Brandt Design Group

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April 20, 2022

Gareth Reece
Senior Plans Examiner
City of Mercer Island Community Planning and Development

RE: Permit 2109-150 Correction Comment Responses
Site Address: 9611 SE 72nd Street

Dear Mr. Reece,

We received your correction comments dated 12/28/21, responses are provided below. Please note that numbering in the original correction letter was not in order therefore we've noted discrepancies below for ease in review. Please also reference the updated drawing that have been uploaded to the MIePlan FTP Site.

Non-Structural:

1. We are not finding the building area per floor and the area of the decks clearly indicated (separate from the GFA calculation). Please verify the following number and clearly indicate on the drawings:
   Lower level: 1,608 s.f.
   Main level: 1,633 s.f.
   Upper level: 1,512 s.f.
   Total heated floor area: 4,753 s.f.
   Garage: 790 s.f.
   Decks (balcony, covered entry, waterproof deck): 672 s.f.

   Response: Building area calculations have been added to sheet G000.

2. Is this structure provided with fire sprinklers? Please indicate on the Cover Sheet, G000.

   Response: Yes, notes have been added to sheet G000.

3. Enclosed accessible space under stairs must have walls, under-stair surfaces, and any soffits protected on the enclosed side with 1/2" GWB per IRC R302.7. Address this on the drawings.

   Response: This has been noted on sheet A211 and A400.

4. Glazing in an individual fixed or operable panel adjacent to a door must be safety glazing where the bottom exposed edge of the glazing is less than 60" above the floor or walking surface per IRC R308.4.2 and meets either of the following conditions 1) where the nearest vertical edge of the glazing is within a 24-inch arc of either vertical edge of the door in a closed position, or 2) where the glazing is on a wall less than 180 degrees from the plane of the door in a closed position and within 24" of the hinge side of an in-swinging door. Provide safety glazing at Windows 104A, 112A, 112B, 202E, 202F, 204A, 204B, 209A, & 209B.

   Response: Notes regarding code required safety glazing in compliance with IRC R308.4 have been updated on sheet A600. Window 104A has been eliminated.

5. Safety glazing is required where the bottom exposed edge of the glazing is less than 36" above the plane of the adjacent walking surface of stairways, landings between flights of stairs, and ramps per IRC R308.4.6 or where the glazing is less than 36" above the landing and within 60" horizontally of the bottom tread per IRC R308.4.7. Provide safety glazing at all ST-* windows.

   Response: Glazing at windows ST-D, E, and F have a sill height of 30" and safety glazing has been noted on sheet A600. Glazing at windows ST-A, B, C, G, H and J is more than 36" above the adjacent walking surface at the landing and more than 60" from the risers therefore these windows do not need safety glazing. Dimensions have been added on sheets A300, A301 and A 400.

6. Glazing in walls or enclosures containing or facing bath tubs or showers where the bottom of the exposed edge of the glazing is less than 60" measured vertically above any standing or walking surface must be safety glazing unless the glazing is more than 60" measured horizontally in a straight line from the water's edge per IRC R308.4.5. Provide safety glazing at Window 302B.

   Response: The bathtub has been relocated therefore window 302A has been updated on sheet A600 noting code required safety glazing.

7. Provide details of the stairs showing configuration along with handrail information to show that compliance with IRC R303 is met. Address all stairs including interior and exterior. Coordinate with structural.

   Response: IRC Section R303 does not apply to stairs. Interior and exterior stairs meet code requirements per IRC Section R311.7. Stair widths, tread and riser heights, nosing requirements and handrail requirements are noted on sheets L1.1, A211, A212 and A213 (see notes on plans as well as in general notes). Minimum headroom clearance is noted on sheet A400. Concrete and framing notes have been added to structural plan sheets S2.1, S2.2 and S2.3. A detail for typical cast-in-place concrete stairs has been added to sheet S3.3 (detail 10) and a detail for typical wood framed stairs has been added to sheet S4.5 (detail 11).

