



# AGENDA

Lincoln City Planning Commission  
Tuesday, April 20, 2021, 6:00 PM  
Zoom, Streamed LIVE on Zoom  
801 SW Highway 101 - 3rd Floor, Streamed LIVE on Zoom, Lincoln City, OR 97367

1. **CALL TO ORDER, PLEDGE OF ALLEGIANCE, & ROLL CALL**
2. **AGENDA CHANGES OR REVISIONS**
3. **MINUTES**
  - 3.1. Planning Commission - Regular Meeting - Apr 6, 2021 6:00 PM
4. **FINAL ORDERS, RESOLUTION, & WRITTEN COMMUNICATIONS**
5. **PUBLIC HEARINGS/DELIBERATIONS**
  - 5.1. VAR 2021-01 - Markin Deck
6. **OLD BUSINESS**
7. **NEW BUSINESS**
8. **PLANNING COMMISSION TRAINING**
9. **REPORTS & COMMENTS**
10. **FUTURE AGENDA ITEMS & NEXT MEETINGS**
11. **ADJOURN**

*All information for this meeting is available on the City of Lincoln City website at [www.lincolncity.org](http://www.lincolncity.org), and this meeting will be televised live on Charter Channel 4 Lincoln City and rebroadcast at various times. Planning Commission meetings are streamed live on the Internet through a link on the City of Lincoln City website, and can also be viewed following the meeting. The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired, for a hearing impaired device, or for other accommodations for persons with disabilities, should be made at least 48 hours in advance of the meeting to Cathy Steere, City Recorder, at 541-996-1203.*

**LINCOLN CITY PLANNING COMMISSION  
MINUTES  
April 6, 2021**

**1. CALL TO ORDER, PLEDGE OF ALLEGIANCE, & ROLL CALL**

<b>Attendee Name</b>	<b>Title</b>	<b>Status</b>	<b>Arrived</b>
Marci Baker	Chair	Present	
Kim Blackerby	Commissioner	Present	
Joshua Brainerd	Commissioner	Late	6:41 PM
Patti Kroen	Commissioner	Present	
Lenny Nelson	Commissioner	Present	
Miles Schlesinger	Commissioner	Present	
MacNeale Smith	Commissioner	Excused	

**2. AGENDA CHANGES OR REVISIONS**

SUB 2020-02 is continued to May 4, 2021.

**3. MINUTES**

**3.1. Planning Commission - Regular Meeting - Mar 16, 2021 6:00 PM**

<b>MOTION:</b>	<b>Motion to adopt the March 16, 2021 Planning Commission meeting minutes</b>
<b>MOVER:</b>	<b>Lenny Nelson, Commissioner</b>
<b>SECONDER:</b>	<b>Kim Blackerby, Commissioner</b>
<b>AYES:</b>	Baker, Blackerby, Kroen, Nelson, Schlesinger
<b>ABSENT:</b>	Joshua Brainerd
<b>EXCUSED:</b>	MacNeale Smith
<b>RESULT:</b>	<b>Passed</b>

**4. FINAL ORDERS, RESOLUTION, & WRITTEN COMMUNICATIONS**

**5. PUBLIC HEARINGS/DELIBERATIONS**

**5.1. SUB 2020-02 Overlook Subdivision**

The public hearing was continued to the May 4, 2021 Planning Commission meeting at the request of the applicant.

**6. OLD BUSINESS**

**6.1. Planning Commission 2021 Goal Setting**

Senior Planner Dave Mattison presented the outline of goals, projects, and tasks that he put together for the meeting. The list, generated from discussion at the previous Planning Commission meeting, was included in the April 6, 2021 meeting packet.

Commissioner Kroen asked if the latest version of the list could be e-mailed to the commissioners. Mr Mattison sent the list to the commissioners

Commissioner Blackerby asked about Cob as a building material and SB 3153, which were both on the list. Chair Baker said that the emergency warming shelter can be removed from the list because local churches are coordinating with a local nonprofit to provide emergency warming shelter services.

Commissioner Kroen said that she looks at the list, and there are a number of ways you can sort it. Some of the items are actions that support a goal that is also on the list. For example, transportation needs is on the list, but so is bicycle lane development. The items are mixed and need to be sorted differently. For example, eco-tourism - there are a number of things that are actions that would support that. The Planning Commission would like to develop an urban forest plan. It would include ordinances that will support the development and maintenance and enforcement of the plan.

Commissioner Kroen said that the list is a good starting point. If the Planning Commission could accomplish a couple of the items, that would be great. Chair Baker said that she had a similar thought but thinks of the list as more of a timeline. She asked what things would be best to approach after to comp plan update and which things can be done parallel to working on the comp plan. Chair Baker made a list of 4-5 things from the list to streamline. Realistically we should pick a few things to pick and move forward.

Commissioner Nelson said that building materials, referring to cob as a building material on the list, are not part of the Planning Commission. She added that several recent planned unit developments have been off of Logan Rd. It should be a high priority to improve Logan Rd. Something needs to be done there. We keep adding things to the road without doing anything about the traffic conditions.

Commissioner Blackerby said that he agrees with Chair Baker and Commissioner Kroen. There is a way to organize the based on priorities. Also a lot of the items can be combined. Transportation is part of the infrastructure of the town. It feels like we are trying to eat the entire elephant at once instead of a bite at a time. An A, B, C prioritization would make looking at the list every year easier - something that the Planning Commission can come back to and refine and add to the priorities.

Commissioner Kroen asked if the City Council finalized their goals yet. Mr Kim said that they have not yet - the next meeting is where they will prioritize their goals. Mr Kim said that he has been working on the tree ordinance. There are procedure issues, and issues related to historic tree designations. He has been amending those. Mr Kim has also been working on the lighting ordinance and an annexation procedure ordinance with City Attorney Richard Appicello.

Commissioner Nelson asked what lighting issues there are in the plan. Mr Kim explained that there have been complaints about flood lights. The code currently limits the number of lumens at the property line, but it is not currently enforceable. Mr Kim asked if there are additional issues that the commissioners think of. Commissioner Blackerby said that it would be good to see the city's priorities.

Commissioner Schlesinger said that he thought the goals were supposed to be looking toward the long-term 20-year plan for the city. He said that he cannot see any long-term movement in the city without putting transportation at the forefront. If there is a tsunami, it will wipe out the bridge over the D River. There has to be something else that ties the community together. A route east of Hwy 101 has to be a priority. There has to be funding. He said that he cannot see putting a plan together for protecting trees or creating a green area without connecting the city. It has to be a priority, so that Lincoln City can be a growing area rather than an income-deprived area. You cannot create a vibrant community without good infrastructure. That roadway needs to be considered as one priority, and everything else can follow after that.

Commissioner Blackerby agreed that Commissioner Schlesinger's priority is important. He said that the commissioners need to get the categories set up right first and then get the priorities set up. Chair Baker agreed that it is very important to provide for transportation needs. She asked what needs to be done to make it happen - and suggested looking at the partnerships that need to be made. Mr Kim said that he had reached out to DLCDC and asked if he can modify the transportation circulation map. We can start from the comprehensive plan and modify the traffic circulation map first.

