

Date: 2022.06.12

To: Crystal Kolke  
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RE: Commentary Response per Permit No. 2112-250

This letter is in regards to your INITIAL review of the proposed single-family residence. Please see below for a response to your commentary in *italics* and our responses in **bold**. Thank you.

General/Site Coordination:

1. *The drawings are missing information needed for us to complete our review. In general, the following needs to be provided before being resubmitted; however, additional comments may arise once complete information is reviewed.*
  - a. *All sheets should be professionally stamped and signed.*
    - i. **All sheets stamped and signed.**
  - b. *There are two sheets labeled A1. Please correct that.*
    - i. **Sheet A1 revised to A0 – Cover Sheet.**
  - c. *Complete elevations clarifying finishes at all locations, detail guards, and complete all other exterior elements.*
    - i. **Additional annotation provided further defining exterior finishes. Guardrail details provided, see sheet A17. See sheets A10, A11, & A17 for further definition and detailing of exterior elements.**
  - d. *Provide additional information on windows and doors. Clarify operation of all windows, indicate sill heights, show that emergency escape openings are provided, and provide safety glazing at required locations. Verify compliance with IRC R 312.2.1 which requires that the lowest part of the clear opening of operable windows located more than 72” above the finished grade or surface below have a minimum of 24” above the finished floor or be provided with window fall protection.*
    - i. **Additional information and detailing per window & doors have been provided. See applicable plan, elevation, and detail sheets. Furthermore, only a select few windows have operable features. Of those windows their casement operation was/is currently shown on plan. Per the manufacturer (Fleetwood), the EDGE series windows are fixed. With that being said all EERO (Emergency Escape and Rescue Openings) provided were noted and provided on plans per IRC compliance. The EERO’s are sliding glass doors with a juliette guardrail. See provided aforementioned details per code compliance. Window fall protection is not applicable for reasons mentioned above.**
  - e. *Provide complete detailing of all elements and update detail references. For example, provide architectural details of the trussed roof areas; sheet A12 refers to details that do not exist (X/A15) or details have overlapping information making the reference unclear*
    - i. **Additional details provided. See sheets A15-17. Detail tag with ‘X’ has been removed.**

- f. *Exterior spaces must be clearly detailed. For example, it appears there are full height walls at the service patio, but we do not find them structurally detailed. It is apparent that the pool and spa will be a deferred submittal; however, the extent of these elements should be clarified on the drawings. There are structural walls at the pool and spa on sheet A4; we assume these structural walls part of these drawings no the deferred submittal. Please confirm. There is a wood deck; this should be detailed. Exterior should be detailed.*
    - i. **The full height walls at the service patio have been further clarified and structurally detailed. See applicable plan sheets and detail sheets noted on plans. Wood deck and stair have also been added and further clarified.**
  - g. *Clarify drainage at rear deck roof and waterproof deck areas. Please include details in the drawings set to full describe all assemblies.*
    - i. **Additional details and clarification have been provided. See applicable sheets.**
  - h. *Detail skylights and curbs.*
    - i. **Detail provided. See sheet A17**
  - i. *Please update Note 1, Sheet A1 – Cover Sheet, that refers to the 2015 IBC.*
    - i. **Note revised.**
2. *Deferred submittals should be itemized on the Mercer Island Cover Sheet and the drawings. Also, per MICC 17.14.010 Section 107.4.2, please note on the drawings that the documents for deferred submittal items shall be submitted to the registered design professional in responsible charge who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and have been found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by the building official. For this project it appears that the pool and spa and potentially the floor and roof trusses are to be deferred submittals. All other information should be complete and detailed on the drawings.*
- a. **Note added to plans**
3. *Due to the location of the high groundwater table as described in the geotechnical report, existing grade needs to be clearly depicted on the site sections. Additionally, specify elevation of the pool slab as the bottom of the pool must be above the groundwater table per page 5 of the geotechnical report.*
- a. **Existing grade shown on elevations and building sections. Pool slab elevation noted as well.**
4. *The geotechnical engineer recommends an underslab drainage system be installed beneath the lowest finished floor consisting of at least 9 inches of clean gravel or rock beneath the entire slab footprint with perforated, 4" diameter PVC pipe embedded in the gravel/rock layer at a 15' to 20' spacing and the gravel layer and piping should then be covered with a vapor retarder. We do not find this incorporated into the design. Please coordinate with geotechnical recommendations; see page 12 and Plate 9 of the geotechnical report.*
- a. **Applicable details and building sections revised to reflect the recommendations in the geotechnical report.**
5. *Page 11 of the geotechnical report recommends a 10-mil vapor retarder under the slab-on-grade, yet only a 6-mil vapor retarder is specified on Sheet A4. Please coordinate with the geotechnical recommendations or justify specified materials.*
- a. **Details and general notes revised to reflect an alternatively improved vapor retarder. A continuous GCP PrePrufe 300R plus underslab waterproofing system drainage mat has been added to meet, if not greatly exceed, the performance of a 10-mil vapor retarder.**