8. We do not find any notes on the drawings addressing the interconnection of smoke alarms and carbon monoxide alarms as required in IRC R314.4 and R315.5. Provide notes on the drawings addressing the interconnectivity requirement.

   Response: Notes have been added to sheet G000 under 'Life Safety'.

9. It appears that Wall 8A is called out in error at the below grade condition in Detail 1/A412.

   Response: This wall has been adjusted and coordinated with the schedule associated with detail 8 on sheet S3.1.

10. Class I or II vapor retarders (i.e., sheet polyethylene or kraft-faced fiberglass batts) are required on the interior side of walls per IRC R702.7. Please call for this on the drawings except at basement walls and below-grade walls. We do not find this component addressed on the exterior wall assemblies, Sheet A700.

    Response: Vapor retarders have been added to all exterior wall assemblies on sheet A700.

11. Adhered masonry veneer is required to have the following clearances per IRC R703.12.1: 4" minimum above the earth, 2" minimum above paved areas, and 1/2" minimum above exterior walking surfaces which are supported by the same foundation that supports the exterior wall. Please show these clearances on the drawings.

    Response: Required clearances have been noted on exterior wall assemblies on sheet A700 and notes have been added to all exterior elevations on sheets A300 and A301.

12. Please review all roof assemblies and coordinate with structural to address the following:
    a. Roof Type R3 is noted at the 2x8 roof areas and spray-foam insulation is specified at these assemblies with an air gap. Where using air-impermeable insulation, IRC R806.5, Item 5.1, requires the spray-foam insulation to be applied in direct contact with the underside of the structural roof sheathing.

       Response: All roof assemblies have been updated and coordinated throughout the set. The roof at the garage will be vented and the roof at the house will be unvented. Compliance with IRC Section R806.5 has been updated on sheet A701.

    b. If using spray-foam insulation, these areas would be unvented; revise roof ventilation evaluation on Sheet A214.

       Response: See response to 12.a above. The roof ventilation calculation on sheet A214 has been updated to include the garage roof only.

c. The roof ventilation calculations on Sheet A214 should clarify the ventilation provided at roof eaves at the vented roof areas and some graphic should be provided differentiating the vented and unvented locations.

Response: Graphic differentiation has been provided on sheet A214.

d. The roof ventilation calculations on Sheet A214 should evaluate the net free ventilation area provided at roof eaves. The 2" diameter ventilation holes should be specified per eave block, not per l.f.

Response: The roof ventilation calculation on sheet A214 has been updated to address ventilation holes per framing bay.

e. Coordinate roof details as 2" diameter ventilation holes are referenced on Sheet A214, but notched blocking is noted at other locations such as in Wall Section 3/A410.

Response: Roof ventilation intent has been updated throughout the set.

13. There appears to be missing information as we have no architectural details making completing our review difficult. For example, details are referenced on Building Sections to sheets A720 & A730, but those sheets were not provided. Provide your complete drawing sets for our review.

Response: References to sheets that aren't included or required for review have been removed.

14. Detail the concrete stairs on grade as depicted on the architectural and landscape site plans, Sheets A100 & L1.1. Show locations where there are handrails and detail these conditions.

Response: Notes have been added to sheets L1.1, A212 and A300 specifying location of the handrail as well as code requirements. Detail 10 on sheet S3.3 for cast in place concrete stairs has been added. Railing design and connection to be reviewed under a deferred submittal.

Energy and Ventilation:

1. The Energy Code Summary note on Sheet G000 does not apply to this project as this does not qualify as a large dwelling unit. Please remove this note.

Response: This note has been revised.

2. The Heating and Ventilation notes on Sheet G000 should be removed as the requirements of the IRC and WSEC apply, not the IMC.

Response: These notes have been updated to reference IRC and WSEC.