Mr Mattison said that he would like to focus the time on developing some categories for the goals. Then the commissioners can prioritize and refine the goals within those categories. Chair Baker said that it would be nice if we came out of the meeting with a list of goals that is more organized.

Commissioner Blackerby asked the list could be prioritized A, B, C as a starting point. Chair Baker said that it seemed like a good suggestion to her.

Mr Mattison asked about Commissioner Kroen's ideas related to organization. Commissioner Kroen said that the comprehensive plan is the mother ship of the items on the goal list. Anything new for the lighting ordinance, it has to be consistent with the comprehensive plan. Code cleanup can be taken off the list - that is Mr Appicello's job. She said that she would put the comprehensive plan in the critical priorities. Commissioner Nelson said that she would add trees to the critical priorities because it comes up at every hearing. Commissioner Kroen said that many of these are related to code enforcement, which is not the Planning Commission's job and does not need to be on the list for the Planning Commission. The Villages at Sitka Woods is part of the master plan. Chair Baker had the master plan and the land designation on her list.

Commissioner Kroen has the comprehensive plan on the top of her list. Then things like transportation plan under that. Then things like Foothills Boulevard under the transportation plan. Bike paths could go under the transportation plan as well. One of the critical elements for the master plan for Sitka Woods is the transportation plan. She said that she does not know if just tracking the urban renewal process is something that the Planning Commission should be actively involved in. Broadband and the power grid fit under infrastructure. Maybe the comprehensive plan is the mechanism by which the Planning Commission becomes involved in each of the topics.

Chair Baker had the comprehensive plan and starting to go into that process as the highest priority. She said that the city is a month or two out on starting public hearings. Something we could take action on is the basic outline and do outreach and education to let the public know that this is coming. Planning staff could create educational materials on the statewide planning goals and how the process works in order to provide information on how to contact the city and have a

schedule of the process of how to get involved in each goal. Those community conversations will be very helpful for goal setting. She said that she had those tasks identified as the top priority in order to get started getting ready for those public hearings. When the public shows up for those public hearings, that is something people could sign up ahead a time. She asked whether there will be one public meeting per statewide planning goal or whether multiple goals can be fit into one meeting.

Mr Kim set up to have a training with DLCD about the process and each element of the comprehensive plan. He said that he had preparing for the workshops for each of the workshops. The commissioners will have an opportunity to participate in each workshop - and can choose whether to participate in each one or just in specific ones. Commissioner Nelson suggested getting people interested in watching the May discussion with DLCD. Chair Baker suggested using the City's Facebook page to put out something inviting the public. Larger participation and understanding will make for more productive hearings and staying on task with each goal. It would be good to have an entire tab from the planning department page that has a link to the statewide planning goals and to the DLCD's materials. The public could be directed to those via the City's Web site and shared publicly. Commissioner Nelson recommended a newspaper article.

Commissioner Blackerby suggested that a template could be sent out to each commissioner to have them add their ratings individually. Commissioner Kroen said that the tree ordinance and the community forest plan go together. You need to have something to tether the ordinances to. She agreed with Commissioner Blackerby to have everyone do the prioritization on their own. Chair Baker agreed with the suggestion.

Prioritized goals are due to staff by Friday April 9, 2021.

**7. NEW BUSINESS**

None

**8. PLANNING COMMISSION TRAINING**

None

**9. REPORTS & COMMENTS**

Commissioner Blackerby asked if Mr Mattison had any luck finding the previously requested traffic statistics. Mr Mattison talked to Public Works, who said that they did not have anything specific for the overall street. Commissioner Blackerby clarified that he is asking if there is a list of all of the traffic studies that have been completed. Chair Baker asked that we have those available by the time the Planning Commission is looking at the transportation goal.

**10. FUTURE AGENDA ITEMS & NEXT MEETINGS**

Commissioner Blackerby asked if the Planning Commission will see the completed Council goals by the next (April 20, 2021) meeting. Mr Kim said that he will summarize the goals and send them to the commissioners.

**11. ADJOURN**

Respectfully submitted,

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James White  
Assistant Planner

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Marci Baker  
Chair

# Planning Commission Communication

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## VAR 2021-01 - Markin Deck

Meeting Date: April 20, 2021      Primary Staff Contact: David Mattison  
 Department: Planning Commission      E-Mail: DMattison@lincolncity.org  
 Secondary Dept:      Secondary Contacts:  
 Approval:      Estimated Time:

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### Staff Report

### Planning Commission Hearing on April 20, 2021

### Case File VAR 2021-01

**Date:** April 8, 2021

**Case File:** VAR 2021-01 Markin Deck Setback Variance

**Applicant/Property Owner:** James and Katherine Markin

**Situs Address:** 5340 NE Logan Road

**Location:** The property is located on the north end of a 12 foot access easement that extends north off of Logan Road.

**Tax Map and Lot:** 06-11-35-CC-00800

**Comprehensive**

**Plan Designation:** Single Family Residential Roads End (R-1-RE)

**Zoning District:** Single Family Residential Roads End (R-1-RE)

**Site Size:** 0.1 acres (4,356 sq ft)

**Proposal:** The applicant is requesting a setback variance to allow a proposed structure (second story deck) on the subject property to be built closer to the side lot line than the required 10 ft side yard setback, making an exception to Lincoln City Municipal Code Section 17.17.070 (Lot Requirements), Subsection (E) in order to allow the interior side yard setback greater than one story to be reduced.

The applicants have requested a setback variance (4 ft) allowing them to rebuild the second story deck closer to the property line to match the original deck setback, rather than meeting the required 10 ft setback, and alleviate the hardship.

**Surrounding Land Uses and Zones:** North: Residences (R-1-RE) Single Family Residential Roads Ends (R-1-RE)  
 South: Residences (R-1-RE) Single Family Residential Roads Ends (R-1-RE)  
 East: Residences (R-1-RE) Single Family Residential Roads Ends (R-1-RE)

West: Residences (R-1-RE) Single Family Residential Roads Ends (R-1-RE)

**Public Notice:** The Planning and Community Development Department mailed notice to the owners of all properties within 250 feet of the site on March 31, 2021. The *News Guard* published the public hearing notice on April 6, 2021.

**Authority:** Section 17.68.010 of Lincoln City Municipal Code (LCMC) Title 17 authorizes the Planning Commission to authorize variances from the requirements of Title 17 (Zoning) where it can be shown that, owing to special and unusual circumstances related to a specific piece of property, strict application of this title would cause an undue or unnecessary hardship. No variances shall be granted to allow the use of property for a purpose not authorized within the zone in which the proposed use would be located. In granting a variance, the Planning Commission must find that the request meets all four of the circumstances in §17.68.020 and may attach conditions that it finds necessary to protect the best interests of the surrounding property or neighborhood and otherwise achieve the purposes of Title 17. A previously authorized variance does not set precedent for later variances; all variance requests are judged based on the four circumstances.

