



PreCon LogStrat, LLC

PO Box 417
Mastic Beach, NY 11951
(631) 772-9540 Fax (866) 450-6978
info@precon-logstrat.com
www.preco logstrat.com

Consultants with tools.

07/22/2011

Heritage Restoration, Inc.
122 Manton Ave., Box #7
Providence, RI 02909

RE: First Congregational Church, 281 High Street, Bristol, RI – Site Visit of 07/21/2011

Ken Follett visited and reviewed various masonry related conditions at the site with Rob Cagnetta and Jeremy Ballard.

Basement: Sill Plates

1. It was discussed the need to replace the wood sill plates that support the floor joists and the interior frame walls. Joists with deteriorated ends will likely be sistered on each side of the joist.
2. One option for the replacement is to shore the joists and to remove a portion of stone masonry below the sill plates.
3. In some areas the stone is small in size and this would be a comparatively easy removal, but in other areas the stone is quite large, of a random ashlar mix of hard basalt, granite or similar dense stone.
4. Discussion was as to either cutting of the large stone with a diamond blade or the use of expansive mortars to split the stones. These methods of cutting are possible though not necessarily practical or efficient. Feasibility is an issue to be reviewed if these methods are to be looked at more closely.
5. Discussion included if the sill plate can be replaced with brick with copper sleeves to protect the joist ends. This would be a relatively easy approach compared to cutting of the stone.
6. Note: Brick can be saw cut on-site to an exact fit for each joist bearing and set in place without the need of mortar. Elimination or minimization of a mortar for setting the brick would speed up the sill plate replacement process. Or a quick setting non-shrink grout can be used to set the brick if required for level.
7. Recommendation: Review this methodology with the structural engineer.
8. Recommendation: Research a brick and grouts for review.
9. Suggest that a solid brick be selected. Suggest a paver brick for maximum compressive density. Use of brick would alleviate any future issues of a wood sill plate rotting out.

Basement: Foundation

1. It was discussed the intention to remove the earth that creates the crawl space, the installation of a floor slab as a vapor barrier, and the installation of drainage systems in order to reduce the moisture and humidity levels of the basement area.
2. It appears that where the basement was previously excavated that steps (masses of stones) were placed at the interior of the masonry foundation wall. These steps were observed both at the north and the south elevations (the long walls). A presumption is that the bottom of the masonry wall is at an elevation above the existing excavated floor level.
3. Recommendation: At the north and south walls to dig a preliminary test pit to determine the elevation of the footer of the stone walls. This should be done prior to start of excavation.
4. Recommendation: These conditions to be reviewed with the structural engineer prior to any excavation work.

Basement: Balcony Column Supports

1. The condition of the non-functioning masonry columns for support of the balcony columns was observed.
2. Excavation will require shoring in a number of locations. The footer stones for the majority of the balcony column supports are at an elevation higher than the intended finish floor slab and these supports will require replacement.
1. As noted in the structural engineer's report there are alternative methods suitable for support of these columns. Our recommendation leans toward replacement with load-bearing brick masonry.
2. It was discussed that brightly painted orange shoring of the balconies can be utilized as a visual communication.

Basement: Small Brick Wall

1. As noted in previous reports from others there is a bowed brick wall at the opening that leads from the basement to the church tower. Our recommendation is that unless this wall is proving out to have a function that it be removed and discarded.

Basement: Excavation Access

1. In discussion with the excavator it was noted that at the bulkhead door that the area would need to be widened in order for the excavation equipment to access the basement.
2. Removal of an area of stonework with appropriate shoring is quite feasible.
3. The stone steps will also require removal.
4. Recommendation: Review with structural engineer.
5. Recommendation: If there is an intent to salvage and re-set the stones, to reduce the opening area back to the original size of the existing bulkhead, then care of the process needs to be taken to assure that the stones are not damaged and are kept in their proper order for reconstruction.

