brickwork lift shaft (1.67m x 1.50m internally) and the external walls. Stair flights lead up to large natural sandstone landing slabs.

An abandoned and vandalised cast iron staircase previously lead to a water tank on the roof.

Observations

The following comments are a brief **summary** of the much more detailed comments noted in Appendix A – ‘Photos’, at the rear of this report.

External Observations

Generally, it was observed that most elevations have suffered from opening up of the stonework corbelling at the higher levels. In addition to this the bedded stonework has vertical cracking and has suffered from opening up of joints. This outward movement of the tower corners at high level, has caused movement of the stonework to the inset arches at upper levels.

There are numerous cases of cracked stone sill members.

There are large areas of loss of the strap pointing. This pointing was considered to be original and comprised of cement with a grit sand mix.

All walls where possible were checked for verticality and were found to be plumb.

The stonework was in a very good general condition with little weathering noted. There were only occasional repairs to be made to damaged stone members.

Internal Observations

There is only very minor evidence of fire damage. This includes some charring and some cracked lintels.

All internal stone steps and landing members are in excellent condition. heavy wear was noted to the steps, measured as being in the order of 30mm in places.

The inner face of the external walls and also the internal lift shaft walls were checked with the 1.8m long spirit level and found to be plumb. All the internal brickwork walls were in an excellent condition.

At roof level, there was a series of barrel vaulted brick arches that support the roof deck and water tower plus bell tower. These are restrained the steel / cast iron rods and beams. Again all were in excellent condition. Mild surface corrosion was noticed to the steelwork.

Conclusion

1. The clock tower, built in 1827, is in excellent condition with very little significant defects noted.
2. The tower is plumb with no noticeable lean present.
3. Stonework is in very good condition.
4. The stonework at the top of the tower has minor outward spread caused by the action of the weather. Summer sun will have caused expansion of the masonry, and winter inclement weather will have resulted in freeze/thaw action resulting in freezing of water in joints resulting in outward movement.
5. This masonry movement has resulted in the opening up of the joints seen in the corbelled stonework courses at all areas, and also the bedded stonework having vertically cracking near the corners.
6. As a result of the corners moving out, the upper stone arches have opened up causing movement of the individual stone blocks, and some of them dropping down.
7. Movement of the stonework has resulted in some sill stones becoming cracked. These are of little structural concern. Similarly occasional lintels have cracked, some caused by the 2016 fire. Those where seen are of little structural concern.
8. There are extensive areas of original pointing that has become dislodged and has fallen off.

Recommendations

1. The outward movement of the tower stonework at the corners needs an internal restraint system installing. This should take the form of a galvanised steel ring beam. This should be resin fixed to the inner face of the external walls with stainless steel threaded bars resin fixed through the inner brickwork to the outer stonework. The development of the design and drawings after a detailed survey is outside the scope of this present report.
2. The corbelled level of stonework seen just above the level of the bell louvers need further direct restraint from the top down by installing dog cramps full perimeter to prevent the upper stone large corbels moving out.
3. There are extensive areas on all elevations that need re-pointing. This should be undertaken by carefully chipping out and raking out the joints to a depth of 20mm to allow new strap pointing to be installed. The pointing mix should be agreed with Kirklees Listed Building Department as, indeed, all aspects of the refurbishment works.

Builder's Works Budget Costings

We have had discussions with general builders on the various aspects of the remedial works that will be required on this tower refurbishment. The informal guideline figures quoted are as follows:

- Full height external scaffolding including boarding - Allow £8,000 to £10,000.
- Raking out and Patch repairs to the missing pointing Allow £6000 to £8000.
- Internal steel angle restraint ring beam (galvanised) including stainless steel threaded bars through to outer leaf and resin. Including erection towers internally at high level and installation, Allow £12,000 to £16,000.
- External dog cramp straps to top face of corbels full perimeter. Dog cramps fabricated in stainless steel or galvanised steel. Allow at this stage to only one level. Allow £6,000 to £8,000.

All the above are guesstimate figures as no external high-level, close proximity access is available, no detailed measurements have been carried out, no designs have been undertaken or drawings prepared for any strapping schemes. No consultation has been had with Kirklees Listed Buildings department. There is no allowance for replacement of any damage stonework, or repairs to stonework. external dog cramps are only allowed for at one level, and may be required at multiple levels after a high level inspection. No inspection has been made to roof weather finishes or the condition of the water tower or clock tower.

I trust the above meets your present requirements. Should you have any queries with regard to the above, please do not hesitate to contact me.

