

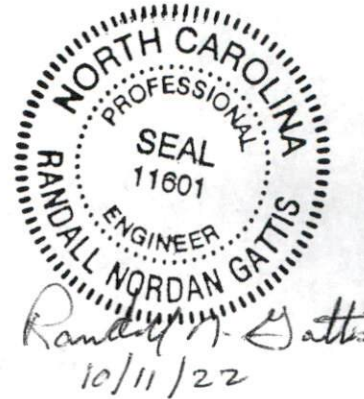
October 11, 2022

To: Mr. Rodney Crisco

Ref: Fabricated Metal Carport and Slab

320 Graham Road

Harnett County, N.C.



Dear Sir,

At your request I have performed an inspection of the metal carport and slab located at the above address to check for structural integrity. Generally, the structure is a 30' x 30' metal frame and siding carport structure on a cast in place concrete slab. The eave height on the sides is 10'. The structure was furnished and installed by Max Building and Carports from Asheboro, NC.

First, I looked at the concrete floor slab. The slab is 4" minimum thick with edge thickening to 5.5" around the perimeter. The workmanship is outstanding utilizing a trial slick finish and contraction joints sawed in .5' deep on a 10' grid. Fiber mesh was used for reinforcement and there was no evidence of cracking anywhere on the surface. I used a Swiss Hammer, which is a non-destructive testing device, to check the compressive strength of the concrete. The average of the six test locations was 3250 psi with no readings under 3000 psi. Also, there are concrete aprons poured all the way around the carport slab which will prevent eroding bearing material from underneath the structural slab.

Next, I looked at the metal structure. The columns are 3" x 3" fabricated metal tubing. These are used to support the metal trusses fabricated of the same tubing. The columns rest on a 3" x 3" fabricated tubing that runs the perimeter of the building except for the locations of the door openings. On each of the four building sides are at least two .5" anchors that have been placed in the concrete and used to bolt down the floor tubing. I am very impressed with this design because concentrated loads are not placed directly on the floor. The floor tubing spreads all the loads to many square inches of bearing area.

I conservatively used a pull-out strength of 2500 lbs. for each of the .5" anchors. With a minimum of two per side the structure can withstand about 100 pounds per square foot of wind force. Code requirements for this area are less than 40 pounds per square foot. These facts combined with the fact that the remnants of Hurricane Ian passed just a couple of weeks ago with 60 MPH winds and heavy rains convince me that the structure is sound and stable for these weather conditions.

The last item I took a look at was possible dead loads on the roof. A very conservative and beyond code requirement of 40 pounds per square foot is what I used. This would be for possible ice, snow or debris accumulation. That would contribute a weight of about 36,000 pounds and I estimate the building weight at 14,000 pounds for a total of 50,000 pounds. With the 3" perimeter floor tubing the area of concrete to support this load is 180 square inches which gives a psi loading of 278 psi, well below the 3000 psi capacity of the concrete.

In conclusion, I certify the structural integrity of the building and slab and that it meets the requirements of NC Building Code.

*Randall N. Gattis*