3. The location of all interior and exterior mechanical equipment must be clearly indicated on the

drawings. It is unclear where the heat pump is to be located. We assume the air handler and water heater will be located in Storage/Mech 108. Please indicate the type and location of all equipment to be used.

Response: Mechanical, plumbing and electrical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required. Please refer to sheets G000, G001, G002 and A211 for associated notes.

4. Energy Credit Option 2.2 has been selected per WSEC Table R406.3 for Air Leakage Control and Efficient Ventilation. This requires the tested air leakage rate in WSEC 402.4.1.2 to be reduced to 2.0 air changes per hour maximum at 50 Pascals and all whole house ventilation requirements as determined by IRC M1507.3 or IMC 403.8 shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.65. To qualify for this credit, this information must be called out on the drawings and the heat recovery ventilation system must be shown on the drawings. Requirement for testing the air leakage rate must be on the drawings.

   Response: Mechanical, plumbing and electrical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required. Please refer to sheet G001 for updated energy and ventilation notes.

5. Energy Credit Option 3.5 has been selected per WSEC Table R406.3 for High Efficiency HVAC Equipment. This requires an air-source, centrally ducted heat pump with a minimum HSPF of 11.0. To qualify for this credit, show the location of all equipment on the drawings and specify the heating equipment type and the minimum equipment efficiency on the drawings.

   Response: Mechanical, plumbing and electrical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required. Please refer to sheet G001 for updated energy and ventilation notes.

6. Energy Credit Option 4.1 has been selected per WSEC Table R406.3 for High Efficiency HVAC Distribution System. Show the location of all equipment and ducts and verify the following:
   a. All supply and return ducts located in an unconditioned attic shall be deeply buried in ceiling insulation in accordance with WSEC R403.3.7.
   b. For mechanical equipment located outside the conditioned space, a maximum of 10 linear feet of return duct and 5 linear feet of supply duct connections to the equipment may be

outside the deeply buried insulation. All metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices.

c. Duct leakage shall be limited to 3 cfm per 100 square feet of conditioned floor area.
d. Air handler(s) shall be located within the conditioned space.

Response: Mechanical, plumbing and electrical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required. Please refer to sheet G001 for updated energy and ventilation notes.

7. Energy Credit Option 5.2 has been selected per WSEC Table R406.3 for Efficient Water Heating. An Energy Star rated gas or propane water heater with a minimum UEF of 0.80 must be specified. To qualify to claim this credit, the drawings must specify the water heater equipment type and the minimum equipment efficiency.

   Response: Mechanical, plumbing and electrical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required. Please refer to sheet G001 for updated energy and ventilation notes.

8. Energy Credit Option 7.1 has been selected per WSEC Table R406.3 for the Appliance Package Option. This requires the dishwasher, refrigerator, washing machine, and dryer to be Energy Star rated. The dryer must be ventless with a minimum CEF rating of 5.2. To qualify for this credit, you must note on the drawings that documentation of Energy Star compliance will be provided to the building inspector. At the time of inspection, appliances must be installed and connected. Dryer ducts and exterior dryer vent caps are not permitted to be installed in the dwelling unit.

   Response: Mechanical, plumbing and electrical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required. Please refer to sheet G001 for updated energy and ventilation notes.

9. A certificate is required to be posted on a wall in the space where the furnace is located, a utility room, or on an electrical panel per WSEC R401.3 and include the following: predominate R-values, U-values of fenestration, results from duct system and building envelope air leakage testing, the results from the whole-house mechanical ventilation system flow rate test, and the types and efficiencies of heating/cooling/whole-house mechanical ventilation/water heating

equipment. Provide notes on the drawings to address this.

Response: A note has been added to sheet A211.

10. Intermediate framing at wood walls requires headers insulated to a minimum of R-10 per WSEC Table R402.1.1 footnote h. Call for headers insulated with R-10 on the drawings.

    Response: Notes have been added to applicable wall sections 1 and 2 on sheet A411.