Yours sincerely,



Stuart McCormick

B Eng (Hons) C Eng MStructE

Director

SGM Structural Design Ltd

APPENDIX A

PHOTOGRAPHS





Photo 1 –South East Elevation General View



Photo 2 – North West Elevation General View



Photo 3 – South West Elevation General View

NORTH WEST ELEVATION DEFECTS



Photo 4 – Enlarged photo of top storey and 2 levels of corbelled stonework showing opening up of joints.



Photo 5 – Upper open joint to right hand side corbelled stonework – Also wide joints to bedded stonework, adjacent corner pillar.



Photo 6 – Left hand side, showing further open corbelled stonework joints.



Photo 7 – Areas of strap patch re- pointing required.

SOUTH WEST ELEVATION DEFECTS



Photo 8 – Enlarged Photo of South West Elevation top clock level and louvered level.

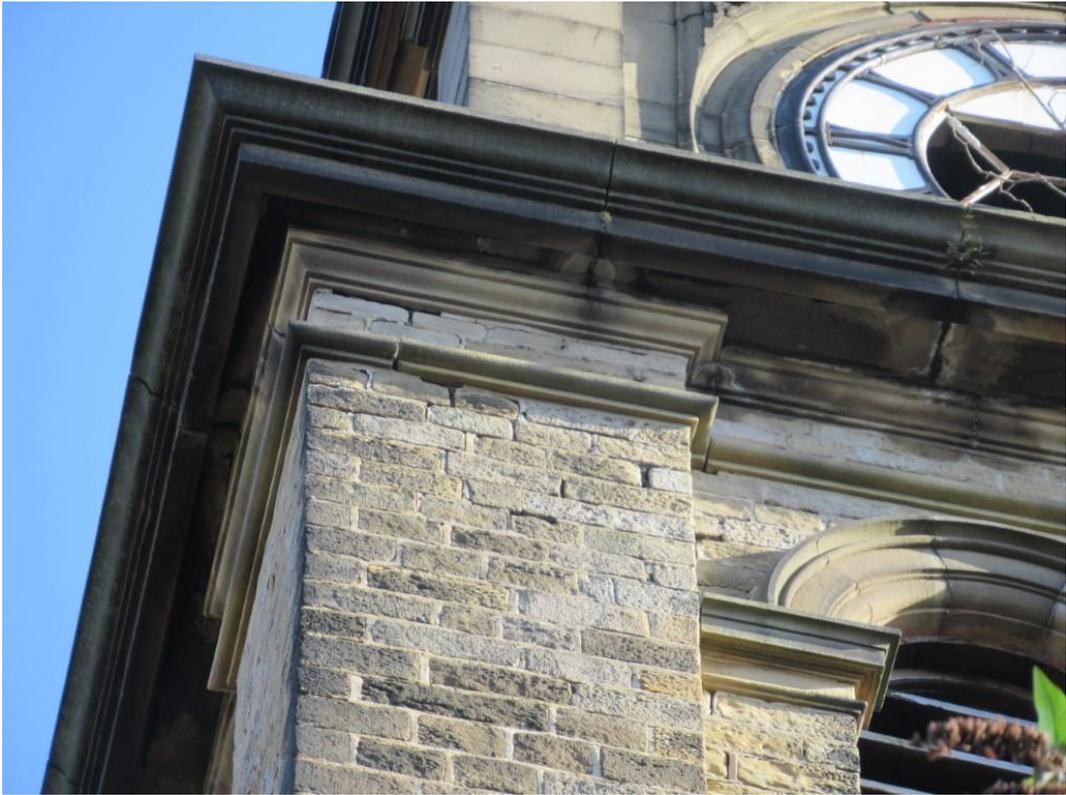


Photo 9 – Left hand side general open joints to walling stone at corner.



Photo 10 – Further open joints to corbelled stonework, above louvered bell tower opening.



Photo 11 – Right hand side where the historical 4 storey high mill building, was previously attached. **NB** – Corner of the clock tower is perfectly plumb.



Photo 12 – First floor sill stone – Cracking at centre.
NB, Localised loss of strap pointing.



Photo 13 – Enlarged view of first floor sill stone to south west elevation.



Photo 14 – General view of crack to third floor window sill.



Photo 15 – Enlarged view of crack to third floor window sill.

NORTH EAST ELEVATION DEFECTS



Photo – 16 – Enlarged view of fourth floor, showing impact damage to the stone corbelled course. **NB** Smoke damage as a result of the relatively recent fire.



