

UPSTATE



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July 19, 2024

City of Mercer Island
Community Planning and Development
Attn: Permit Coordinator
9611 SE 36th Street
Mercer Island, WA 98040

Re: Corrections Response
Upstate Job #1651
Dhaliwal-Klar Residence
7024 SE 20th Street
Mercer Island, WA 98040

City of Mercer Island #2309-031

The following is in response to plan review comments provided by the City. Note only those comments relative to submittal documents provided by our office have responses.

Comment: Please clarify how the weight of 3-coat stucco is considered in the lateral design. Calc Page 0.1 specified 10psf wall weight, Calc page 2.1 appears to use 5psf. 3-coat stucco alone will add 12-15 psf to the wall dead load.

The lateral design has been revised to include 22 PSF DL throughout. Required revisions are shown in blue on the attached red marks. Revised lateral calculations also attached.

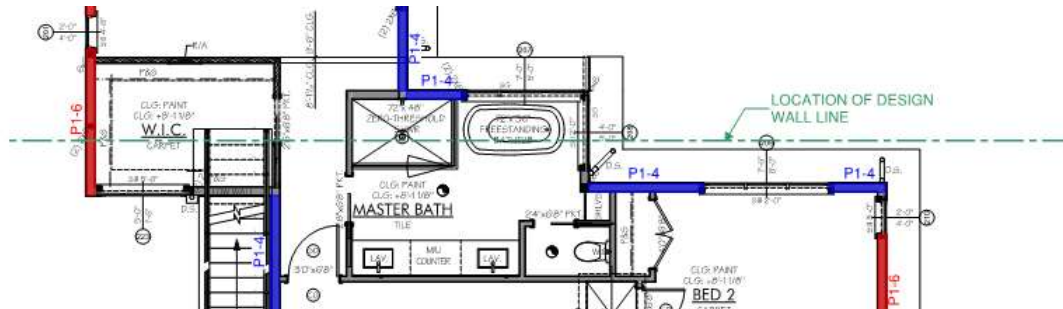
Comment: Wall Line C on Level 2 has 2 segments, each with P1-3 nailing. Each of these attaches to the diaphragm on one side, and the shear appears to exceed the diaphragm capacity (this segment where indicated begins at this level, so some type of diaphragm reinforcement or collector is needed to effectively distribute to these two wall segments)

Detail 6/S1 added to plans utilizing the top plate and header as a collector.

Comment: Wall Line C on Level 3, page 5.1 of the calculations includes three segments. This wall line includes panels that are offset by 5'6", and although IRC allows offsets of up to 4' from braced wall lines, SDPWS 4.3.3.4 guidelines for distribution describe the walls "in a line." With the offset, without collectors, and without the opportunity for FTAO detailing it's not clear that the distribution including these two wall

lines together is appropriate, particularly considering one of the wall lines is gravity bearing and this short segment is not. No need to revise the entire distribution, but please inspect and justify the P1-6 and lack of hold-downs for this wall segment.

Our interpretation and subsequent calculation of the offset is based on considering the 'wall line' to be between the offset walls, allowing for their use together.



Recalculation of the lateral design shows that the calculated overturning load less the calculated resisting moment resulted in a net reaction less than 1 kip. Our office standard is to omit hold-downs for overturning loads less than 1 kip considering the inherent redundancy in conventional construction methods and the conservative nature of our design.

Recalculation of the lateral design did, however, result in upgrading the walls in question to P2-4 as shown in blue on the attached red marks.

Comment: Please clarify the dead loads of the roof system and include in the design criteria for the design of manufactured roof trusses. 19 psf appears to be used for roof structure dead load design. Provide a takeoff in calculations to include the paver system proposed.

The dead load from the pavers is represented on p.2.0 of the lateral analysis as follows: Typical floor DL = 10 PSF, Deck Paver DL = 23 PSF, The actual area of the roof deck is 710 square feet. The design area entered in the 'floor' column is $(710/10) \times 23 = 1633$ square feet.

Comment: Please clarify how the weight of concrete pavers has been considered in the lateral design. Page 2.1 of calculations appears to use 10psf for diaphragm dead load. Typical 2" concrete pavers will add 25 psf to the dead load at the roof level.

See response above.

Comment: Please reach out to gareth.reece@mercerisland.gov if you would like to look at comments, responses, and calculations together. Responses referred to in some of the replies don't appear to have been provided, and outreach to architect and permit contact indicated that returning the comments again was preferred.