Exterior Walls: Mortar/Sand Issues at Sill Plate

1. As there is a space between the interior of the stone walls and the wood framing there is evidence of mortar that has disintegrated into sand and that has fallen down to set upon the sill plate.
2. This condition exacerbates the moisture conditions at the sill plate.
3. What is not known is how long this disintegration has been ongoing.
4. What is not known is if the disintegration continues and will continue to be a problem if the wood sill plate is replaced with wood.
5. What is not known is if the sand is accumulated from the total height of the stone wall.
6. What is not known is the condition of the mortar on the interior face and interior to the stone wall.
7. What is not known is if there are wood or other ledges interior to the wood framing at a higher elevation than the sill plate that may be capturing sand or mortar and thus create a situation of moisture and wood decay at higher or multiple elevations in the structure.
8. As noted during the site visit if the amount of sand revealed on the sill plate is from the full height of the wall and took 100+ years to accumulate then it may not be an issue of concern.
9. The following recommendations we propose be coordinated with a site visit of the structural engineer.
10. Recommendation: That a very long boroscope be put up from the sill plate location to see if it can be determined the full height of the space and if there are any intermediate barriers. Observation of the mortar condition at the interior of the stone wall.
[Extensions to boroscopes are available and can be run to relatively long distances.]
11. Recommendation: Use a mirror or periscope and very bright halogen lights focused to a narrow beam to determine the nature of the space and use a laser range finder to see if it is possible to determine height of the space. Once a height is determined then compare the measure to the interior and exterior elevations.
12. Recommendation: That on at least two levels, one lower and one higher, at both the south and north walls (long walls) that an interior probe be done to determine the nature of the mortar condition at the interior of the stone walls. Initial these probes can be boroscope holes with an allowance to make them larger dependent upon the information revealed by the boroscope.
13. Recommendation: At the exterior of the north and south walls that a lift be brought in for one day of examination, and that there be a bit of opening up of the repointed mortar joints in order to determine a representative sampling of the conditions of the mortar interior to the stonework. The existing repointing may or may not be covering over a loss of binder in the mortar of the stone wall.
14. If there is extensive loss of binder in the mortar of the stone wall this could represent a considerable problem and a considerable cost to rectify.
15. It should be determined the depth of the repointing mortar.
16. When a lift is on site we recommend the repointing of a few areas of missing mortar at the west elevation (front of church) wall.

Exterior Walls: North Elevation, Red Stuff

1. Our opinion is that the red material on the walls is organic, not causing any particular problem to the wall, and if anything it can be cleaned off in very quick order with a pressure water rinse.
2. Cleaning of areas such as this can be utilized as a visual communication.

Tower: Interior Conditions

1. It was noted that there is superficial defoliation of the stone on the southwest interior corner at the level below the bell.
2. It is presumed that this deterioration may be connected with condensation from warm air that passed out from the opening that leads into the roof truss area of the church.
3. Discussion was had as pertains to the possible in-built air handling of the church structure and those conditions of airflow, heat, and humidity should be reviewed and observed over time.
4. Recommendation: Monitor the humidity and temperature interior to the tower at this level at both the southwest and the northeast corners (control corner).
5. Recommendation: Rather than blocking off of the access and airflow from the truss area we recommend consideration of a metal plate/screen to be installed spaced off from the stonework at the southeast corner such that condensate water will be diverted by the screen to drip down to the floor and not reach the stone walls.

Tower: Brick Chimney

1. As discussed on site, as the roof of the tower will be replaced and the brick chimney will not be used in future we recommend that it be removed down to below the roof level.

Tower: Roof Flashings & Sealants

1. In general it is our recommendation that the top joint above cap flashings be repointed with mortar (possibly latex modified) with weeps and not that they be installed with a sealant. The intent is to achieve a balance between restricting liquid water from entering into the joint but to reduce the inhibition of water vapor to evaporate out of the masonry at the flashing line.
2. Standard depth of reglet cut for the flashing we recommend 2" minimum.
3. The existing sealants on the crenellations appeared to be in appropriate locations and where the sealant is open we recommend application of a urethane (BASF/Sonnedorn NP1) be installed and monitored.

Roof: Drainage

1. Noted was discussion of installation of additional leaders to the north and south elevation gutters of the main roof.
2. The existing gutter sets on a stone ledge and the installation of new leaders would require the core out of the stone. We have access to people that are particularly competent in coring of stone in a precise manner and would be able to facilitate their participation in this aspect of the project.

Disclaimer

We are not design professionals, our comments are based on our experience in contracting for historic masonry restoration work, and any and all recommendations and observations that may be considered of a critical nature should be reviewed with an appropriate design professional associated with the project.

Sincerely,

A handwritten signature in blue ink that reads "Ken Follett, president". The signature is written in a cursive style with a large initial "K".

Ken Follett