

Studio - SkH

1221 East Pike Street, Ste 300
Seattle, Washington 98122

Phase 2 Resubmittal #2 (Response to Resub #1)

Date: 10/11/2021

Project: Yesler Towers (Project #6769232-PH)

Hello,

Please find attached the collected correction responses regarding the Phase 1 Permit.

Combined Plan Set

1. Architecture plans – (reference only) Su Dev / Studio-SkH
2. Structural plans – KPFF
3. Civil plans – KPFF

Structural Correction (to Krzysztof Zaleski):

1. Response letter – by KPFF (structure)
2. Yesler Terrace Structural Calculations

Drainage Correction (to Viktor Peykov):

1. Response letter – by Su Development
2. Yesler Terrace Block 6.1a Storm Drainage Technical Information Report - KPFF
3. Allowable Stormwater, Groundwater, & Sewer Release Rates Tracking Form - SHA

Zoning Correction (to Emily Lofstedt):

1. Response Letter – by Su Development
2. Allocation document (draft)
3. Seattle Housing Authority Tracking spreadsheet

Sincerely,

Sean Haste
Studio-SkH
Architect of Record



October 8, 2021

Mr. Krzysztof Zaleski
City of Seattle
Department of Construction and Inspections
700 Fifth Ave, Suite 2000
P.O. Box 34019
Seattle, WA 98124

Subject: Yesler Towers
Permit No. 6769232-PH
Phase 2 Correction Notice #2

Dear Krzysztof:

We have reviewed the Structural Engineering Correction Notice #2 dated August 16, 2021 for Phase 2 of the Yesler Towers project. Please refer to drawings and supplemental calculations dated October 8, 2021 for corrections referenced in our responses. Significant changes to the structural drawings, and changes based on comments, have been clouded for your convenience. Please see our responses to comments below.

PERMIT COMMENT RESPONSES

1. ***This correction is for your information only, no written response required **
SBC 106.6.4 – This review is only for Phase 2 of the project (superstructure north tower phase – full structural completion of north tower).
Corrections may have been issued for Phase 1 of the project (foundation, structure to grade, base structure phase), and may affect the drawings and calculations in other phases.
The design team is responsible for the accuracy of the loading assumptions and revising drawings and calculations based on corrections in other Phases.*

Response: Comment noted.

2. *Closed*
3. *Closed*

4. *Level 3 (S2.07): Provide structural framing and reinforcing plans for the concrete bridge slab that spans from Level 2 near the intersection of grids D and 09 to Level 3 east of the intersection of grids G and 07. This extent of concrete is noted as being part of Phase 2 on sheet S2.06. Provide concrete thickness, reinforcing, and details.*

Response: Slab thickness and reinforcing for the concrete bridge have been added to sheets S2.07 and S2.07R. Please refer to updated structural drawings.

CYCLE #2: Column below Level 3 slab appears to be missing from plans S2.07 and S2.07R near 9.2 and D.5. Slab shear reinforcing is also missing. Revise drawings to provide slab shear reinforcing where required for strength and as required per ACI 318-14 Section 18.14.5.1. Alternatively, provide a narrative and/or calculations that demonstrate compliance with ACI 318-14 Section 18.14.5.1.

Response: Column visibility has been corrected and strudrails have been added as required. Please refer to updated structural drawings.

5. *Calculations provided in section B2 for Levels 3 and 6 do not include All Loads Plans for dead and live loads. Provide All Loads plans for dead and live loads for all levels to demonstrate that all loads are considered in design (including loads imposed on Level 6 slab due to:*

- a. *Closed*
- b. *Closed*

CYCLE 2:

- c. *Level 3 – It appears that column that was previously near 8/D has moved to the south, and not longer appears on Level 3 plans (S2.07 and S2.07R). Location of slab reinforcing has not been revised to reflect the new location. Revise drawings to show all columns and reinforcing in correct locations.*
- d. *Level 3 – Architectural drawings (such as sections on sheet A3.28 in Phase 3, issued 12.11.20) show 4" sand set pavers at exterior area of Level 3. Dead load of 18 psf appears insufficient to account for the weights of pavers and sand. Revise slab design to account for maximum anticipated loads, or demonstrate that 18 psf is adequate to account for all finishes on top of slab (pavers, sand, etc.) and hung from slab soffit (ceilings, MEP, ducts/pipes, etc.)*

Response: Column visibility has been corrected and slab reinforcing has been relocated accordingly. Superimposed dead load in paver area has been corrected to 55 psf. Please refer to updated structural drawings and attached supplemental structural calculations (Section A).

