Willett Engineering Company
Consulting Structural Engineers

June 2, 2016

Ms. Johnna Allen
City of Rome
12 East 4th Avenue
Rome, GA 30165

RE: Rome Clock Tower
WEC Job #216157

Dear Ms. Allen:

As requested, I visited the above referenced structure to observe and comment on the reported deflection the upper wooden structure may be experiencing.

The two-level wooden structure sits atop a metal water containment vessel which is 26 feet in diameter by 63 feet tall. The containment vessel is enclosed by a brick exterior wall that is approximately 40 feet in diameter. The space between the containment vessel and the exterior masonry wall creates a void which has allowed a spiral staircase to extend from grade to the observation level.

The two levels of the wooden structure (clock tower) sit directly above and are supported by the metal containment vessel (photos 2 & 3).

The wood framed exterior walls of the clock tower have been framed in such a manner as to allow the clock face to be inserted into the wall (photos 8 & 9).

Many structures, especially wooden structures of this age which have been exposed to the elements, have a tendency to move and settle and this appears to be the case in this instance. I observed some rotten wood on the exterior of the structure, but none on the interior. I also observed some interior wooden structural members that appeared to have moved and do not fit together as originally designed (photos 7 &10). These members should either be adjusted to provide a tight fit at the joints or reconnected with a mechanical type connection.

It appeared some efforts to reinforce the framing has occurred over the years (photos 5, 6, 9 & 11). The repairs appear to have been installed with great effort and I imagine these repairs are assisting in stabilizing the structure. Also, some of the wooden wall studs have been spliced together near the mid-height of the stud (photo 4).

The safety railings at the observation level appear to be well secured to the masonry parapet (photo 12). The masonry parapets appeared to be stable; however, they are coated with a plaster coating on the sides and rear surfaces (photo 14) making it impossible to visually verify the condition of the masonry.

The walking surface of the observation level appeared to be a membrane roofing material placed on top of a wooden sub-roof supported by a system of wood joists and beams and, while it appeared to be performing, I do not know if it is designed to tolerate heavy foot traffic (photo 13).

The metal stairs and handrail that lead from the ground to the observation deck appeared to be stable (photo 12). However, where the stairs intersect a window in the exterior masonry wall, the stairs are supported by a structural angle that crosses the window opening. I was not able to determine the structural adequacy of this member, however, it appears to be performing (photo 15).

Observing the wooden portion of the clock tower from the ground, it did appear to lean. However, to my knowledge, no instruments have been used to gauge the amount of movement. Also, based on conversations with locals, the tower has looked the same for years. This is not to dispel the current position that the structure should be reviewed.

If leaning has occurred, it has occurred for a reason. Even though the clock tower currently appears stable and even though I did not identify any displaced or deteriorated structural members during my visit, the leaning may be an indication there is more than a normal age related issue occurring. I did observe loose joints in the wood framing and bolts that were not tight fitting to the wood, indicating movement has occurred (photo 7 & 10).

In lieu of a complete survey and analysis of the clock tower, which would be time consuming and expensive, it is my recommendation the city continue with its current plan to paint the clock tower and replace any deteriorated or ill-fitting wood it discovers during the painting process. Additionally, this office can develop some generic details to be used to re-connect loose or gaped opened joints in the wood framing and washers to fill gaps where bolts are not fitting tight to the wood they are intended to support or brace. Additionally, WEC will develop a detail to sister a new wooden stud with the already spliced wood studs, which will reestablish the continuity to the wall members.

I feel the clock tower should be surveyed to establish the current coordinates of the structure and a monitoring schedule should be established to verify the movement, if any, going forward.

Please feel free to contact me if I can be of additional service to you on any or all of the matters.

Sincerely,

WIILLETT ENGINEERING CO., INC.

J. Mac Willett, P.E.

JMW:rt

Attachment