11. (Number 15 in original correction letter) Below-grade insulation used on the interior (warm) side of the wall shall extend from the top of
    the below-grade wall to the below-grade floor level and shall include R-5 rigid board providing a thermal break between the concrete wall and the slab per WSEC R402.2.8. Show the thermal break in details.

    Response: Thermal breaks have been added to the wall sections on sheets A410-A412.

12. (Number 11 in original correction letter) Provide general notes to address air barrier and insulation installation requirements listed in
    WSEC Table R402.4.1.1.

    Response: General notes have been added to sheet G002.

13. (Number 12 in original correction letter) Ducts must be leak tested in accordance with WSU RS-33 using the maximum duct leakage rates specified. Total leakage must be verified by either the rough-in test or postconstruction test per WSEC R403.3.3. Total leakage must be less than or equal to 3 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 general notes to address this requirement. See also comment above regarding Energy Credit Option 4.1 and clarify.

    Response: A general note has been added to sheet G001.

14. (Number 13 in original correction letter) A minimum of 90 percent of lamps in permanently installed lighting fixtures must be high-efficacy lamps per WSEC R404.1. Please note this on the drawings.

    Response: A general note has been added to sheet G001.

15. (Number 14 in original correction letter) The heating system sizing calculations on Sheet G002 indicate that R-38 advanced framed roof insulation is being utilized. Advanced framing assumes full and even depth of insulation extending to the outside edge of exterior walls (see WSEC A102) which we do not believe will be the case. At roof trusses, R-49 insulation would be

required. Update Roof Type R3, Sheet A700, and revise the heating system sizing calculations accordingly.

Response: The heating system sizing calculations on sheet G002, wall sections on sheets A410 - A412 and assemblies on sheets A700 and A701 have been coordinated and updated.

16. (Number 15 in original correction letter) The heating system sizing calculations assume single rafter spaces are venting. Confirm applicability with this particular project.

    Response: The heating system sizing calculations on sheet G002, wall sections on sheets A410 - A412 and assemblies on sheet A700 have been coordinated and updated.

17. (Number 16 in original correction letter) It appears that R-15 insulation is specified at some wall types such as W10d and W12a. Revise to meeting minimum prescriptive requirements.

    Response: The assemblies on sheet A700 have been updated to comply with code requirements.

18. (Number 17 in original correction letter) The heating system sizing calculations assume ducts are in unconditioned space. Confirm applicability with this particular project.

    Response: The location of ducts has been revied to conditioned space based on updates to roof assemblies. Mechanical to be bidder designed and will be submitted and reviewed under a separate permit. Per telephone conversation with Gareth Reece on 02/03/22, he noted that this would be an acceptable response and notes have been added to the set to ensure the contractor designs all systems per code and coordinates with the CPD for approvals as required.

19. (Number 16 in original correction letter) Clarify the mechanical ventilation rate in accordance with IRC M1505.4.3. 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. We only find that the intermittent operations factor was applied; revise whole house ventilation calculations on Sheet G002 and A212.

    Response: Table M1505.4.3(2) has been added to sheet G002. Whole House Ventilation Calculations have been updated to reflect system coefficient adjustments.

20. (Number 17 in original correction letter) Per IRC M1505.4.1.1, whole-house ventilation fans must be rated for sound at a maximum of 1.0 sone. This sound rating shall be at a minimum of 0.1 in. w.c. static pressure in accordance with HVI procedures specified in IRC M1505.4.1.2 and M1505.4.1.3. Please note this requirement on the drawings.

    Response: A reference to this code section has been added to sheet G002.

Geotechnical:

1. A statement of risk is required by MICC 19.07.160 (B)(3) for projects in mapped geologically hazardous areas. For this scope of work, recommendations should be appropriate to allow your geotechnical professional to provide statement (c). Please have your geotechnical professional review the project, confirm that it conforms to recommendations, and provide the appropriate statement.

   Response: Per coordination with Michele Lorilla and Norine Allerdice a statement of risk will be provided once all reviews are completed and prior to permit issuance.

