hkn engineers
Structural Engineering

Structural Observations

January 09, 2015

Chad North
CGN Designs
6927 N. Mesa Suite B
El Paso, Texas 79912

RE: 801 Cervantes
Carport assessment

Chad,

Our office has performed an evaluation of the carport conditions located at the residence on 801 Cervantes in El Paso, TX. Our evaluation was limited to only the exposed members and connections at the time of our site visit. As you are aware, the carport has a double pitched roof constructed of solid timber joists and metal plate connected trusses. Additional supporting members at the ridge and roof eave are also solid timber beams. The support provided by the girders on each roof eave appear to be Glulam beams veneered with solid 1.5" material.

The following summary of our main observations are provided for your review:

- Our observations indicate that the solid timber trusses and related roof elements remain in acceptable conditions. No indications of damage caused by the present gravity loads and/or exposure to the elements were observed within the structure.
- The tongue and groove roof deck remains in serviceable condition with no visible cracks or perforations indicating that the diaphragm has been compromised.
- The gusset plate connections within the trusses as well as the horizontal shear and uplift connections from joists and trusses to support elements do not exhibit any sign of distress of corrosion.
- The solid wood veneer installed on the main wood girders was observed to have a number of checks and cracks but the structural element itself remained hidden from view. It is our opinion that the veneer has checked a reasonable amount considering our local climate and the exposure levels of the timber members to the environment.
- The structure was observed to be square and plumb with the supporting elements with no discernable displacements or deflections to indicate any instabilities or overstress within the structural system.

Using current load prescriptions within the building code, our office has performed a cursory analysis of the members within the structure to confirm that the members satisfy bending and shear forces present from gravity loads. Uplift forces are resisted primarily by the self-weight of the clay tiled timber structure. A more rigorous analysis of the lateral system was outside the scope of our assessment and some selective demolition would be required to confirm that the supporting columns are necessary. We have made the assumption that the supporting columns are solid concrete masonry units which are competent elements for the gravity and lateral forces present in this structure. In general, it is our opinion that this timber structure remains in serviceable condition and no deficiencies were discovered in our assessment that require correction.

Limitations within the Report

Statements within this report with regard to concealed construction such as supporting columns or glulam beams concealed by architectural finishes are our professional engineering opinion. Such opinions are drawn from engineering principles, experience and judgment in accordance with professional engineering practices. No advanced material testing involving cores, laboratory analysis or field measurements with mechanical devices were performed. HKN offers no warranty regarding the condition of concealed construction or subsurface conditions concealed from view during our observations.

Please feel free to contact us with any further questions or clarifications regarding our findings.

Respectfully submitted,

Victor A. Liberato.

Victor Liberato E.I.T

Edmund M. Castle, P.E.