- 6. *Closed*
- 7. *Closed*
- 8. *Closed*

9. *Closed*

10. *Slab shear reinforcing (stud rails) appear to be missing in several locations. Examples include:*

a. *Closed*

b. *Stud rails appear to be missing on Level R1 (sheet S2.19R) at eight one-story columns that support level R2 above.*

Revise drawings to provide slab shear reinforcing where required for strength and as required per ACI 318-14 Section 18.14.5.1. Alternatively, provide a narrative and/or calculations that demonstrate compliance with ACI 318-14 Section 18.14.5.1.

CYCLE 2:

On sheet S2.19R, reinforcing mark "T5G5" obscures column above Level R1 near 6.1/E.5, and stud rail callout appears to be missing at this location.

Response: Reinforcing mark has been relocated for visibility and studrails have been added for all columns. Please refer to updated structural drawings.

11. *Closed*

12. *Closed*

13. *Closed*

14. *It appears that coupling beams are omitted at the Penthouse Roof level of the SRCSW system (sheets S3.01 and S3.02; level NL29 on the calculation pages C017 and C019). Is this intentional? If not, revise drawings to indicate coupling beams reinforcing, and revise calculations to include these coupling beams. If coupling beams are intentionally omitted at these locations, revise drawings and provide calculations to demonstrate that the slab at these locations meets requirements of ASCE 7-10 Section 12.12.5 and ACI 318-14 Section 18.14.*

Response: Omission of coupling beams at the penthouse roof level was intentional. The shear walls in question are thin and don't contain boundary zones, which would make coupling beams impractical. The slab between shear walls has been evaluated and reinforced for demands associated with design drifts. Please refer to updated structural drawings and attached supplemental calculations (Section C).

CYCLE #2: It is unclear how Section C of the calculations dated May 5, 2021 complies with ACI 318-14 Section 18.14. Revise calculations to indicate code sections being met. Below are several issues noted with the drawings and calculations.

- a. *Reinforcing provided is indicated to be over a 7'-0" wide slab strip width in the calculations. Provide code section that allows such a large strip width for a slab span that is only 6'-6"*

Response: Please refer to attached supplemental structural calculations (Section B) demonstrating that 7'-0" wide slab-beam strip is appropriate.

- b. *Revise plans to either indicate bar spacing or extent over which the reinforcing shall be distributed over, to be consistent with calculations.*

Response: Reinforcing drawings have been updated to include maximum spacing requirements for the added rebar in the slab-beam element. Please refer to the updated structural drawings.

- c. *Demonstrate that reinforcing will be developed at the critical sections. It appears that slab edges/openings might preclude development if critical sections occur at ends of walls.*

Response: Please refer to attached supplemental structural calculations (Section B) assessing the development of slab-beam reinforcing.

- d. *Clarify how demands were calculated. Did the analysis model include a 6" deep by 7'-0" wide slab/beam element? What stiffness modifiers were used?*

Response: Please refer to attached supplemental calculations (Section B) showing the modeling approach for the slab-beam elements.

- e. *Since no beams are provided, the slab-wall connections will behave like slab-column connections. Demonstrate compliance with 18.14.5.1.*

Response: While the interface between the slab and wall will behave similar to a slab-column connection, the critical perimeter for punching shear is significantly larger due to the length of the walls. Therefore, the $v_{ug}/\Phi v_c$ ratio, as defined in ACI 318-14 §18.14.5.1, will be very small by inspection. This means that the shear reinforcement of §18.14.5.1 would only be required for a drift greater than approximately 0.03, which is not the case.