**Applicable  
Substantive  
Criteria:**

The variance must be in conformance with the Oregon Statewide Planning Goals, the Lincoln City Comprehensive Plan, and Lincoln City Municipal Code Chapter 17.16 Single-Family Residential, Chapter 17.52 Supplementary Regulations and Exceptions, and Chapter 17.68 Variances

**BACKGROUND**

The subject property is a developed lot with approximately 4,000 sq ft. In the 1980's a lot line adjustment (between tax lots 600 and 800 (5354 Logan and 5340 Logan)) provided the property owner with additional square footage to the north on 5340 Logan so that the lot could be built upon. A second-story deck existed on the north and the west sides of the single family home. The deck to the north was 6 ft from the property line (4 ft under the required 10 ft setback). The grade of the property to the north of the existing house drops dramatically making it unsuitable for use or emergency access.

The applicant applied for a building permit for routine repair and renovation of the northern deck. The permit was approved in August 2020 for the deck beam, pillar and footing repair. However, at the time of the setback inspection, additional work than just the approved footing and beam repair was identified. As work had progressed, the applicant extended the work and it became a violation.

The applicants have requested a setback variance (4 ft) allowing them to rebuild the second story deck closer to the property line to match the original deck setback, rather than meeting the required 10 ft setback, and alleviate the hardship.

**ANALYSIS**

The LCMC (17.68.010) grants the Planning Commission the authority to authorize variances in those instances where the strict application of an ordinance would create **an undue or unnecessary hardship** because of circumstances of the property beyond the control of the property owner. It is not necessary for the applicant to demonstrate that there is no reasonable use of the property – only that a property right that is otherwise shared by owners of other property in the same zone or vicinity is made unduly or

unreasonably difficult because of the ordinance. The LCMC (17.68.020) sets out four criteria (all of which must be met) to establish whether a variance may be granted:

### **Circumstances for Granting a Variance (17.68.020)**

*1. Exceptional or extraordinary circumstances apply to the property which do not apply generally to other properties in the same zone or vicinity and result from lot size or shape legally existing prior to the date of the ordinance codified in this title, topography, or other circumstances over which the applicant has no control;*

According to the applicant, the property is located in Roads End in Lincoln City. The deck is original to the house and built prior to annexation of the neighborhood into Lincoln City. The applicant has stated in the narrative that the location of the home and the original deck are not in the applicant's control. The intent of this project is to repair the deck to its original footprint. The reclassification of the project from a 'repair' to a 'rebuild' was determined after excessive deconstruction of the original deck was done during repair, thus not meeting the 10 ft structural setback requirements.

The existing house is tucked into a 50 ft by 80 ft lot, with a second story deck extending out on the north and west sides. Tax Lot 800 is smaller in size and dimensions than adjacent properties, and the City requirements. The location of the original deck on the north side of the building approximately 6 ft from the property line. Site conditions and the slope of the grade to the north create an exceptional or extraordinary condition. Staff concludes that this exceptional or extraordinary circumstance for granting a variance is met.

*2. The variance is necessary for the preservation of a property right of the applicant which is substantially the same as owners of other property in the same zone or vicinity possess;*

According to the applicant, the original deck, built before annexation, is attached to the west and north sides of the house. The repaired/rebuilt deck is in the exact footprint of the original deck. Many of the houses in the neighborhood built prior to Roads End annexation have decks and other structures (garages, houses, etc) that do not meet the City setback requirements. In the 1980's a lot line adjustment (between tax lots 600 and 800 (5354 Logan and 5340 Logan)) provided the property owner with additional square footage to the north on 5340 Logan so that the lot could be built upon. The applicant states it was a right to build closer to the property line than current requirements that many property owners utilized. Repairing and renovating the pre-existing deck preserves the right for the owner to continue to maintain the deck on the north side of the subject property. Staff concludes that this circumstance for granting a variance is met.

*3. The variance should not be materially detrimental to the purposes of this title, or to property in the zone or vicinity in which the property is located, or otherwise conflict with the objectives of any city planning policy;*

According to the applicant, a setback variance for this deck will not be materially detrimental to adjacent properties because:

- a) the deck footprint is consistent with the pre-existing deck footprint;
- b) the added vertical beams supporting the deck do not impede the view or access to any of the adjacent properties.

In addition, the granting of this variance would not be detrimental to the current setback requirements. The property line between tax lots 600 and 800 (5354 Logan and 5340 Logan) Staff was adjusted in the 1980's in an attempt to accommodate the setback issues. Staff concludes that this circumstance for granting a variance is met.

4. The variance requested is the minimum variance which would alleviate the hardship. (Ord. 84-2 § 8.020)

According to the applicant, granting of this variance request is all that is required to alleviate the hardship created by not replacing the deck. Without this variance, the deck on the north side will not be allowed by the City due to not being designable or buildable. Staff concludes that this circumstance for granting a variance is met.

With the slope, site setback does not function as it is supposed to – for emergency access and/or utility placement - therefore it may be considered space to allow for a setback variance. It is not a necessary area for building, but the applicant can proposed to utilize it with Planning Commission approval. However, this does not mean that this justifies all deck construction in the required setback areas.

### **Single-Family Residential Roads End (R-1-RE) Lot Requirements**

Section 17.17.070 lists the lot requirements.

Lot requirements shall be as follows:

- A. The minimum lot area shall be 5,000 square feet and 8,000 square feet for a duplex.
- B. The minimum lot width shall be 50 feet.
- C. The minimum lot depth shall be 70 feet.
- D. The minimum front yard shall be 20 feet. Except that the minimum setbacks from Logan Road need not exceed the average setback of buildings on all lots within 100 feet of the lot on which the proposed building is to be located and that abut Logan Road.
- E. The minimum interior side yard shall be seven and one-half feet for single-story buildings and 10 feet for buildings with more than one story.
- F. The minimum street side yard shall be 20 feet, except that it may be one foot less for each two feet of front yard setback over the minimum, but not to less than 10 feet.
- G. On corner lots, the clear-vision area requirement of LCMC 17.52.060 and 17.52.070 shall apply.
- H. The minimum rear yard shall be seven and one-half feet for single-story buildings and 10 feet for buildings with more than one story. In no case shall the distance between residential structures on the same lot or on adjacent lots be less than 10 feet.
- I. The maximum building coverage shall be 35 percent.

Any new development on the site or re-development of the site must meet the requirements of the R-1-RE zone and other regulations referenced by the zone, including among others, those pertaining to landscaping, signs, parking, and site plan/design standards.

The subject property does not meet the minimum lot area of 5,000 square feet. The subject property does meet the minimum lot width and depth. The minimum setback of 10 feet is the issue in the proposed setback variance request application.

### **COMMENTS RECEIVED**

Notice was mailed to adjacent property owners within 250 feet on March 31, 2021, and published on April 6, 2021. No comments have been received.