**Nonstructural:**

- 1. *Additional information needs to be provided at the interior stair Details on Sheet A16 indicate that handrails and guards will be provided and Detail 1/A16 shows basic information; however, we also find*

*frameless glass handrails and guards noted in plan. It is unclear where the handrails are actually intended. Provide specific information on the drawings. Additionally, better structural detailing needs to be provided to show connections of guards and handrails to supporting elements.*

- a. **Details, notes, and additional information has been revised. See applicable plan sheets, elevations, and detail sheets for further clarification per connections and detailing.**
2. *Smoke alarms must be placed not less than 3' horizontally from the door or opening of a bathroom that contains a bathtub or shower per IRC R314.3, Item 4. Please relocate the smoke alarm in Bed 03, Sheet A7.*
  - a. **Smoke alarm has been relocated to meet referenced code.**
3. *Where fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm is required to be installed within the bedroom per IRC R315.3. Please show a carbon monoxide alarm in Bedroom 01.*
  - a. **Carbon monoxide alarm has been added to Bedroom 01.**
4. *Details 6/A17 and 14/S4.2 are cut along the north wall. These details should be coordinated. The structural details shows the roof sheathing continuous to the exterior rim.*
  - a. **Architectural details have been revised to correctly reflect the structural conditions at these locations.**
5. *The structural details show a steel pan deck over the rear patio with a 2" washed gravel topping. Provide detailing of this roofing system. Detail the junction of this roof to the structure as well.*
  - a. **Additional detailing and sections have been provided. See applicable plan sheets and new details/sections on sheet A17.**

**Energy and Ventilation:**

1. *Energy Credit Option 5.3 has been selected per WSEC Table R406.3 for Efficient Water Heating. It appears there is a typo on the Cover Sheet that refers to Energy Credit Option 5.5.*
  - a. **Typo revised to reflect correct Energy Credit Option.**
2. *Energy Credit Option 6.1 has been selected per WSEC Table R406.3 for the Renewable Electric Energy Option. You must provide calculations providing documentation for the sizing of the system, weight of the panels, and roof layout noting solar access on the plans. Roof access, pathways, and setback requirements must be provided per IRC R324.6 for rooftop-mounted photovoltaic systems.*
  - a. **Information regarding the solar panel system has been provided. Extent of area of panels indicated on sheet A8 for reference on architectural/structural plans.**
3. *The Simple Heating Sizing calculations should be revised to reflect the design. Please update the single rafter ceilings to unvented and clarify where the floor occurs (658 s.f.) that is insulated.*
  - a. **All ceilings have been revised to reflect an unvented condition. See cover sheet, plans and details.**
  - b. **The 658 sf of floor area is the upper floor area above the garage.**
4. *Please update the Insulation notes on the Cover Sheet to coordinate with this project. Specifically refer to ceilings, floors, and slab-on-grade to clarify the following:*
  - a. *At the ceilings (attics) specify a minimum of R-10 spray foam insulation to meet the requirements in IRC R806.5, Item 5.1.3.*
    - i. **Revised to reflect code requirements.**
  - b. *Are the trussed roofs insulated differently than the TJI roofs? Provide details of both.*
    - i. **No. They're insulated similarly with 3" min R-10 spray foam and then the remainder of the void to be filled with batt insulation for a minimum R-38. Details provided on sheet A15.**
  - c. *Are there any floor areas with R-30 insulation?*
    - i. **Yes. As mentioned in previous response (3) above, the floor area is above the garage.**

