

Vila Structural Consulting Engineers, Inc.

Structural Calculations for

***New Residence for
Eliges Investors Construction***

at

9841 SW 73rd Court

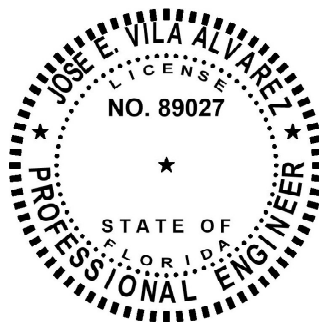
Pinecrest, FL

Bldg. Department Comments Rev. 02

Pages

1 to 2

Project Number: 22CB006

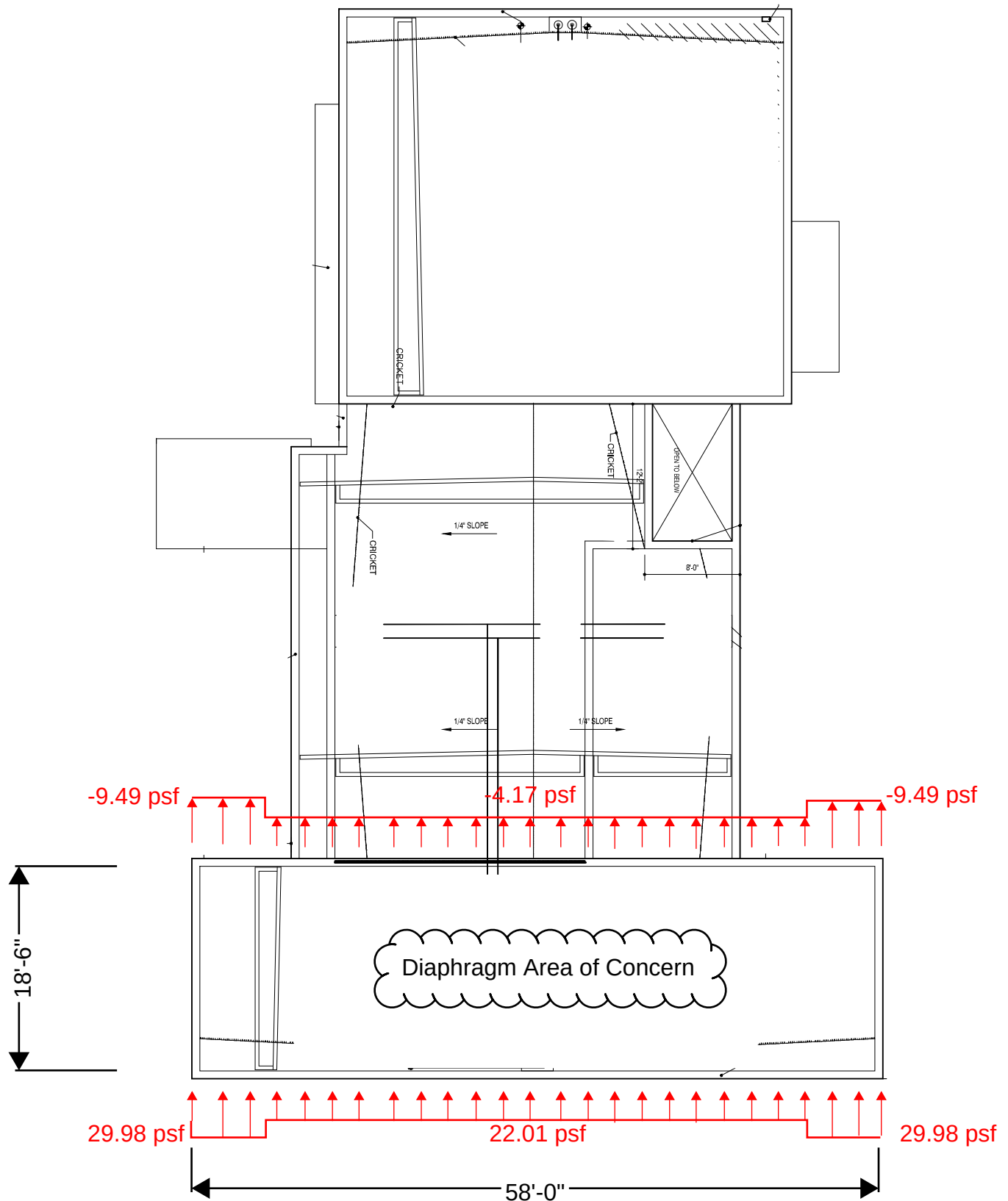


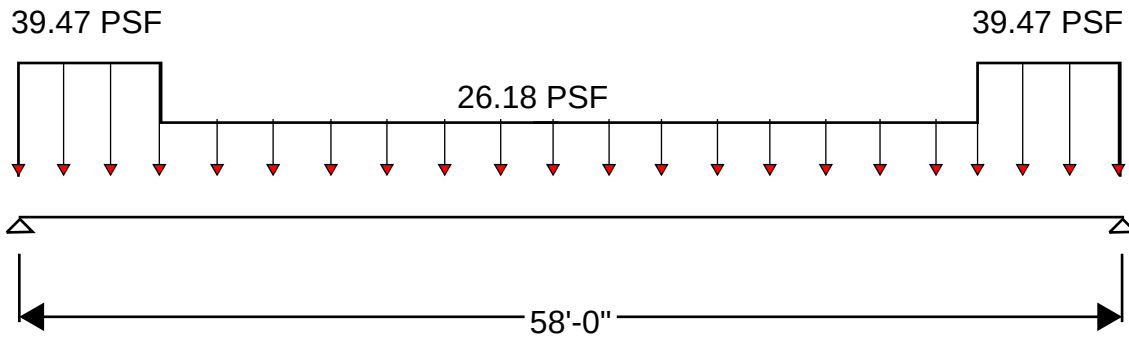
Jose E. Vila Alvarez

FL PE# 89027

January 25, 2023

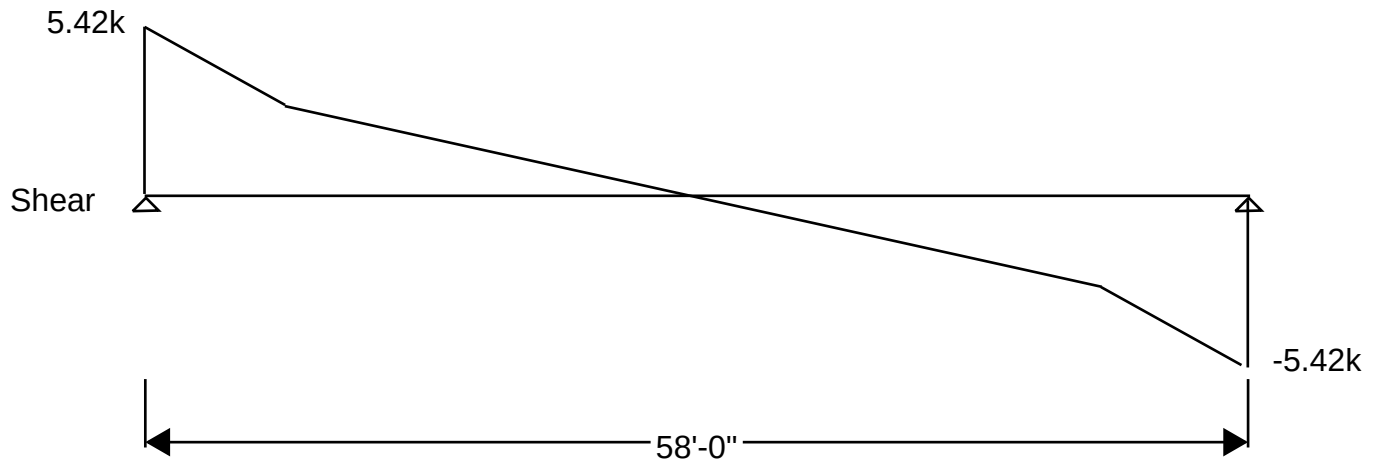
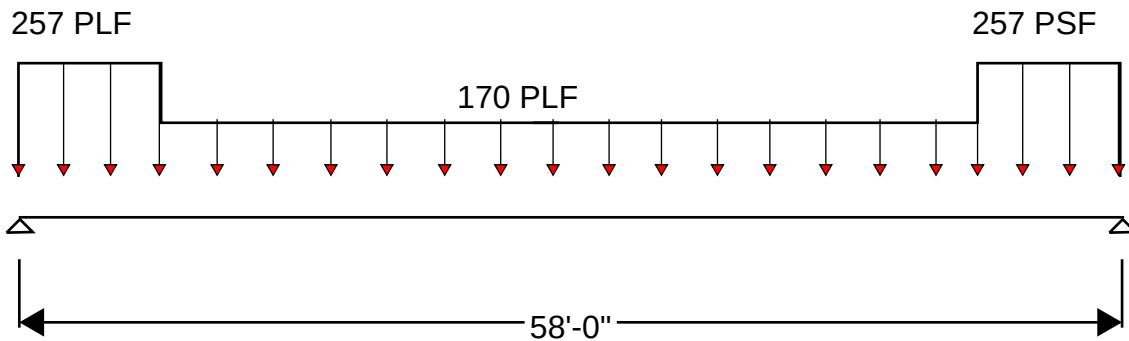
Note: The load application is considered critical, note that the other combination has smaller values. Refer to original calculation page 1 for wind load determination. In addition, the way the loads were applied below are conservative; in the middle portion of the roof there should not be the full negative load applied since that only happens at the other end wall; however, diaphragm still works.





$$39.47 \text{ PSF} \times 13'-0"/2 = 257 \text{ plf}$$

$$26.18 \text{ PSF} \times 13'-0"/2 = 170 \text{ plf}$$



$$5.42\text{k} \times 1000 \text{ lb/k} / 18'-6" = 293 \text{ PLF}$$

Note: Unblocked plywood diaphragm capacity is $600 \text{ PLF} / 2 = 300 \text{ PLF}$. See SDPDWS Section 4.2.3 for ASD reduction factor for diaphragm tabulated capacity.

Capacity > Demand
 $300 \text{ PLF} > 293 \text{ PLF}$ OK

According to SDPWS "Special Design Provisions for Wind and Seismic" 2015 Ed. Section 4.2.4 there is a recommended maximum aspect ratio of the unblocked wood structural panel of 3:1.

Area of concern: $58'-0" / 18'-6" \sim 3.135$ therefore, the aspect ratio is met.