15. Drawings show several sloping columns on the project. Calculations in Chapter B Section 3, and structural drawings, do not appear to include a diagram or schedule that indicates which columns are sloping and their geometry (slope, where the slope starts, and ends, etc.). To expedite review, provide diagram(s) and/or schedule(s) of the sloping columns, and provide responses to the following items:

a. Closed

b. Load path: Diaphragm design calculations (Chapter C, Section 4) do not appear to account for horizontal thrust forces due to sloping columns. How are the horizontal thrusts due to these columns accounted for in the design of the slab and lateral load resisting system? Demonstrate that complete load paths are provided to resist all horizontal thrusts due to the sloping columns.

Response: Level 9 diaphragm has been evaluated for thrust loads from sloping columns. Please refer to updated structural drawings and attached supplemental calculations (Section D).

CYCLE #2: Pages 368 to 371 (of 399) of Cycle #2 calculations appear to demonstrate that the net diaphragm shear demands due to sloping columns at the diaphragm connection to shear wall is adequate, however, the calculations do not show what completes the load path from the location of the thrust force to the lateral system. Provide explanation and/or calculations to demonstrate that complete load paths are provided for all column thrust forces. For example, calculations indicate that the easternmost column C-16 (southeast of G/7) produces a thrust of 161 kips in the southeast direction (away from the SRC SW system), thereby inducing tension in this corner of the diaphragm. What structural elements resist this tension and ensure that the diaphragm has sufficient capacity to deliver that force to the shear walls? Does the load path rely on mild reinforcing (#4 @ 24" OC EW BOT)? Post-tensioned tendons? The thrust loads do not appear to be included in the Concept model (pages 110-132 of 399 of Cycle #2 calculations).

Response: Reinforcing mat has been increased and drag steel modified to better transfer the column thrust loads. Please refer to updated structural drawings and attached supplemental structural calculations.

16. Closed

17. Closed

18. Closed

19. *Slab framing into lateral elements will cause it to yield due to seismic drifts*
ACI 318-14 18.14.3.2 – For the slabs spanning between wall at E/06 and column at E.3/06, at Levels 9 through 27, the aspect ratio along with the attachment to the concrete shear wall suggests that it will yield. Either provide calculations showing that, under the design displacements, the flexural and shear capacity of the slab are not exceeded; or provide a design for the beam per ACI 318-14 18.6.5.

Response: The slab area in question has been evaluated and reinforced for demands associated with design drifts. Please refer to attached supplemental calculations (Section G).

CYCLE #2: It is unclear how Section G of calculations dated May 5, 2021 complies with ACI 318-14 Section 18.14. Revise calculations to indicate code sections being met. Issues A through E noted in item 14 above apply here also.

Response: Please refer to response to Comment 14 and attached supplemental structural calculations (Section C).

20. *Closed*

21. *CYCLE #2: SBC 106.5.2 – Only the first sheet of the structural drawings (S0.01) and appears to have a seal and signature of the structural engineer. Please provide the seal and signature of the registered design professional in responsible charge, architect or structural engineer, licensed to practice in the State of Washington on each of the drawings.*

Response: Seal and signature have been added to all sheets as necessary. Please refer to updated structural drawings.

22. *CYCLE #2: Resubmit drawings with appropriate sheets/details marked as “FOR REFERENCE ONLY”. Sheets showing scope included in a separate permit or different phase should be marked “FOR REFERENCE ONLY” to clearly indicate the scope of each permit and phase.*

Response: “FOR REFERENCE ONLY” has been added to sheets and details where appropriate. Please refer to updated structural drawings.

23. *CYCLE #2: Remove “NOT FOR CONSTRUCTION” text from drawings. Plan sets noted as “NOT FOR CONSTRUCTION” cannot be approved for permit.*

Response: “NOT FOR CONSTRUCTION” has been removed from sheets issued as part of this permit. Please refer to updated structural drawings.

24. *CYCLE #2: ACI 318-14 Section 8.7.5.6 – Provide integrity reinforcement in two-way slabs. Integrity reinforcement can be satisfied by placing two continuous tendons through the region bounded by the longitudinal reinforcement of the columns per 8.7.5.6.1, and having those tendons pass beneath all orthogonal tendons per 8.7.5.6.2. Integrity reinforcement can also be provided by placing bottom integrity reinforcement per 8.7.5.6.3.*

It appears that “PLACING” section in Structural Notes on sheet S0.02 does not contain all requirements indicated in ACI 318-14 Section 8.7.5.6 and there are several locations where these requirements are not met. Some examples are noted below. Revise Structural Notes and drawings as required to demonstrate compliance at all columns (not only the examples noted below).