- d. *Since this is a fully insulated slab-on-grade, please revise the notes.*
        - i. **Cover sheet, notes, and details revised to reflect a fully insulated SoG.**
5. *Please update the Moisture Control notes on the Cover Sheet that is specifying PVA paint on the ceiling. Since you are applying the unvented provisions in IRC R806.5, the interior vapor retarder shall not be installed on the ceiling side.*
  - a. **Cover Sheet and details revised to note no PVA paint on the ceiling.**
6. *Slab-on-grade insulation shall extend downward from the top of the slab before continuing horizontally per WSEC R402.2.9. A two-inch by two-inch (maximum) pressure treated nailer may be placed at the finished floor elevation for attachment of interior finish materials. Please update details on Sheet A15.*
  - a. **Details revised to indicate insulation to extend downwards. Due to the structural requirements that the Structurally Reinforced SoG be tied to the stem walls and pin piles, the ability to internally extend the insulation up the stem wall to the top of concrete will not be achievable. In lieu, insulation will turn down the interior side of the stem and an additional layer of insulation will be applied to the exterior of the stem wall from top of footing to an appropriate height to allow for sufficient waterproofing and exterior cladding.**
7. *Ducts must be leak tested in accordance with WSU RS-33 using the maximum duct leakage rates specified. Total leakage must be less than or equal to 4 cfm per 100 s.f. of conditioned floor area when tested at a pressure differential of 0.1" w.g. (25 Pa) across the entire system. Provide notes to address this requirement.*
  - a. **Note added to cover sheet.**
8. *Provide general notes to address air barrier and insulation installation requirements listed in WSEC Table R402.4.1.1. Additionally, clarify the location of the exterior envelope particularly in the mechanical rooms in the garage.*
  - a. **Note added to cover sheet. Extent of exterior envelope to encompass the garage and trash receptacle areas. Mechanical room accessed in the garage shall be a part of the conditioned space. Line and note added to plan to demonstrate extent.**
9. *Indicate the U-value of skylights on the drawings; we do not find this considered in fenestration UA calculations.*
  - a. **Skylight U-value indicated on plans and noted regarding the UA calcs.**
10. *Clarify the mechanical ventilation rate in accordance with IRC M1505.4.3 by clearly indicating it on the drawings. The minimum whole-house ventilation rate from IRC Table M1505.4.3(1) must be adjusted by the system coefficient in IRC Table M1505.4.3(2) based on the system type and further adjusted for intermittent operations per IRC M1505.4.3.2. Please address the following:*
  - a. *Indicate which whole-house mechanical ventilation system is being provided to comply with the requirement in IRC M1505.4.*
    - i. **Climate Master Geothermal Forced Air System to provide whole-house ventilation. Please refer to provided document from mechanical contractor.**
  - b. *The IRC Table M1505.4.3(1) on the Cover Sheet is not accurate; please update to the 2018 table. Additionally, since this building exceeds 5,000 s.f. the calculation in Equation 15-1 is required to be used per IRC M1505.4.3.*
    - i. **Cover Sheet and table revised. Calculation per 15-1 provided on Cover Sheet.**
  - c. *The Cover Sheet indicates the system coefficient for a distributed/not balanced system type. By definition, a whole-house ventilation system shall be considered distributed when it supplies outdoor air directly (not transfer air) to each dwelling or sleeping unit, habitable space (living room, den, office, interior adjoining spaces or bedroom), and exhausts air from all kitchens and bathrooms directly outside. Provide justification that a distributed system is actually intended and if it is, provide information on the drawings to show its design.*

