Windsor Building-Town Shores of Gulfport

3210 59TH ST S,
Gulfport, Florida 33707

Limited Condition Survey Report of:
Common Area Carport

Project Consultant:

Karins Engineering

Firm Registration Number 8371

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July 12, 2023

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July 12, 2023

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RE: Windsor Building Condominium Association
Carport Inspection
6020 Shore Boulevard South, Gulfport, FL 33707
KEG File# 22RT-1072

LIMITED CONDITION SURVEY FOR CARPORTS

1.0 INTRODUCTION:

A limited condition survey was conducted to assess the current condition of the existing carports located at 6020 Shore Boulevard South on a site visit on Monday June 12th, 2023, by Karins Engineering (KE). The purpose of this survey is to identify any visible issues or limitations regarding the carport structure and its immediate surroundings. The survey covered the following areas and components:

- Carport structure, including support beams, columns, bracing and framing.
- Roofing materials and connections
- Drainage systems
- Limited observations of the immediate surroundings, such as driveways, access paths, and landscape elements.

2.0 METHODOLOGY:

The goal of this inspection was to assess, identify, and quantify structural and/or waterproofing defects, determine whether there were any immediate life safety concerns and make recommendations on needed repairs or full replacement. Visual observation and non-destructive testing procedures were used to conduct the survey. There were no intrusive operations carried out. Access to certain locations may have been limited due to height or physical limits, preventing a thorough evaluation of all components. This survey does not contain a thorough structural analysis or an in-depth examination of hidden aspects. The visibility of certain issues may have been impacted by weather conditions at the time of the survey.

3.0 DESCRIPTION OF CARPORT COMPONENTS:

The carport structures at Windsor Building are made up of a variety of roof panels, beams, and columns made of steel or aluminum that support and stabilize the structure. Typically, bolts are used to assemble these parts into a stable structure. The structure was designed to handle both the roof's own weight and wind loads. Typically, carports are not designed to withstand impacts from vehicles.

The three steel/aluminum frames are located towards the north elevation of the Windsor Building. The principal frames have three 3"x3" aluminum columns spaced ±22 feet apart, or two parking spaces (the parking lot is 11 feet wide). It is 13 feet broad in each bay. A total of 36 parking spaces are available in frame #1 (lots 17–52), 30 in frame #2 (lots 54–83), and 32 in frame #3 (lots 90–121) totaling to 98 cover parking spots on site. A storage container and additional bike/motorcycle storage areas are in the west corner of frame #2 and the east corner of frame #3, respectively. Four parking places in the frame #2 aisles are not covered by the carport.

Carport columns are normally 8'-2 1/2" high. Bolts, nuts, or welds are used to fasten it to the roof beams. 8'-4" separates the bottom of the column posts from the top of the aluminum panels. The roof of the carport is composed of metal panels, most of which are made of aluminum. The panels provide protection from the elements, such as rain and sunlight. The roof panels are often connected to the beams with screws or other fasteners to ensure a secure and watertight connection. To prevent lateral movement or swaying, 2'-9" bracing components are used to strengthen the carport construction. At most locations, they take the shape of diagonal bars that join the posts to the beams or other structural components.

The carports have gutters and downspouts to control rainfall flow. These elements catch roof runoff and guide it away from the carport's structure and the surrounding surroundings. The downspouts are often located at the corners or along the sides to provide for proper drainage, and the gutters are typically attached to the roof's eaves. The carports are supported on buried concrete (assumed) foundations.

4.0 CONDITION SURVEY FINDINGS:

During the survey of the carports, the following deficiencies were noted;

1) Roof Panels
    a. A number of panels were missing from previous storms. It appears that they failed due to the screws shearing (tearing) through the panel thickness.
    b. 2" x 1" screen enclosure channels were added on top of the panels. It is assumed that these were added to assist in securing the panels to the beams below. However, it was noted that the channels' fasteners attach solely to the panels and do not penetrate into the beams below. Therefore, they do little to improve the connection of the panels to the structure.
    c. Sealants have deteriorated over time due to weathering, leading to gaps in the ceiling of the carport that allowed water to seep in and produce rust.
    d. Many of the exposed panel fasteners at the underside showed signs of rusting
    e. The overall finish is faded and failing due to exposure.
2) Horizontal Support Beams
    a. The roof panels are supported by a mixture of Steel C-Channel beams and Aluminum Extruded

beams. It appeared that the steel beams are older and the aluminum beams may have been replacements added over time.

b. A majority of the beams (both steel and aluminum) were connected to the vertical columns via bolts. The bolts are located very close the ends of each member. Due to their proximity to the beam ends, the fasteners have nearly no capacity and are prone to failure. It was also noted that many of the fasteners exhibit signs of rust.
c. Steel beams in general exhibited signs of rust due and isolate section loss.
d. Isolated small support clips were added at beam to column connections. Many of the fasteners at these locations were noted to be rusted.