2. Submit a letter from the geotechnical engineer that indicates that the final plans have been reviewed and that the plans are consistent with the recommendations of the geotechnical report.

   Response: The resubmitted documents have been coordinated with the two submitted addendums and have been reviewed by the geotechnical engineer. Per coordination with Michele Lorilla and Norine Allerdice a letter will be provided once all reviews are completed and prior to permit issuance.

Structural: General

1. The Structural Notes, Sheet S1.1, should be updated to reflect the actual design:
   a. The Structural Notes indicated that 5 psf was used for (future) photovoltaic panels on the roof; however, page 2 (of 117) of the calculations shows that only 4 psf was used in the design.
   b. The specifications for the prefabricated connector plate roof trusses (Note 38, Sheet S1.2) should address the required dead load for solar panels.
   c. A snow load of 25 psf was used in the design; update the snow loads referenced in the Structural Notes (Pf).
   d. This site is located in Exposure C, which was used for design; update the Structural Notes.

   Response:

   a. Page 2 of the calculations has been updated for a PV-panel weight of 5 psf to match the general structural notes on S1.1.
   b. Please refer to revised general structural notes on S1.1 for the solar panel weight included in the design loading of the connector plate wood trusses.
   c. Please refer to revised general structural notes on S1.1 for snow loads to match the structural calculations.
   d. Please refer to revised general structural notes on S1.1 for Exposure Category C to match the structural calculations.

2. The Mercer Island Cover Sheet and Structural Notes should coordinate with the parameters for this project. Where updates are needed to the MI Cover Sheet, we can make those updates for you. Clarify the following:
   a. Prefabricated connector plate wood roof trusses need to be checked off on the MI Cover Sheet as a deferred submittal.
   b. Verification of soil bearing, verify fill material and compaction, as well as pile placement (auger cast/driven pile) all need to be checked off under Soils/Geotechnical on the MI Cover Sheet.
   c. Epoxy and screw anchors are noted as requiring special inspection in the Structural Notes; this should be indicated on the MI Cover Sheet as well.
   d. Except at shoring, the Structural Notes indicate that special inspection is not required for concrete yet it is specified on the MI Cover Sheet. Clarify intent.
   e. The Quality Assurance notes on Sheet SH1.1 indicate driven deep foundations; however, cast-in-place deep foundation are used for the auger cast soldier piles per IBC 1705.8. Update Structural Notes and the MI Cover Sheet accordingly.
   f. Special inspection for structural wood is required due to the size of this project under the provisions of IBC 1705.1.1 and IBC 1705.11.1 & 1705.12.2. Please address these requirements in your Structural Notes.
   g. Where structural observations are intended per IBC 1704.6 (which is called out on the MI Cover Sheet), the registered design professional must provide a written statement on the drawings identifying the frequency and extent of structural observations. Clarify intent.

   Response:

   a. This has been updated on the MI coversheet.
   b. This has been updated on the MI coversheet.
   c. This has been updated on the MI coversheet.
   d. Special inspection is not required for concrete. Per general note 16, all concrete elements are designed for 2500 psi.
   e. Please refer to revised general notes on SH1.1 for revised Quality Assurance notes to include auger cast solider piles.
   f. Please refer to revised general notes on S1.1 for revised special inspection notes to include wood framing.
   g. Please refer to general note 16 on S1.1 for structural observation frequency and extent.

3. The Quality Assurance section of the Structural Notes, Sheet S1.1, only addresses special inspections relative to shoring (which is already addressed on Sheet SH1.1). Please address items relative to the structure in Sheet S1.1. for clarity.

   Response: Please refer to revised S1.1 & SH1.1 for revised quality assurance scope for the main structure and the shoring.

4. The premanufactured canopy on the Upper Floor Framing Plan, Sheet S2.3, must be submitted for review and coordination. It should be review-stamped by the engineer of record prior to submitting it to the City for review.