### **RECOMMENDATION & CONCLUSION**

Section 17.68.030 of LCMC Title 17 states that the Planning Commission shall hold a public hearing before it may act on a request for a variance, and shall in open meeting, recommend the approval or disapproval of the variance.

Staff recommends that the Planning Commission hold a public hearing on the requested setback variance, and if the evidence presented at the hearing warrants, staff recommends that the Planning Commission approve the variance request.

Prepared by David Mattison, Senior Planner.

Attachments:

- Aerial map showing the location of property proposed for a variance
- Application materials

**Attachments:**

A.Notice of Violation for Home Owner (PDF)  
 B.Motion and Order to Amend-r2 (PDF)  
 D-1.Permit.521-20-00278-STR (PDF)  
 D-2.Approved struct plans (PDF)  
 D-3.Approved struct calc's (PDF)  
 D-4.Revised Site Plan (PDF)  
 D-5.Approved railing doc's (PDF)  
 E.amendment.weightupgrade (PDF)  
 G.Inspectionstatus (PDF)  
 H.FootingInspectionComments (PDF)  
 I.Fees paid.markin (PDF)  
 J.northside.pictures (PDF)  
 K.Westside.pictures (PDF)  
 L.footingsetback.north (PDF)  
 M.house setback.north (PDF)  
 O.door.aerialview (PDF)  
 LandUseApp.Markin (PDF)  
 Revised Response to Variance Criteria 2 (PDF)  
 Revised Responses to Variance Criteria 1 (PDF)

James and Catherine Markin  
 1041 SW Westwood Ct  
 Portland OR, 97239  
 Cmarkin123@gmail.com

RE: Violation of Nonconforming Deck Replacement without a Permit; and Violation of Side Setback Requirements at 5340 NE Rogan Road, Lincoln City, OR 97367

Dear the Owner and the Contractor:

The building permit was reviewed on August 6, 2020 and the revised site plan was approved on August 24, 2020, after discussions with planners.

The permit has been the result of planner's advice that the deck was a nonconforming structure, which repair can only be done, not a replacement. LCMC 17.64.010.C states that a lawful, nonconforming structure (the deck) that has been damaged may be restored if the value of the damage is less than 50 percent of the appraised value of the structure.

It was clearly discussed previously with the City staff that the replacement would not be allowed. Also, by rebuilding the deck, which encroach 4-5' into 10' required side setback area, additional setback violation has been created.

On February 16, 2021, the City staff found that the deck has been entirely replaced and constituted two violations:

- (1) Violation of nonconforming deck replacement without a permit (Class B violation); and,
- (2) Violation of side setback requirements (Class B civil infraction).

According to LCMC 1.16.070, the maximum fines for a Class B violation would be \$1,000 per a day until the violation is resolved. The only remedy here would be the removal of the deck at this time.

#### 17.64.060 Violation – Enforcement.

Any modification of a nonconforming use, site or structure that according to this chapter requires city approval shall not be initiated before such approval is obtained. Failure to obtain an approval required by this chapter is a violation punishable as a Class B violation under Chapter 1.16 LCMC, with each day the property is used in violation of this section considered a separate violation. Notice provisions of LCMC 17.84.020(B) shall not apply in any enforcement of violation of this chapter, and the city may at its option proceed to file a complaint or take other remedial action as provided in Chapter 17.84 LCMC without prior notice of violation to the property owner or any opportunity to correct. (Ord. 2015-10 §§ 5, 6; Ord. 2011-03 § 4)



17.84.020 Enforcement.

A. Civil Infraction. Any person, firm, association or corporation, whether as principal, agent, employee or otherwise, who violates any provision of this title or any order adopted pursuant to this title shall be punished under the provisions of Chapter 1.16 LCMC. Unless otherwise specified, any such violation is a Class B civil infraction. Each day that the violation of this title exists is deemed to be a separate offense.



IN THE MUNICIPAL COURT OF THE CITY OF LINCOLN CITY  
COUNTY OF LINCOLN, STATE OF OREGON

CITY OF LINCOLN CITY

Plaintiff,

V

MARKIN, JAMES A. & MARKIN,

CATHERINE (Owners) ;

Defendant(s).

Case No.: \_\_\_\_\_ - \_\_\_\_ / L38353

MOTION AND ORDER  
TO AMEND

COMES NOW the City of Lincoln City and moves this Court for an order amending the citation and complaint to make the following corrections:

- 1. Mark the "Violation" and "Other" box for a nature of offense;
- 2. Mark the "Municipal" box for a court applicable;
- 3. Mark the "No culpable mental state" boxes for each violation identified;
- 4. Under Time/Place: add the two additional dates of 2/17/2021, 2/18/2021 for these continuing violations to be consistent with the presumption fine amounts.
- 5. Under "2. Violated (cite ORS/ORD/rule), change 17.80.020 to 17.84.020. LCMC 17.84.020 applies to zoning violation, not 17.80.020.

DATED this 22<sup>nd</sup> day of February, 2021.

City of Lincoln City

By: Sungman Kim, Planning Director

**ORDER**

THIS MATTER having come before the court on Plaintiff's Motion to Amend and the Court being fully advised in the premises,

This motion is hereby  granted  denied.

DATED this \_\_\_\_ day of \_\_\_\_\_, 2021.

Honorable Jim Ruggeri  
Municipal Court Judge

**CERTIFICATE OF SERVICE**

I hereby certify that I served the foregoing Motion to Amend in the case of City of Lincoln City v. James and Catherine Markin, Municipal Court Case No. \_\_\_\_ - \_\_\_\_ /L38353, by mailing a full, true and correct copy thereof to:

Markin, James & Catherine  
1041 SW Westwood Ct.  
Portland, OR 97239

on the date set forth below.

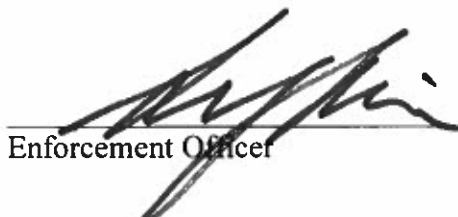
DATED this 22<sup>nd</sup> day of February, 2021.

  
Enforcement Officer

**CERTIFICATE - TRUE COPY**

I hereby certify that the foregoing Motion to Amend is a complete and exact copy of the original.

DATED this 22<sup>nd</sup> day of February, 2021.

  
Enforcement Officer

IN THE MUNICIPAL COURT OF THE CITY OF LINCOLN CITY  
COUNTY OF LINCOLN, STATE OF OREGON

CITY OF LINCOLN CITY

Plaintiff,

V

Profound Exteriors Plus, LLC.

Defendant.

Case No.: \_\_\_-\_\_\_/L38354

MOTION AND ORDER  
TO AMEND

COMES NOW the City of Lincoln City and moves this Court for an order amending the citation and complaint to make the following corrections:

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3. Mark the "No culpable mental state" boxes for each violation identified;
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DATED this 22<sup>nd</sup> day of February, 2021.

City of Lincoln City

By: Sungman Kim, Planning Director

**ORDER**

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This motion is hereby  granted  denied.