Successful telephone conversation with Gareth on 7/19/24. All questions were answered.

Comment: Calculations transition from a cantilevered wall to a top-restrained wall design above 8'. The detailing here is not accurate for the restrained wall (due to the position of bar) and no provision has been made for the load path of the restraint.

All foundation walls are meant to be cantilevered. The top-restrained calculations remaining within the last response was in error. See revised calculations.

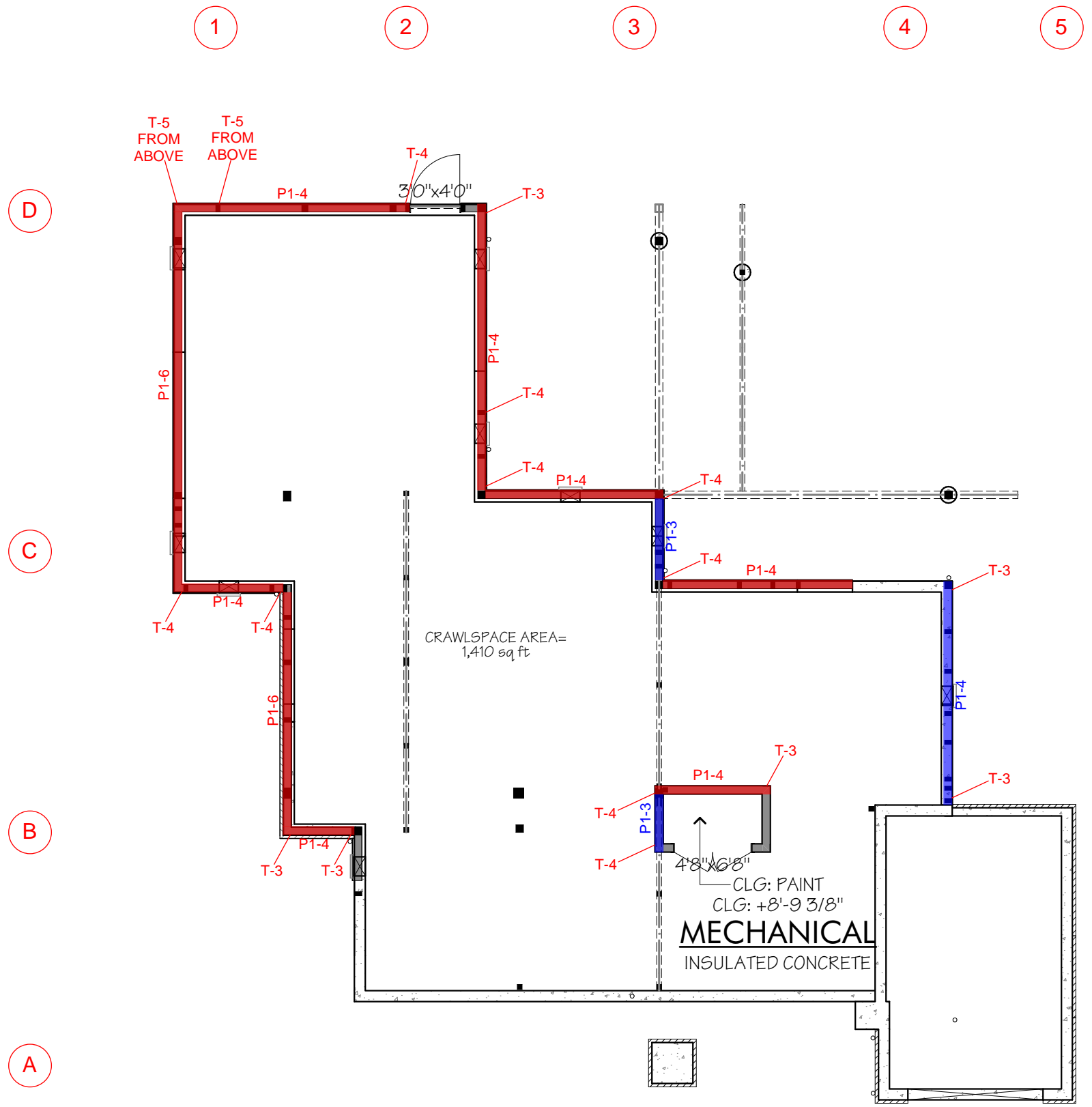
Please find revised red marks and updated calculations attached. Note all revisions within the plan set have been clouded. Thank you and please contact our office with questions and/or concerns.

Sincerely,



Andrew Gahan, PE





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C

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