DEPARTMENT OF THE AIR FORCE
20th FIGHTER WING (ACC)
SHAW AIR FORCE BASE SOUTH CAROLINA

23 March 2026

MEMORANDUM FOR 20 CES/CEIEA

FROM: 20 CES/CENPD
20 Civil Engineer Squadron
428 Chapin Street
Shaw AFB 29152

SUBJECT: Structural Investigation of Rosemary Fire Tower

1. This report documents an in-depth structural investigation of the Aermotor Fire Tower located adjacent to the Rosemary House at 5345 Highway 261 South, Wedgefield, S.C. 29168. The purpose of this investigation, conducted on 22 January 2026 by James Sawyer, PE, is to assess the current structural condition of the tower and present a full exploration of options for its future, in accordance with safety and structural integrity standards.

2. Based on the January 2026 investigation, the tower suffers from significant structural deficiencies originating from both its foundation and its wooden components. Foundational cracking and advanced deterioration of the access stairs and cab have created an unacceptable safety risk. Alternatives to demolition were explored, including foundation repair and replacement of deteriorated elements. However, due to the critical nature of the foundation damage, the advanced decay of essential components, and the extreme logistical challenges and costs associated with repairs at height, the professional recommendation is that the structure should be demolished as preservation is not a feasible or prudent option.

3. The structure is a galvanized steel Aermotor fire tower, consistent with the "LS-40" type described in the manufacturer's literature, which features an inside stairway. It stands approximately 80 feet tall to the top of its 7' x 7' cab. The tower's structural system consists of a bolted, galvanized steel frame designed for observation, anchored to concrete foundation piers. Access to the cab is provided by an internal stairway with frequent landings, leading to a trapdoor in the cab floor.

4. The investigation was based on a visual inspection and documentation of the tower's physical condition. The following deficiencies were identified:

a. Foundation and Substructure: Significant cracking is present in the concrete foundations around the primary anchor rods. This compromises the anchorage of the tower legs, creating a critical structural vulnerability that jeopardizes the stability of the entire structure.

b. Floor and Stair Framing Deterioration: The wooden steps of the inside stairway and the wooden floorboards of the observation cab exhibit extensive rot and decay. This damage appears to be the result of long-term water infiltration and infestation by carpenter bees, making any attempt to climb the tower extremely hazardous. The combination of a compromised

foundation and decayed access points creates a cascading failure risk. The foundational instability could be placing undue stress on the steel frame, while the rotted wood makes it impossible to safely access the upper sections of the tower for further inspection or repair.

5. Three alternatives to demolition were explored:

a. Structural Stabilization: This option would focus on repairing the concrete foundations by chipping out the damaged areas and repouring high-strength grout around the anchor rods. However, this may not address any underlying stress that has already been transferred to the steel superstructure.

b. Structural Reinforcement & Repair: This alternative would involve the complete replacement of all wooden components, including every stair tread, landing platform, and the entire floor of the cab. Given the 80-foot height, the logistics of removing old material and lifting new material into place would be complex and costly.

c. Preservation through Partial Dismantling & Reconstruction: This would involve dismantling the upper sections to safely replace the cab floor and then reconstructing the stairway from the ground up. This is a highly intensive and specialized operation that would be economically and practically infeasible.

6. Based on the comprehensive site investigation, it is my professional opinion that the preservation of this structure is not a viable or prudent option. The instability of the foundation presents a clear and present danger, and the advanced state of decay in its access systems makes the tower an unacceptable safety liability. The cost and risk associated with any repair alternative would be excessive. Therefore, demolition is the recommended course of action.

JAMES C. SAWYER, CIV,
USAF Project Programmer, P.E.

Figure 6. Rosemary Fire Tower, facing northwest.

Figure 7. Rosemary Fire Tower, facing north and upwards.

Figure 8. Rosemary Fire Tower, facing north.

Figure 9. Rosemary Fire Tower, on lower steps, facing east. Note Rosemary House in background.