Photo 17 – Displaced corbelled stonework to arch, as right hand corner stone pillar has moved out. Timber louvre has become displaced.

SOUTH EAST ELEVATION DEFECTS



Photo 18 – Ground floor lintel – fire damaged.



Photo 19 – Enlarged view of crack to the underside of the stone lintel – caused by fire damage, due to the intensity of the heat.



Photo 20 – Similar cracking to first floor lintel.



Photo 21 – Opening up of cornice stonework.

INTERNAL PHOTOS



Photo 22 – General internal view of ground floor showing central brickwork core around lift shaft. In excellent condition.



Photo 23 – Underside of fire damaged stone slabs to first floor landing.



Photo 24 – General view of lift shaft. In excellent condition. All walls plumb.



Photo 25 – Underside of staircase above ground floor quarter landing.
Excellent condition.



Photo 26 – First floor landing. All in excellent condition.



Photo 27 – Worn natural stone staircase flight, measured as 30mm of wear, but otherwise in excellent condition.



Photo 28 – Historical crack to window sill stone at first floor.



Photo 29 – Historical alteration to the width of the lift shaft. Typical at each level. Possibly required due to concertina action of retro fit lift doors.



Photo 30 – Third floor sill stone. Possibly set incorrectly as no signs anywhere of any settlement or distortion of the clock tower building.
NB, Levels were checked to the lift shaft brickwork and clock tower verticality in numerous locations with a 1.8m long spirit level and ALL found to be plumb with no lean.



Photo 31 – Remains of the historical cast iron spiral staircase to the bell tower level.



Photo 32 – Barrel vaulted ceiling to the third floor level, showing access hole for the spiral staircase to bell tower. Barrel vaulted brickwork is supported by cast iron beams with the rods present to prevent spread. Mild surface corrosion noted to the beams but otherwise in excellent condition.

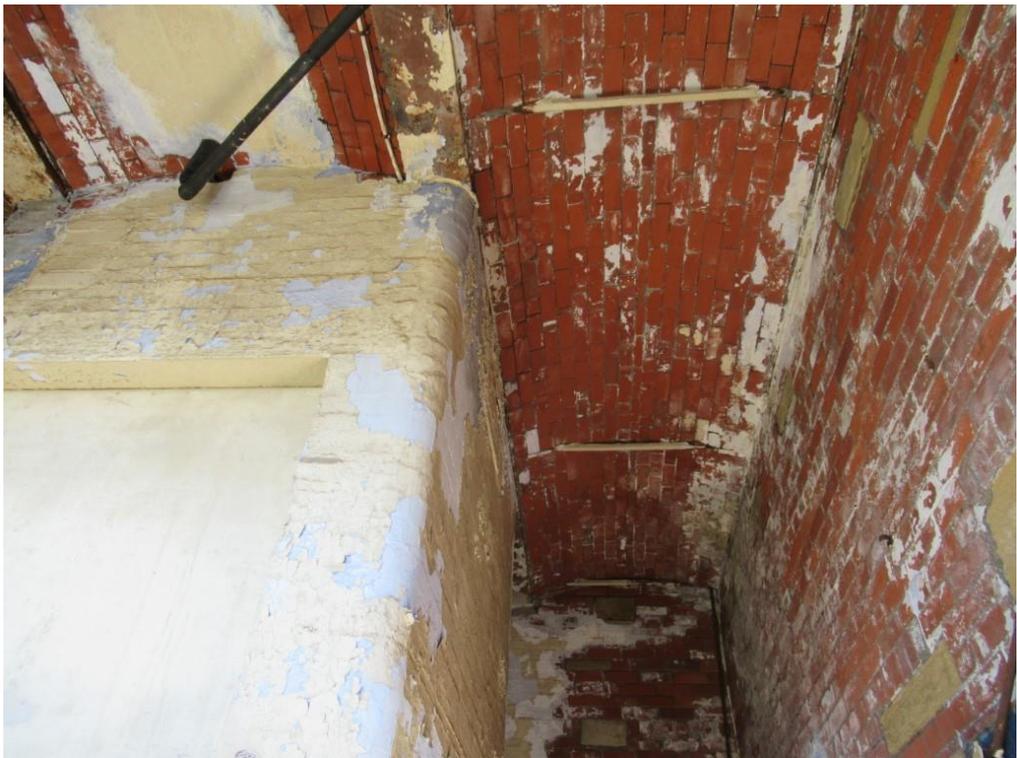


Photo 33 – Further view of the barrel vaulted ceiling, again in excellent condition.