



GILES + FLYTHE
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April 6, 2021

Onofrio Construction
Attn: Eric Kalman

Re: Garage Wall Repair Letter
115 New River Ct.
Angier, NC

Dear Mr. Kalman:

At your request, we visited the subject site on April 5, 2021 to evaluate the damaged rear wall of the garage at the above-noted address. The scope of this inspection was limited to inspection and evaluation of the displaced portion of the garage wall, and to provide repair/replacement specifications.

No tests, measurements or calculations have been made except as described in this report. We have not investigated for toxic materials or wastes, or examined public records regarding this property. The scope of the inspection does not assure that the property conforms to any regulations, restrictions, or building codes that may be in effect at its location other than those explicitly stated. For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer standing in front of the building and facing it.

The contractor should verify all dimensions prior to ordering materials. Likewise, if any changes to sizes or modifications to the structure are desired other than what is explicitly described below, the engineer should be consulted. All construction and workmanship shall adhere to the 2018 North Carolina State Building Code: Residential Code.

OBSERVATIONS

Displacement and damages were observed at the rear wall of the garage, reportedly due to vehicle impact. Damaged components included the CMU foundation stem wall, 2x6 sill plate (and foundation anchors), and the 2x4 stud wall. The damaged section of wall extended from the rear-left corner rightward, approximately 12.5-feet. The wall top plate did not appear to have been significantly displaced from its original position.

The concrete slab of the garage is an 'infill' slab-on-grade (not structurally integral with the foundation wall), with a 1/2" isolation joint material installed along the perimeter where it abuts the CMU foundation stem walls. We did not observe physical damage or displacement at the concrete slab-on-grade.

RECOMMENDATIONS

We recommend removing and replacing the left-most approx. 12.5-feet of the rear garage wall, including the CMU stem wall and wood-framed stud wall (up to the double top plate). Replacement should also include the wall anchorage, sheathing, building wrap and exterior siding. Specifications for replacement are as follows:

Foundation:

- Remove the existing CMU stem wall down to the concrete footing. The contractor shall verify the existing footing to be minimum 12" wide and 8" thick, with the bottom of the footing positioned not less than 12" below grade. A foundation drain is not required.
- The existing concrete footing shall be contractor-verified to be of sound condition with no significant cracking or spalling evident. The top surface shall be clean and free of excess debris prior to reconstruction of the CMU stem wall.
 - If significant damage or displacement of the existing concrete footing is discovered, or if the existing footing does not meet the minimum dimension specification, the footing shall be saw-cut removed at the splice locations and replaced with new to meet the minimum dimension specification. At construction joints, epoxy dowel into the existing footing on each side with (2) #4 bars, 18" long (Simpson SET-XP, min. 6" embed).
- The new foundation stem wall shall consist of 8" grout-filled CMU constructed onto the existing concrete footing. The stem wall shall be reconstructed to match the existing top-of-wall elevation on each side of the replacement area (approximately 12" above the concrete slab).
- New foundation wall anchors shall be installed at 6'-0" o.c. max, positioned within 12" of the left corner, and within 12" on each side of the right-side construction splice (at the existing foundation wall to remain). Based on our field observations, an existing foundation anchor exists within 12" to the right side of the proposed splice, and a new anchor is not required in the existing wall to remain, provided the edge-distance specification at the splice is met.
 - Foundation anchors shall be 1/2" diameter wet-set J-bolts (preferred), or (alternate) 1/2" diameter x 10" threaded rod epoxy anchors (Simpson SET-XP, minimum 8" embed).
- The existing concrete slab-on-grade is to remain. If damage is discovered during stem wall removal, some patch repairs may be required. Expansion joint material is to remain, however sectional replacement may be required to ensure proper fitment of new CMU wall.

Wall Framing

- The new rear wall of the garage shall be constructed of 2x4 studs at 16" o.c. with 2x6 sill plate and double 2x4 top plate. The double top plate shall be positioned to provide full bearing under the gable wall framing above (match existing condition). Top ply of the double top plate may remain, provided the lower ply and supporting studs can be installed and fastened per code-specified schedules (see code reference in the general notes below).
- Sheathing shall be minimum 7/16" APA rated OSB or plywood. Nail schedule per general notes below.



- Weatherproof building wrap and flashing shall be installed in accordance with industry standard to restore the garage to a water-tight condition. Exterior siding shall be installed to match existing (owner option to change as needed).

General Notes:

- All new lumber should be SYP No.2 or equivalent. All lumber exposed to weather, and/or in direct contact with concrete or masonry shall be pressure treated.
- All fastening shall conform to R602.3(1) in the 2018 NC Building Code: Residential Code.
- Sheath exterior wall with exposure 1, 7/16" APA rated OSB (24/16 span rating). Connect with 8d nails at 6" edge and 12" field spacings. No blocking required.
- All new concrete is to have a minimum 28-day compressive strength of 3000 psi.
- New concrete footings are to be installed a minimum 12" below grade (to the bottom of the footing) and in no case less than frost depth.
- Where new concrete footings are required, soils below new foundation components to be contractor verified to be a minimum 2000 psf bearing capacity.
- All new metal hangers/ties/clips to be installed per manufacturer specifications.
- All new metal connectors, fasteners, anchors exposed to weather or in direct contact with masonry/concrete should be galvanized and/or weather resistant.

CONCLUSION

We trust that this report provides the information you require. Please contact us (919) 465-3801 if you have any questions. Thank you for the opportunity to be of assistance to you.

Sincerely,

Digitally signed by Andrew D. Crook
Date: 2021.04.06 13:17:24 -04'00'

Andrew D. Crook, PE
Project Manager
Giles Flythe Engineers Inc.
NC Lic. No. C-2871