   Response: This scope has been eliminated from the project, please refer to updated architectural drawings.

Structural: Shoring

5. Update the shoring notes on Sheet SH1.1 to reference the 2018 IBC.

   Response: Please refer to revised shoring notes on SH1.1 for 2018 IBC references.

6. Plan Note 4, Sheet SH2.1, indicates that the shoring design is based on preliminary recommendations of the project geotechnical engineer. Final design recommendations must be considered and the note updated.

   Response: Please refer to revised plan note 4 on SH2.1 for the removal of the word preliminary from the note. SSF has considered the design recommendations of the geotechnical engineer.

7. The computer outputs for the piles (pages 90 – 155 of the calculations) do not clearly indicate the design parameters used (input). Clarify and coordinate with Figure 7 of the geotechnical report. Additionally, the active pressure used for level backfill in Detail 3/SH4.1 is not consistent with the geotechnical recommendations.

   Response: Please refer to page 92 of the revised shoring calculations for clarified design parameters for the various soldier pile conditions. Please refer to 3/SH4.1 for revised active pressure with level backfill.

8. It is unclear which piles, if any, considered sloped backfill as depicted in Detail 4/SH4.1. Indicate which piles considered this loading condition and demonstrate where loads are reflected in the calculations.

   Response: Please refer to pages 92-112 of the revised shoring calculations for sloped backfill versus level backfill design.

9. Calculations show that permanent soldier piles and those considering seismic surcharge loads consider a 2’ shorter wall height and embedment depth. Explain methodology consistent with geotechnical design recommendations.

   Response: The temporary shoring is designed for a worst-case condition where 2’ below finish grade is excavated so foundations can be poured per geotech recommendations, seismic is not

considered for the temporary case. The permanent condition loads only apply after construction has ended and foundations/slabs are complete. The slab elevation is 2'-0" above the bottom of excavation, so the overall retaining height decreases by 2', seismic is considered for the permanent case. The calculations show the minimum required pile depth to support each of the loading conditions (temporary, permanent, permanent w/ seismic). From there, the load case requiring the longest pile length is used for the design. This allows for all other conditions to be conservative. Please see pages 92-112 for revised shoring calculations illustrating these three load cases.

10. Page 10 of the geotechnical report indicates that tiebacks are required where soldier pile walls exceed 10 feet in height. We find no indication this was considered in the structural design.

    Response: After completing the shoring design, tiebacks are not required. Please refer to the addendum dated March 8, 2022, from the geotechnical engineer stating the soldier pile design is consistent with the recommendations in the geotechnical design report.

11. Special inspection of erection of precast concrete members for the shoring lagging is required per Item 10 of IBC Table 1705.3. Please elaborate on this under Quality Assurance on Sheet SH1.1. The MI Cover Sheet will need to be clarified as well.

    Response: Please refer to SH1.1 for revised precast concrete inspection requirements.

12. Clarify ultimate forces used for precast concrete lagging design. We assume permanent loading conditions were considered; please verify. Refer to pages 116 – 117 of the calculations.

    Response: Lagging design uses permanent loading conditions.

13. Page 11 of the geotechnical report indicates that significant groundwater flows may be expected near the driveway walls and garage. Soldier pile walls placed against concrete walls must be provided with drainage strips to collect groundwater and discharge it as appropriate. Additionally, driveway walls must be provided with weep holes below final grade of the driveway. Please refer us to details that depict these conditions. Specifically refer to Detail 7 & 8/S3.3, etc.

    Response: Please refer to detail 7 & 8 on S3.3 for drainage strips and weep holes.

Structural: Gravity and Retaining Walls

14. The retaining wall calculations (pages 56 – 89) are for retaining walls without a slab for resistance related to Detail 12/S3.3. We assume this detail applies to the landscape walls referenced on Sheets C200 and L1.1. This detail must be specifically referenced in plan.