DATED this \_\_\_\_ day of \_\_\_\_\_, 2021.

Honorable Jim Ruggeri  
Municipal Court Judge


**CERTIFICATE OF SERVICE**

I hereby certify that I served the foregoing Motion to Amend in the case of City of Lincoln City v. Profound Exteriors Plus LLC., Municipal Court Case No. \_\_\_ - \_\_\_/L38354, by mailing a full, true and correct copy thereof to:

Profound Exteriors Plus LLC.  
10200 SW Allen Blvd.  
Beaverton, OR 97005

on the date set forth below.

DATED this 22<sup>nd</sup> day of February, 2021.

  
Enforcement Officer

**CERTIFICATE - TRUE COPY**

I hereby certify that the foregoing Motion to Amend is a complete and exact copy of the original.

DATED this 22<sup>nd</sup> day of February 2021.

  
Enforcement Officer



# Building Permit

## Residential Structural

**Permit Number: 521-20-000278-STR**

IVR Number: 521000743206

Web Address: [www.lincolncity.org](http://www.lincolncity.org)

Email Address: [permits@lincolncity.org](mailto:permits@lincolncity.org)

**Permit Issued:** August 27, 2020

**Project:** Markin Deck

### TYPE OF WORK

**Residential Specialty Code Edition:** 2017

**Category of Construction:** Single Family Dwelling

**Type of Work:** Repair

**Submitted Job Value:** \$22,000.00

**Description of Work:** Renovation of exterior deck on second level of house.

### JOB SITE INFORMATION

**Worksite Address**

5340 NE LOGAN RD  
Lincoln City, OR 97367

**Parcel**

06-11-35-CC-00800-00

**Owner:**

MARKIN JAMES &  
CATHERINE

**Address:**

1041 SW WESTWOOD CT  
PORTLAND, OR 97239

### LICENSED PROFESSIONAL INFORMATION

**Business Name**

PROFOUND EXTERIORS PLUS LLC

**License**

CCB

**License Number**

196869

**Phone**

503-574-4010

### PENDING INSPECTIONS

**Inspection**

1999 Final Building  
1260 Framing  
1020 Zoning/Setbacks  
1110 Footing  
1996 Final Inspection - Planning

**Inspection Group**

Struct Res  
Struct Res  
Struct Res  
Struct Res  
Struct Res

**Inspection Status**

Pending  
Pending  
Pending  
Pending  
Pending

### SCHEDULING INSPECTIONS

Various inspections are minimally required on each project and often dependent on the scope of work. Contact the issuing jurisdiction indicated on the permit to determine required inspections for this project.

Schedule or track inspections at [www.buildingpermits.oregon.gov](http://www.buildingpermits.oregon.gov)

Call or text the word "schedule" to 1-888-299-2821 use IVR number: 521000743206

Schedule using the Oregon ePermitting Inspection App, search "epermitting" in the app store

**Permits expire if work is not started within 180 Days of issuance or if work is suspended for 180 Days or longer depending on the issuing agency's policy.**

**All provisions of laws and ordinances governing this type of work will be complied with whether specified herein or not. Granting of a permit does not presume to give authority to violate or cancel the provisions of any other state or local law regulating construction or the performance of construction.**

**ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the Center at (503) 232-1987.**

**All persons or entities performing work under this permit are required to be licensed unless exempted by ORS 701.010 (Structural/Mechanical), ORS 479.540 (Electrical), and ORS 693.010-020 (Plumbing).**

**PERMIT FEES**

<b>Fee Description</b>	<b>Quantity</b>	<b>Fee Amount</b>
Structural building permit fee		\$206.05
Structural plan review fee		\$133.93
State of Oregon Surcharge - Bldg (12% of applicable fees)		\$24.73
Planning review and inspections	1	\$100.00
	<b>Total Fees:</b>	\$464.71

*Note: This may not include all the fees required for this project.*



**521-20-000278-STR**

Approved plans shall be on site  
and accessible at inspection.

245 N.E. Conifer, P.O. Box 1211  
Corvallis, OR 97339  
Fax: (541) 757-9885

(541) 757-8991

PROJECT: DECK RENOVATION

PROJECT NO: 20-625

DESIGN: A.C.

DATE: JULY '20

**1. GENERAL:**

- 1.1. THE STRUCTURAL DRAWINGS REPRESENT THE COMPLETED STRUCTURE AND ARE NOT INTENDED TO INDICATE THE MEANS AND METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE SHORING, BRACING, SCAFFOLDING, FORM WORK, GUYS, RIGGING AND OTHER TEMPORARY SUPPORTS AS NEEDED TO SAFELY RESIST ALL LOADING IMPOSED UPON THE STRUCTURE DURING ERECTION AND CONSTRUCTION.
- 1.2. ERECTION AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF APPLICABLE ORDINANCES, REGULATIONS AND THE PROVISIONS OF CODES CITED BELOW.
- 1.3. ALL CONSTRUCTION SHALL BE COORDINATED WITH AND SHALL BE SUBJECT TO THE SPECIAL INSPECTION REQUIREMENTS CITED BELOW AND LINCOLN CITY.
- 1.4. THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AND DETAILS BETWEEN THE STRUCTURAL DRAWINGS AND THAT OF OTHER TRADES PRIOR TO COMMENCING WORK. SHOULD THERE BE ANY CONFLICTS, NOTIFY THE ENGINEER FOR CLARIFICATION.
- 1.5. GENERAL NOTES AND TYPICAL DETAILS SHOWN ON DRAWINGS APPLY TO ALL STRUCTURAL DRAWINGS UNLESS SHOWN OR NOTED OTHERWISE.
- 1.6. SEISMIC BRACING & ANCHORAGE OF ALL ITEMS NOT PART OF THE PRIMARY STRUCTURAL SYSTEM IS BY OTHERS.

**2. CODE**

- 2.1. INTERNATIONAL BUILDING CODE (IBC) 2018 EDITION W/ 2019 OREGON AMENDMENTS (OSSC)

**3. DESIGN LIVE LOADS**

- 3.1. FLOOR LOADS
 

SNOW:	20 PSF
LIVE:	60 PSF
- 3.2. COMPONENTS AND CLADDING WIND PRESSURES (PSF):  
WIND VELOCITY OF 135 MPH, EXPOSURE D, RISK CATEGORY II
- 3.3. SEISMIC:  
OCCUPANCY CATEGORY = II, SITE CLASS = D, I=1.0  
 $S_s=1.32$   $S_1=0.69$ ,  $S_{D5}=1.05$ , SEISMIC DESIGN CATEGORY D  
  
ANALYSIS PROCEDURE = IBC SECTION 1613 AND ASCE 7 CH 13



NORTHWEST CODE PROFESSIONALS

**Reviewed for Code Compliance**

Approved by: Brandon Zipser

Permit #: 521-20-000278-STR

Date: 08/06/2020

**Reviewed for Lincoln City**

**Deck repairs/replacement**

**4. DESIGN STRESSES:**

- 4.1. CONCRETE: (28 DAY STRENGTHS AS INDICATED)
 

