



## STRUCTURAL PERMIT CORRECTIONS

February 17, 2022

City of Mercer Island

Gareth Reece  
9611 SE 36th St.  
Mercer Island, WA 98040

**RE** Permit corrections for the Day Residence at 9843 Mercerwood Dr. Mercer Island, WA 98117, Permit no. 2109-226

We have received and reviewed the Structural comments regarding 9843 Mercerwood Dr. Mercer Island, WA 98117, Permit no. 2109-226. Below are the corresponding responses to the structural comments for the correction notice prepared by Crystal Kolke dated December 29, 2021:

1.
  - a. Wind exposure updated
  - b.  $S_{d1}$  value is NULL due to ASCE7-16, 11.4.8 Exemption 2
  - c. Base shear is correct. It is a combination of the East Wing (6.41k) and the West Wing (12.8k) summing to a total base shear of 19.2k
2.
  - a. Per notes 16, 17 and 18 on S1.0 these items require special inspection. Please add to MI cover sheet.
  - b. No structural observation is intended on this project.
3. S1.1 added. See quality assurance. Geotechnical special inspection is included in this section.
4. Structural fill is not being used for lateral resistance.
5. Thickened footings are supported by pin piles. The subgrade will be prepared the same way as conventional footings per the geotechnical recommendations.
6.
  - a. Diameters not used have been removed
  - b. Note updated.
7.
  - a. Calculations provided justifying no passive pressure was used.
  - b. Calculations provided supporting battered piles. Detail call out updated.

8. Where battered piles occur no lateral capacity is used. They are battered for an additional factor of safety. Supporting calculations provided.
9. Detail 2/S3.1 updated.
10.
  - a. Detail updated to clarify footing size.
  - b. Slab is not identified on structural plans as the slab is not structural. Our details state "slab on grade where occurs" so the slab is permitted to be present at this location, but is not required for structural integrity. Coordinated with Arch to update plan sets.
  - c. Minimum dimension added from concrete to will plate
  - d. Post and post base added
11. Roof joist calculation added.
12. The beam was analyzed in two segments on either side of the 4x10 located in the middle of the beam. The beam passes the span analysis on both sides of the post.
13. See "main support HDR" and "daylight doors" on page V3 of calculations for justification.
14. Seismic loading was accounted for. Please see "(.....)seismic loading" note in top right of sheet. The seismic loading capacity of two straps is 3.4k x omega resulting in a max point load of 8.45k on P1. P2 seismic loading was applied in parentheses as wall.
15. Lateral design re calculated using Exposure C
16. See attached calculations justifying that  $\rho = 1.0$
17. Straps and drag struts have been added.
18. Detail 1/S4.2 says header per plan is to be dropped below the roof framing. Or plans designate headers as a dashed line and can be found in the legend. Above the garage there is a solid line indicating that the 14" beam is to remain within the roof system and not to be dropped. The header callout in that details is on a "where occurs basis".
19.
  - a. Shear walls have been redesigned in accordance with SDPS 4.3.4.
  - b. Shear walls have been redesigned in accordance with SDPS 4.3.4.
20. Or plans indicate a "header/beam below framing" with a dashed line per the legend. Where beams are drawn solid, they are intended to be ran within the roof/floor system.
21. Detail has been updated to show sheathing running continuous through intersections and panel edge nailing is to be provided to transfer load into B6
22. Calculations updated to exclude any interior walls that we failed to identify. Only exterior walls are included in the calculation.

23. Detail callout updated and relocated as shearwalls have changed.

24. Callouts and detail cuts have been added.

25. Beam is intended to be continuous over the shearwall.

We trust that this addresses all the structural concerns. Please give us a call if you have any further questions.

Sincerely,

**MALSAM TSANG STRUCTURAL  
ENGINEERING CORPORATION**

A handwritten signature in black ink, appearing to read 'Dylan Steele', with a long horizontal stroke extending to the right.

Dylan Steele  
Staff Engineer