- a. Column C-18 near F/6.6 at Levels 5 and 6 (S2.08, S2.08R, S2.09, S2.09R)*
- b. Column C-14 near D.5/5.2 terminating at underside of Level R1 (S2.19 and S2.19R)*

Response: Integrity steel has been added to sheets S2.08R, S2.09R, and S2.19R where necessary based on PT layout and continuity. Please refer to updated structural drawings.

If there are any further comments or questions, please feel free to call me at (206) 622-5822.

Sincerely,



Chris M. Davies, PE, SE
Associate

CMD:bfj

1900092

Enclosures:

Revised Permit Drawings
Supplemental Permit Calculations



Project: **Yesler Towers – Drainage Correction #2 Responses**

Project #: 6769232-PH (Phase 2)

Date: October 7th, 2021

To: Viktor Peykov

Dear Viktor,
Please find below the responses to Drainage correction #2 for Phase 2 permit.

Corrections and Responses:

1. Phase II Approval
Drainage Review on Phase II cannot be approved prior to approving Phase I.

Response:

Noted. Phase 1 Drainage review was signed off on 10/4/2021.

2. Civil Plan Sheets (For Reference Only)
Please make sure to update all associated plans & documents in the Phase II permit set to match the approved Phase I permit set.

Response:

Noted. Approved phase 1 civil plan set is uploaded under Phase II permit.

Sincerely,

Zoe Jou-Yi Wang AIA
Su Development



Project: **Yesler Towers – Zoning Correction #2 Responses**

Project #: 6769232-PH (Phase 2)

Date: October 7th, 2021

To: Emily Lofstedt

Dear Emily,

Please find below the responses to Zoning correction #2 for Phase 2 permit.

Corrections and Responses:

1. Seattle Housing Authority (SHA) Tracking. Please provide the spreadsheet from SHA including the Dwelling Unit Tier Calculations, Development Area in residential and nonresidential floor areas, Green Factor, Parking, Transportation and Tree Calculations.
Please also provide all this information in the plan set.

Response:

Current SHA Tracking spreadsheet is uploaded to permit portal with this round of response. The information is included on sheet A0.15.

2. Allocation Document. Allocation of the residential floor area and parking spaces are required to be documented per SMC 23.75.040.C.
Please provide a copy of the Allocation Document with the corrected plan set. A final recorded document is required prior to permit issuance.

Response:

Based on the earlier email correspondences dated 9/7, a draft version of allocation document shall be uploaded for this correction. The recorded document will be completed before issuance of phase 4 permit.

Sincerely,

Zoe Jou-Yi Wang AIA
Su Development

Zoe Wang

From: Lofstedt, Emily <Emily.Lofstedt@seattle.gov>
Sent: Tuesday, September 7, 2021 12:36 PM
To: Zoe Wang
Subject: RE: 6769232-PH Yesler Towers - Phase 2 Zoning Correction #2 - Allocation Document Recording

Hi Zoe,

I agree that we can wait for the allocation document to be finalized at Phase 4. Please just upload a draft with phase 2.

I'll also make a note in our system to require the document at the appropriate time.

Thanks,

Emily Lofstedt

Seattle Department of Construction and Inspections

O: 206-386-0097 | M: 206-561-3446

emily.lofstedt@seattle.gov

From: Zoe Wang <zoew@sudevelopment.com>
Sent: Friday, September 03, 2021 1:24 PM
To: Lofstedt, Emily <Emily.Lofstedt@seattle.gov>
Subject: 6769232-PH Yesler Towers - Phase 2 Zoning Correction #2 - Allocation Document Recording

CAUTION: External Email

Hi Emily,

Hope this email finds you well.

In the correction letter issued on 6/8 (letter attached), item 2 requires the final recorded document to be submitted prior to permit issuance. The allocation document we have from SHA includes both north and south. Phase 2 permit is for north tower only, and detail information for south tower won't be finalized until later(phase 4 permit).

Would it be possible to push this requirement under phase 4 permit when both towers are planned completely?

Please advise.

Thanks,

Zoe

Zoe Jou-Yi Wang AIA

Su Development

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