TYPE OF CONCRETE	$f_c$ (PSI)	LOCATION
NORMAL WEIGHT 150 PCF	2,500	SLABS & FOOTINGS

MAXIMUM SLUMP 4"  
AIR ENTRAINMENT - 4% MIN. EXPOSED CONCRETE AREAS ONLY  
MAXIMUM WATER TO CEMENT RATIO = 0.48  
MAXIMUM FLY ASH % AS PART OF TOTAL CONCRETIOUS MATERIALS = 10%
- 4.2. CONCRETE AND MASONRY REINFORCEMENT BARS:  
ASTM A615 - GRADE 60  $f_y = 60000$  PSI
- 4.3. MINIMUM SOIL BEARING CAPACITIES

MAXIMUM ALLOWABLE BEARING PRESSURE FOR FOOTINGS BEARING ON MIN. 12" COMPACTED GRANULAR FILL HAVE BEEN ESTABLISHED AS FOLLOWS:

LOADING TYPE: SPREAD FOOTINGS / RETAINING WALLS

DEAD LOAD	1500 PSF
DEAD LOAD PLUS LIVE LOAD	1500 PSF
TOTAL LOAD INCLUDING WIND OR SEISMIC	2000 PSF

JOB SITE MUST BE POSTED WITH ADDRESS & PERMIT NUMBER VISIBLE FROM THE STREET THE APPROVED PLANS MUST BE KEPT ON THE JOB SITE IN SUCH A WAY THAT THEY ARE EASILY LOCATED & PROTECTED FROM WATER AND OTHER DAMAGE.

**5. FOUNDATIONS:**

- 5.1. EXCAVATION FOR GRADE BEAMS AND FOUNDATIONS SHALL PROVIDE A FIRM WELL-DRAINED BASE FOR CONCRETE PLACEMENT. NO CONCRETE SHALL BE PLACED INTO ANY FORM WHERE WATER HAS COLLECTED.
- 5.2. ALL FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED NATURAL SOILS IN PLACE OR ON PROPERLY COMPACTED CRUSHED ROCK FILL.
- 5.3. OVER-EXCAVATION BELOW OR ADJACENT TO BOTTOMS OF FOUNDATIONS SHALL BE TREATED BY ANY ONE OF THE FOLLOWING PROCEDURES:  
EXTENDING FOUNDATIONS TO GREATER DEPTH.  
PLACING ENGINEERED FILL, UNDER CONTROL OF GEOTECHNICAL ENGINEER, TO PROPER ELEVATION.  
BACKFILL WITH COMPACTED CRUSHED ROCK.
- 5.4. ANY SUBSURFACE CONDITIONS NOT IN ACCORDANCE WITH THE ABOVE SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER FOR RESOLUTION PRIOR TO CONTINUING THE WORK.

**Inspections:**  
1.) Footing  
2.) Framing/Final

Setbacks to property lines shall be marked at the footing inspection. The contractor of record is responsible for establishing the correct property markers and setbacks.

**Consult planning department for required setbacks**



EXPIRES: 12/31/24



**521-20-000278-STR**  
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PROJECT: DECK RENOVATION

PROJECT NO: 20-625

DESIGN: A.C.

DATE: JULY '20

**6. CONCRETE CONSTRUCTION:**

- 6.1. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 LATEST EDITION AND ACI DETAILING MANUAL - ACI 315, SP-66. MIX DESIGN TO BE SUBMITTED FOR APPROVAL FOR ALL CLASSES OF CONCRETE. ADDITIVES CAN BE USED IF APPROVED BY THE ENGINEER. CALCIUM IS NOT AN APPROVED ADDITIVE.
- 6.2. PROVIDE CORROSION RESISTANT BAR SUPPORTS IN ALL EXPOSED CONCRETE CONSTRUCTION.
- 6.3. NO ALUMINUM CONDUITS OR PIPES SHALL BE EMBEDDED IN CONCRETE. THE USE OF ALUMINUM PIPES OR CHUTES TO TRANSPORT CONCRETE SHALL NOT BE PERMITTED.
- 6.4. CONCRETE PROTECTION FOR REINFORCEMENT:
- 6.4.1. CONCRETE CAST AGAINST AND EXPOSED TO EARTH.....3"
- 6.4.2. CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 OR LARGER.....2"
- #5 OR SMALLER.....1 - 1/2"
- 6.4.3. CONCRETE NOT EXPOSED TO WEATHER OR GROUND:
- SLABS, WALLS, JOISTS:
- #11 BAR AND SMALLER.....3/4"
- BEAMS, COLUMNS - PRIMARY REINFORCEMENT, TIES,  
 STIRRUPS SPIRALS.....1 - 1/2"

**7. WOOD CONSTRUCTION:**

- 7.1. GENERAL FRAMING:
- 7.1.1. ALL 2X LUMBER KILN DRIED TO MAXIMUM MOISTURE CONTENT 19% AT TIME OF DELIVERY UNLESS SPECIFIED HEREIN.
- 7.1.2. ALL METAL CONNECTORS SHOWN ON THE DRAWINGS ARE TO BE SIMPSON OR APPROVED EQUAL.
- 7.1.3. ALL EXPOSED WOOD IN CONTACT WITH CONCRETE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH IBC CHAPTER 23 REQUIREMENTS.
- 7.1.4. FASTENERS IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE A MINIMUM OF ASTM A 653, TYPE G185 HOT-DIPPED ZINC-COATED GALVANIZED STEEL OR STAINLESS STEEL.
- 7.1.5. NAILING SHALL CONFORM TO IBC TABLE # 2304.9.1 (U.N.O.)
- 7.1.6. ALL MEMBERS SHALL BE STAMPED WITH THE GRADE, SPECIES TYPE, GRADING AGENCY AND/OR MANUFACTURER AS APPROPRIATE TO THE MATERIAL.
- 7.1.7. PNEUMATICALLY DRIVEN 8D NAILS SHALL BE SENCO BRAND KD25 OR AND ENGINEER APPROVED EQUAL. PNEUMATICALLY DRIVEN 10D NAILS SHALL BE SENCO BRAND MD27 OR AND ENGINEER APPROVED EQUAL. PNEUMATICALLY DRIVEN 16D NAILS SHALL BE SENCO BRAND ND29 OR AND ENGINEER APPROVED EQUAL.
- 7.2. SAWN TIMBER:
- 7.2.1. ALL SAWN TIMBER SPECIES SHALL BE DOUGLAS FIR-LARCH (NORTH) AND SHALL HAVE GRADES IN ACCORDANCE WITH THE FOLLOWING, UNLESS OTHERWISE NOTED:
- 7.2.1.1. FRAMING:
- |   |             |                             |
|---|-------------|-----------------------------|
| ALL MEMBERS<br>(UNLESS OTHERWISE NOTED) | GRADE NO. 2 | GRADED S4S<br>OR BETTER     |
| ALL BLOCKING, BACKING, ETC.             | GRADE NO. 2 | GRADED S4S<br>OR STUD GRADE |
- 7.1. GLUED-LAMINATED MEMBERS:
- 7.1.1. LUMBER SPECIES TO BE PRESERVATIVE TREATED DOUGLAS FIR-WESTERN LARCH WITH COMBINATION 24F - V4 DF/DF FOR SIMPLE SPAN BEAMS & 24F - V8 DF/DF FOR CANTILEVER OR CONTINUOUS, MULTIPLE SPAN BEAMS.