3) Vertical Support Columns
   a. The support columns were in generally fair condition for their age.
   b. Due to the spacing of the fasteners through the columns, the top of each column is compromised which may result in connection failures.

5.0 RECOMMENDATIONS AND FORWARD PLANNING:

Based on our observations, the existing carports have reached the end of their useful life and require replacement. Due to their age, overall condition, poorly implemented previous repairs and missing sections of roof panels and beams, repairs to the existing carport structures are not technically or economically feasible. While in theory repairs could be made, it would not be possible to predict or calculate the wind speed at which more failures would occur. In their current state, there is a high probability that more sections of the carport structure will fail during the next high wind event.

Replacement of the existing carports would include the following

1) The new carports would need to be designed and detailed to meet the current 2020 Florida Building Code. This would include the design of new foundations at each post. The design should utilize locally available roof panels and aluminum extrusions. The design and column layout should match the existing carports closely to maintain the same amount of parking spots.
2) Once the designs and drawings are issued, local contractors can submit pricing for the demolition and installation of the carports.
3) The chosen contractor would use the drawings to obtain a permit from the local building department.
4) The existing carport would be fully demolished. This would include saw cutting and removal of all buried concrete footings.
5) Once demolition is complete, new reinforced concrete footing would be installed followed by the support columns, beams and roof panels. The new carports will need to be inspected by the local Building Department throughout construction.
6) Following complete installation, a licensed electrician should install new lighting at all carports.

Note that the phasing of the work will be the responsibility of the contractor. Sections of parking and the drive lanes will be closed during construction.

6.0 CLOSING:

In conclusion, this limited condition survey highlights the existing state of the carport structure and surrounding areas. To assure the residents of long-term functionality and safety, a new aluminum-framed carport design in accordance with the 2020 Florida Building Code is recommended. These observations and conclusions are based on construction standards and practices that were considered typical and customary at the time this report was written. On the dates specified in this report, Karins Engineering staff and third-party colleagues conducted site inspections and took observations. The observations were visual in nature and so non-destructive.

KE has performed these services and prepared this report in accordance with generally accepted construction and engineering consulting practices, and makes no warranties, either expressed or implied as to the character and nature of such services. This report is not to be construed as a guarantee or warranty of future building conditions. KE used its best engineering judgment and ability to observe and report the items presented herein, but KE cannot guarantee that all past, present, or potential deficiencies or defective conditions have been found during this initial assessment.

Additionally, this report does not indicate nor include any investigation of environmental conditions at the subject property structures and grounds. This report does not make any representation as to the property being free of hazardous or toxic materials. This report has been prepared for the carports at Windsor Building Condominium Association, Inc. in conformance with KE's proposal dated May 17, 2023, and authorized on May 19, 2023. The personal responsibilities of KE, or any individual or company working on behalf of KE, do not extend to a third party, other than as defined above, under any circumstances. An original copy of this report remains on file at the office of KE, and no changes may be made to this report without the prior written permission of KE. KE reserves the right to modify this report upon discovery of additional information and charge an additional copying fee for release of this report to an additional party if requested.

If there are any questions or more information is required, please do not hesitate to contact our Tampa Office at 813-228-8212.

Respectfully Submitted,
Karins Engineering Group, Inc.

Joshua Mannix

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY **JOSHUA P MANNIX, PE** ON THE INIDCATED DATE USING A SHA AUTHENTICATION CODE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SHA AUTHENTICATION CODE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

JOSHUA P. MANNIX LICENSE No 76974 STATE OF FLORIDA PROFESSIONAL ENGINEER

2023.07.12 14:42:37 -04'00'

Joshua P. Mannix, P.E. S.I.
Tamp Branch Manager
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Attachments: *Photograph Log*

Representative Photos:

Photo No. 1– Missing/damaged section of the carport from previous hurricane season.

