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FIELD REPORT

Project	Two Hill Residence			**Project No.**	PA-23-Green
Date of Visit	October 3, 2023	**Time**	9:00 AM	**Date Prepared**	October 11, 2023
Report No.	1			**Prepared By**	Travis Pummer

This report has been compiled based on observations made in the field during a building survey conducted on October 3, 2023. This was our first visit to the site.

Within this report we've compiled a list of observations of the building made during our site visit, along with a review of the architectural drawings provided by the homeowner. This represents only a surface level visual inspection of the property. Based on our observations there are a number of structural issues present that will require correction as part of the overall rehabilitation and addition project.

DESCRIPTION OF THE HOME:

The residence at 2 Hill Road in Atlantic Highlands is a 2-bedroom, 2-bathroom home. Both bedrooms are on the main floor of the home. One bathroom is also on the main floor, while the other is in the basement. The two floors are connected by a metal 4-foot diameter spiral stair. There is a second spiral stair leading from the master bedroom to the open roof deck.

The original portion of the home is reportedly a "Gunnison Home" constructed circa 1954. Based on our reading of the original drawings, this particular style home was a prefabricated home built using 4 foot by 8 foot panels that are 2 inches thick. The wall assembly appears to consist of 2x4 studs spaced at 16" with the flat side of the stud parallel to the wall. Each side of the wall is enclosed with 1/4 inch plywood. We understand this structural system to be considered a "stretched skin", a system used during this period. Based on the drawings provided, we assume the wall panels to be insulated with 1 ½" of mineral wool between the studs. The roof system is a typical shingle roof over a Howe truss system clears spanning the width of the house. The attic is insulated at the ceiling with kraft-faced fiberglass batt insulation. The attic and roof framing appear to be in good condition.

The original basement walls are constructed of what we assume to be 8-inch concrete masonry units. The north and east sides of the home are finished with a painted brick veneer. The interior of the walls has been finished with 2x4 studs and ½" gypsum. The stud walls on the north and east sides appear uninsulated. The south wall appears to have 1 layer of rigid insulation between the masonry wall and the stud wall.

The plans indicate that in 1996 an 11-foot by 18-foot hot tub deck was added to the north side of the carport. Three new 6x6 posts were added over what we assume to be new (at the time) 2-foot diameter concrete pier footings. Three 3 ½" by 11 7/8" engineered wood beams were added from the existing carport posts to the new posts to the north. The deck is framed with 2x8 joists spaced at 12 inches.

In 1997 there was an addition constructed adding the master bedroom and open roof deck above. This was constructed over the existing carport. It appears the existing structural posts were maintained, and the existing 2x12 floor framing was slightly modified to accommodate the increased load of the bedroom (joists sistered at every other bay). The addition walls were constructed of 2x4 studs spaced 16 inches apart, with

½" plywood exterior sheathing, and R-13 batt insulation in the cavities. The ceiling of the bedroom is 11 7/8" engineered plywood web joists.

This addition also expanded the basement. The northwest corner walls of the basement were removed to allow space for the lap pool. This expansion shifted the corner north and west by approximately 2'-6" to the north and 4'-6" to the west. Based on the drawings, the construction was accomplished with a new concrete slab floor with turned down slab edge at the perimeter. The exterior walls are 2x4 studs with a thin brick veneer to match the brick of the existing home. New engineered beams were added to carry the load of the main floor walls above the removed basement foundation walls. There is a steel post in the basement pool room carrying these beams.

During the addition, it appears a 1-inch layer of rigid insulation was added to the entire perimeter of the original house. The entire main floor of the home was finished with vinyl shake siding. ***(Fig 2)***

The home is conditioned with two gas-fired furnaces and AC forced-air systems. One unit is located in the mechanical/laundry room, while the second is located in the unconditioned, exterior closet storage space adjacent to the carport. The home has a 200-amp electrical service.

OBSERVATIONS:

A. The northwest corner of the master bedroom appears to have settled approximately 3-4 inches below the level of the northeast corner of the bedroom. (*Fig 3*)
B. We suspect this settlement caused the sliding glass doors to be out of plumb/square creating a gap and the lower latch side of the sliding door. (*Fig 1*)
C. The hot tub deck is sloping significantly to the north and west. *(Fig 7)*
D. The insulation in the attic is inconsistent and appears to have been damaged and/or removed over time. (*Fig 5*)

ANALYSIS:

A. The exterior 2 inch walls of the main floor of the original home are designed as a prefabricated system. This system needs to be analyzed by a licensed structural engineer to determine load bearing and wind resistance capabilities. While the exterior rigid insulation helped the original 2" thick walls, these walls offer very little insulation value.
B. The basement walls of the original home appear to be structurally sound and capable of carrying typical loads for single-family home construction. An investigation into the footing of the walls below grade will need to be conducted to determine bearing capacity.
C. The north and east basement walls appear to have no insulation in the stud cavities, however further investigation will need to be conducted to determine the conditions at all exterior walls. (*Fig 4*)
D. The fiberglass batt insulation that has been installed in the attic had a thermal resistance rating of R-13 prior to any damage or partial removal. Modern building codes require a thermal resistance rating of R-60. The current condition of the attic insulation appears to have nearly zero thermal insulation value. We consider this a "non-issue" as we assume we will be removing the existing roof to accommodate a second story (*Fig 5*). None of the existing roof framing or attic insulation would be repurposed.
E. The above-ground structural systems added in the 1996 and 1997 additions appear to be adequate and typical for the type of construction. However, the subgrade foundation systems appear to be inadequate.

Further investigation by a licensed structural engineer is required to determine the cause of the settlement in the northwest corner of the addition and the hot tub deck. The settlement could be caused by inadequately sized footings which could cause the building to "sink" under the gravity loads of the building. The settlement could also be caused by erosion and/or shifting soils due to instability in the underlying steep slope. *(Fig. 3 & 7)*

F. The second furnace located in the unconditioned and uninsulated storage closet of the car port is not a recommended environment for the efficiency and longevity of the unit. Additionally, the home is divided into two zones, one to the east, and one to the west. The owner has indicated a preference for the zones to be divided by floor.

G. The 4-inch concrete masonry units on the back wall of the storage closets at the carport show signs of water infiltration. *(Fig 6)*

APPENDIX:

Fig. 1

Fig. 2

Fig 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7