**8. QUALITY ASSURANCE PLAN BASED ON IBC REQUIREMENTS**

- 8.1. INSPECTIONS:
- 8.1.1. THE CONSTRUCTION DOES NOT APPEAR TO HAVE ANY ITEMS REQUIRING SPECIAL INSPECTION AS REQUIRED BY OSSC CHAPTER 17.
- 8.2. CONTRACTOR RESPONSIBILITY
- 8.2.1. ACKNOWLEDGEMENT OF AWARENESS OF THE REQUIREMENTS CONTAINED IN THE QUALITY ASSURANCE PLAN.
- 8.2.2. ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS.
- 8.2.3. ESTABLISH PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS.



EXPIRES: 12/31/ 21



521-20-000278-STR

Approved plans shall be on site and accessible at inspection.

Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339

www.devcoengineering.com

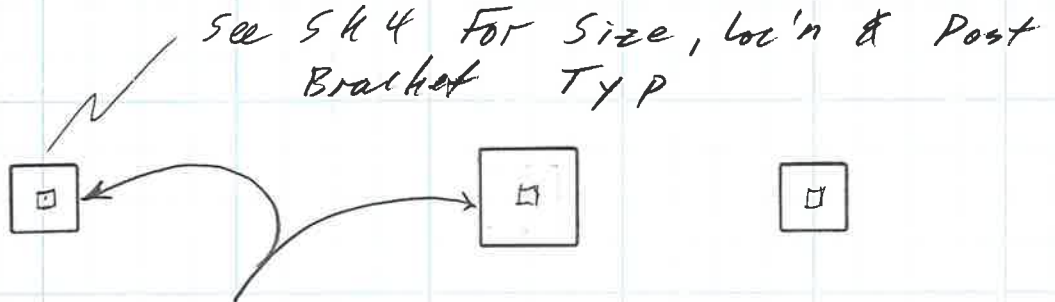
(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Markin Deck Renovation*

PROJECT NO: *20-6*

DESIGN:

DATE: *6/20*



*Remove & Repair Asphalt @ These (2) Footings*

*Exist'g House Walls*

Soil Conditions are assumed **1500psf**. If at excavation soils issues are found, consult a qualified engineer and the jurisdiction.

Footings must be 12" below frost line.

*Proposed New Footings for Repair of Exist'g Deck*  
*NTS*      *N →*

*see sk 3*



EXPIRES: 12/31/ *21*



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www.devcoengineering.com

(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Martin Deck Renovation*

PROJECT NO: *20-6*

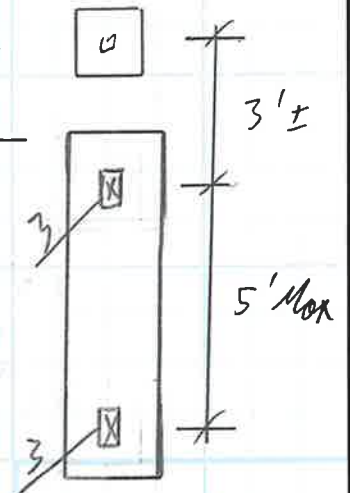
DESIGN: *AC*

DATE: *6/20*

$\frac{3}{\square}$  = New PT #1 HF 4x6  
w/ PowerFab CCQ style  
Caps in stainless & CBSQ  
style Base in stainless  
on single 24" w x 84" L x 12" h  
concr. Fty w/ (4) #5 Longit &  
#4 @ 12" o.c. Transverse  
(Top & Btm w/ 3" clear)

Proposed Deck Footings  
@ East Side  
NTS

Deck  
p6  
sh 4



EXPIRES: 12/31/ *21*



521-20-000278-STR

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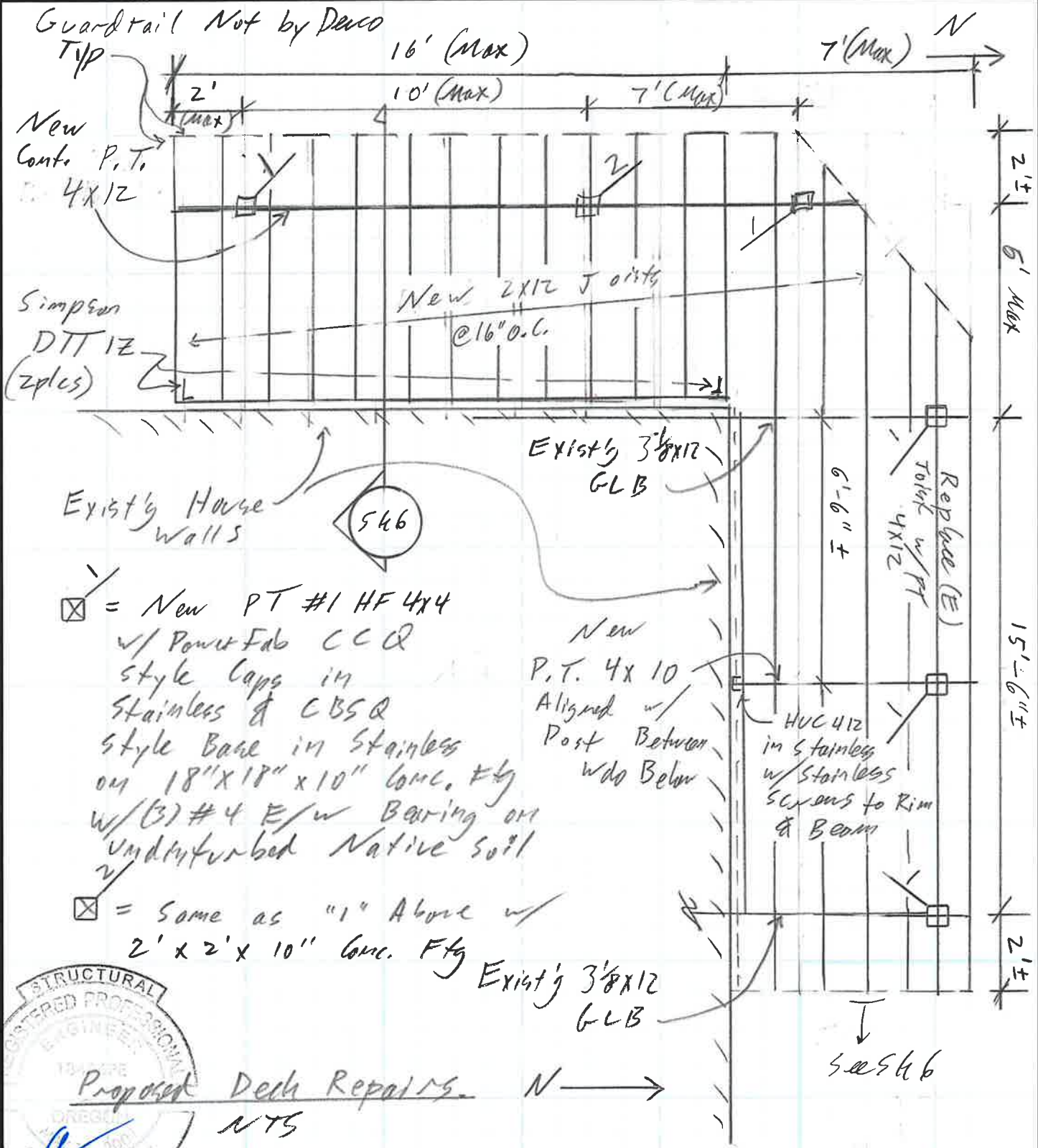
Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330