Photo No. 2 – Top view of carport. Evidence of stains from water ponding and bad sealant around fasteners.

Photo No. 3 – View of 2 out 3 canopies.

Photo No. 4 – Metal sheet improperly attached to
Corroded beam with rusted fasteners.

Photo No. 5 – Remaining structure elements showing improper bolt spacing

Photo No. 6 – Evidence of panel shear failure

Photo No. 7 – Evidence of panel shear failure

Photo No. 8 – Damages from previous major rain event

Photo No. 9 – 3" square tube columns built in the concrete foundation pads

Photo No. 10 – Typical 2"x1" Screen Channels

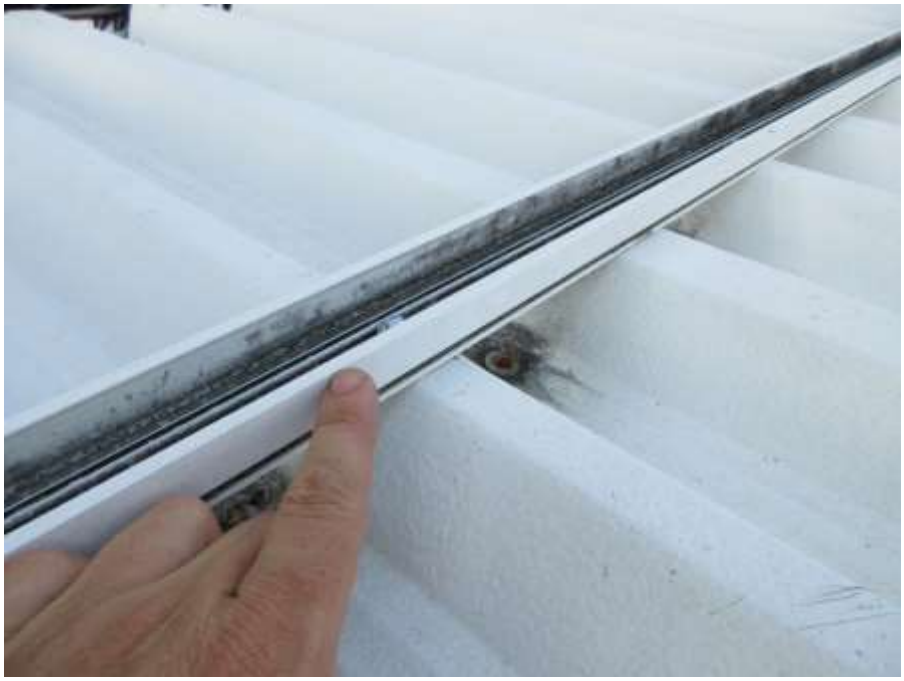

Photo No. 11 – Unused metal sheet support causing more unsealed penetrations in carport's roof. (2)

Photo No. 12 – Steel framing connection with bolts.

Photo No. 13 – Simple Steel framing connection with diagonal bracing.

Photo No. 14 – 3-in steel tubes used for column members.

Photo No. 15 – Connection with improper bolt spacing and rust (TYP.)

Photo No. 16 – Improper steel-to-aluminum members load connections. I-Beam has loss of section due to rust.

Photo No. 17 – Rusted beam supporting the roof framing of the carport.

Photo No. 18 – Rusted steel section and connection with improper bolt spacing

Photo No. 19 – Damaged parking lot blocks (TYP.)

Photo No. 20– Connection of square aluminum section of beam to steel I-beam.

Photo No. 21 – Rusted bolts and inappropriate bolt spacing at connections

Photo No. 22 – Rusted bolts and inappropriate bolt spacing.

Photo No. 23 – View of small storage area under carports for trash cans and bike racks.

Photo No. 24 – Column at this location has been ripped off during previous hurricanes. Foundations could not be observed.

Photo No. 25 – Electrical conduits feeding the outdoor lightning devices.

Photo No. 26 – Storage area in bay #2 for trash cans.

Photo No. 27 – Inappropriate bolt spacing cannot provide the strength required to keep all the components together during a high wind events

Photo No. 28 – Damaged downspouts showing obstructions in the roof drainage system. New gutters should be placed in areas safe from car collisions.