Response: Please refer to S2.1 & S2.2 for landscape walls per detail 12/S3.3.

15. At the trellis over the side entry, “WC” members are called out in plan, Sheet S2.3. Define this term.

    Response: Please refer to S2.3 for WC expanded to “western cedar” for the trellis framing.

16. Beams B3 & B4 are built-up beams on the Upper and Main Floor Framing Plans, Sheets S2.3 & S3.2. Provide notes regarding the connection of these and other built-up beams.

    Response: Please refer to detail 10/S4.1 for built-up beam construction.

17. x The W14x68 beam runs along Grid 4 on the Upper Floor Framing Plan, Sheet S2.3. Detail 8/S5.1 is referenced at the intermediate post which shows the beam continuous over the support. Is this beam to be 29’ long?

    Response: Yes, the beam is to be 29’ long.

18. At the beam noted in the comment above, provide a detail at the floor opening, cut on Sheet S2.3, to show how the guard is connected to the WF beam.

    Response: Please refer to detail 2/S5.1 for steel beam to guardrail connection.

19. Provide main stair framing and details of construction.

    Response: Please refer to S2.2, S2.3 and detail 11/S4.5 for stair/landing framing and details of construction.

Structural: Lateral

20. Where HGA10KT Ties are used at shear walls 2W2 and 2W2-10, specify fasteners from the connector to top plates as Simpson offers two options with dramatically different loading conditions.

    Response: Please refer to 12/S4.1 for HGA10KT fastener information.

21. Show A35 Framing Angles in typical Details 4 & 8/S4.4 per the requirements of the Shear Wall Schedule.

    Response: Please refer to updated details 4& 8 S4.4 for A35 information.

22. How are shears at the premanufactured canopy shown on the Upper Floor Framing Plan, Sheet S2.3, resolved? Will shears be transferred into the main structure? See Detail 10/S4.2.

Response: This scope has been eliminated from the project, please refer to updated lateral calculations for revised design.

23. Page 6 of the calculations shows requirements for lateral forces along Grid 2 on the upper floor; however, the W2 shear wall shown on Sheet S2.3 and the HDU8 holdowns on Sheet S2.2 do not meet the requirement of the calculations.

    Response: Please refer to revised lateral calculations for wall capacities and HDU forces.

24. Page 6 of the calculations shows requirements for lateral forces along Grid 3 on the upper floor. (2) CS16 holdown straps or equivalent are required. We do not find holdowns at the two 5'-6" shear wall segments between Grids A & B on Sheet S2.2 even though straps around the window opening are provided. If relying on the full length of the wall to resist uplift, justify design; otherwise, provide holdowns.

    Response: Please refer to sheet S2.2 for updated design, HDU's have been added since a force transfer around openings is no longer feasible.

25. The upper floor framing plan shows the 16' length of shear wall along Grid 3 spanning from interior to exterior condition. Provide a detail at this transition to show continuity of the shear wall sheathing.

    Response: Please refer to 12/S4.3 for the shear wall location. The design intent is to sheathe the interior face of wall so that continuity can be maintained. Where the wall is also an exterior wall, the exterior face shall also be sheathed as a W6 wall per plan note 7.

26. Page 6 of the calculations shows 5.9k of overturning force at the shear walls along Grid 4, Sheet S2.3. Justify capacity of CMST14 holdowns, Sheet S2.2, for this condition. Details should be provided at all strap ties to specify intended fasteners in conformance with your design.

    Response: Please refer to the legend on S2.2 & S2.3 for a reference to detail 9/S4.1 for all CSXX & CMSTXX holdown straps. Detail 9/S4.1 outlines the end length and fastener size/quantity for each strap. Please reference Simpson Strong-Tie C-C-2021 (per general structural notes) for corresponding strap capacities.

27. Page 6 of the calculations shows 7.86k of overturning force at the shear walls along Grid 5, Sheet S2.3. Justify capacity of CMST16 holdowns, Sheet S2.2, for this condition.

    Response: Please refer to the legend on S2.2 & S2.3 for a reference to detail 9/S4.1 for all CSXX & CMSTXX holdown straps. Detail 9/S4.1 outlines the end length and fastener size/quantity for

each strap. Please reference Simpson Strong-Tie C-C-2021 (per general structural notes) for strap capacities.

28. SDPWS 4.3.4 requires the shear capacity of shear walls with an aspect ratio greater than 2:1 to be multiplied by the Aspect Ratio Factor = 1.25 – 0.125h/bs. The maximum shear wall aspect ratio is limited to 3.5:1 for wood structural panels per SDPWS Table 4.3.4. Provide justification to show that short shear walls meet these code provisions as noted below.
    a. At the upper floor shear walls on Sheet S2.3 and the main floor shear walls on Sheet S2.2 along Grid 5 there are 3' long shear walls with a height that exceeds the allowable aspect ratio.
    b. There are some short segments such as along Grid A at the upper floor shear walls, Sheet S2.3, that need to be evaluated.
    c. Evaluate the front garage walls.

    Response: Please refer to the revised lateral calculations for updated wall length calculations per NDS SDPWS Table 4.3.4 (this covers items a-c).

29. Along the upper floor shear wall, Sheet S2.3, along Grid C, shears are collected along the floor diaphragm and transferred into the 2W2 shear walls. Address the following:
    a. Detail 11/S4.3 is cut where beam B2 is used as a drag strut. It appears B2 will be substituted for the rim. Please clarify detail to assure lateral load path.
    b. Straps are provided to collect shears along a 40'-length. Provide calculations justifying adequacy of the diaphragm and the straps for the forces along this reaction line.

    Response: Drag strut calcs

        a. Please refer to revised 11/S4.3 for increased clarity on the rim/drag strut detailing. Per the plans, all diaphragms this level are to be fully blocked with 10d @ 2" on center.
        b. The diaphragms at this level have a DCR of 0.54 and the total shear at this wall line is 5.65k. The straps at grids B & D have a 1.2k demand (load has been amplified by 25% per item 28). A (2)CS16 strap is sufficient to transfer load from beam to beam.

30. There is a horizontal structural irregularity of re-entrant corners for this project per ASCE Table 12.3-1. Refer to Grids 3 & C. We do not find that the building was evaluated for this irregularity or details provided to address the design requirements. ASCE 12.3.3.4 requires design forces to be increased 25 percent for the following elements of the seismic force-resisting system: 1) connections of diaphragms to vertical elements and to collectors, and 2) collectors and their connections, including connections to vertical elements, of the seismic force-resisting system

    Response: Please refer to revised lateral calculations and structural plan sheets for 25% increase in diaphragm forces per ASCE 12.3.3.4 and updated diaphragm information.

31. The north end of the shear wall along Grid 4 requires an HDU11 holdown per page 7 of the

calculations. Only an HDU5 is called out on the Foundation Plan, Sheet S2.2.

Response: Please refer to updated sheets S2.1-S2.3 for HDU sizes & locations.

32. Detail 7/4.2 is cut along the Grid 4 shear wall on Sheet S2.2. Is this the correct detail?

    Response: Please refer to updated detail 7/S4.2 for an updated detail.

33. Clarify how shears at the deck shown on the Main Floor Framing Plan, Sheet S2.2, are resolved. Evaluate shear transfer in Detail 9/S4.2 and 5/S4.3. Is the entire deck cantilevered or will an additional line of shear resistance be provided along Grid 6?

    Response: Please refer to structural calculations for lateral design and S2.2. The deck is to be fully blocked and treated as a cantilevered diaphragm.

34. Sway blocking is noted on Sheet S2.2 at the deck per Detail 5/S4.1. That detail does not exist.

    Response: Deck diaphragm is to be fully blocked, please refer to S2.2 for revised drawings.

Sincerely,

Kate Miller

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The Brandt Design Group