Mailing Address  
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Corvallis, OR 97339

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(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Marlin Deck Renovation* PROJECT NO: *20-6* DESIGN: *AC* DATE: *12/19*



☒ = New PT #1 HF 4x4  
w/ Power Fab CCQ  
style Caps in  
Stainless & CBSQ  
style Base in Stainless  
on 18" x 18" x 10" Conc. Fty  
w/ (3) #4 E/w Bearing on  
undisturbed Native Soil

☒ = Same as "1" Above w/  
2' x 2' x 10" Conc. Fty



*Proposed Deck Repairs* N →  
*NTS*

EXPIRES: 12/31/ *21*



521-20-000278-STR

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PROJECT: *Marlin Deck Renovation*

PROJECT NO: *20-6*

DESIGN: *AC*

DATE: *6/20*

*Exist'g House walls*

*Ftg's per sk 4*

*Simpson DTTIE  
2 ples*

*Exist'g  
Deck  
per  
sk 4*

*Proposed Deck  
Framing @ East End*  
*NTS*

*New PT  
2x8 @ 16" o.c.  
w/ Double Joists  
@ Tub Wall  
Loc'ns*

**"Z" flashings required  
above all ledgers.**

*(sk 1)*

*New PT 2x10  
Ledger*

*New PT 2x8 Rim  
Joist  
7'  
Max*

*New  
2x6 Decking  
w/ Min (2) #9x2 1/2"  
Deck Screws  
Ea Joist*

*6'  
Max*

*New PT  
4x8*

*Guardrail Not  
by Devco, Typ*



EXPIRES: 12/31/ *21*



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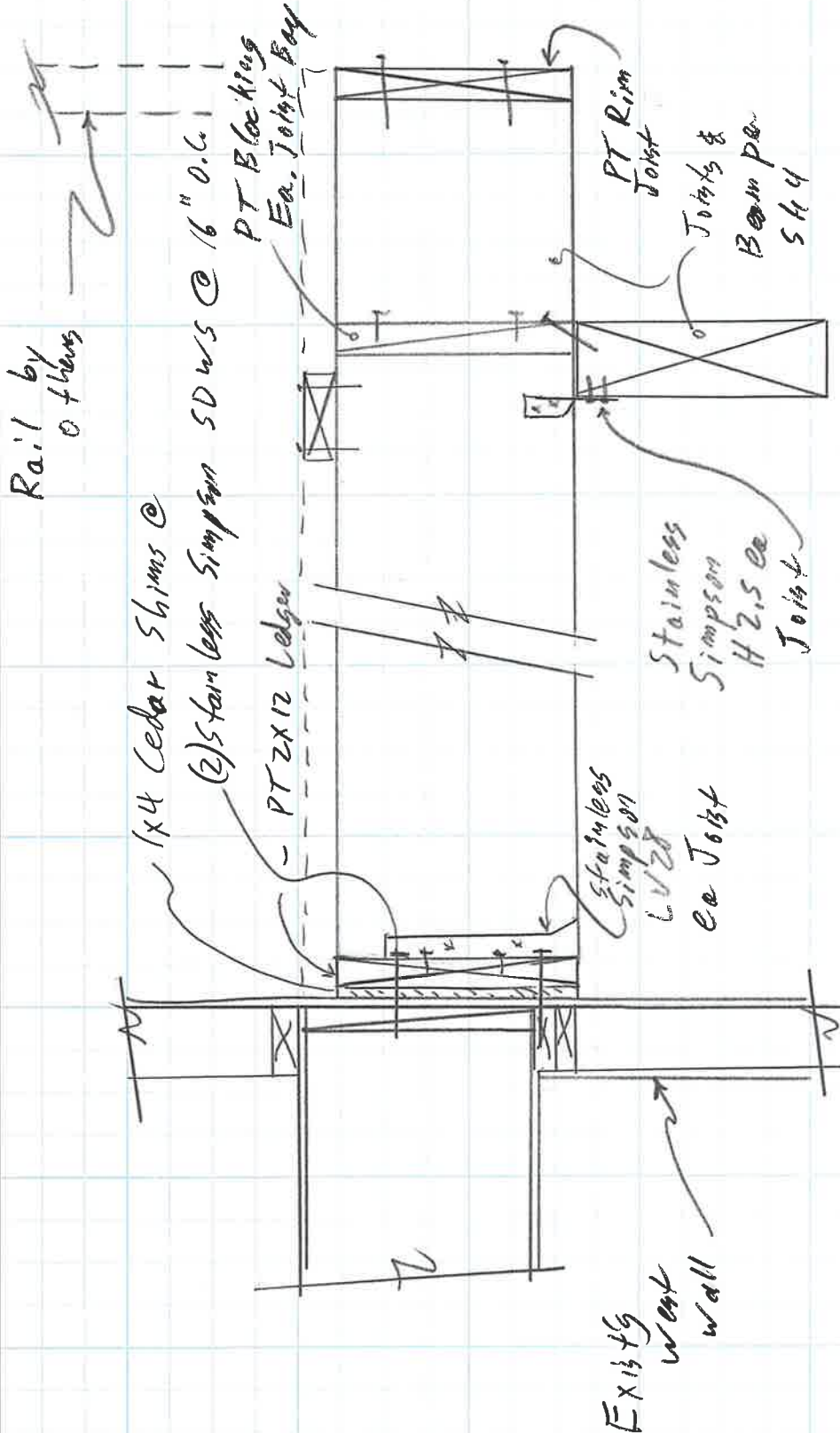
PROJECT: *Marlin Deck Renovation*

PROJECT NO: *20-6*

DESIGN: *Ac*

DATE: *6/20*

**521-20-000278-STR**  
Approved plans shall be on site  
and accessible at inspection.



*Detail @ West Side*  
*NTS*

"Z" flashings required above all ledgers.



EXPIRES: 12/31/ *21*



521-20-000278-STR

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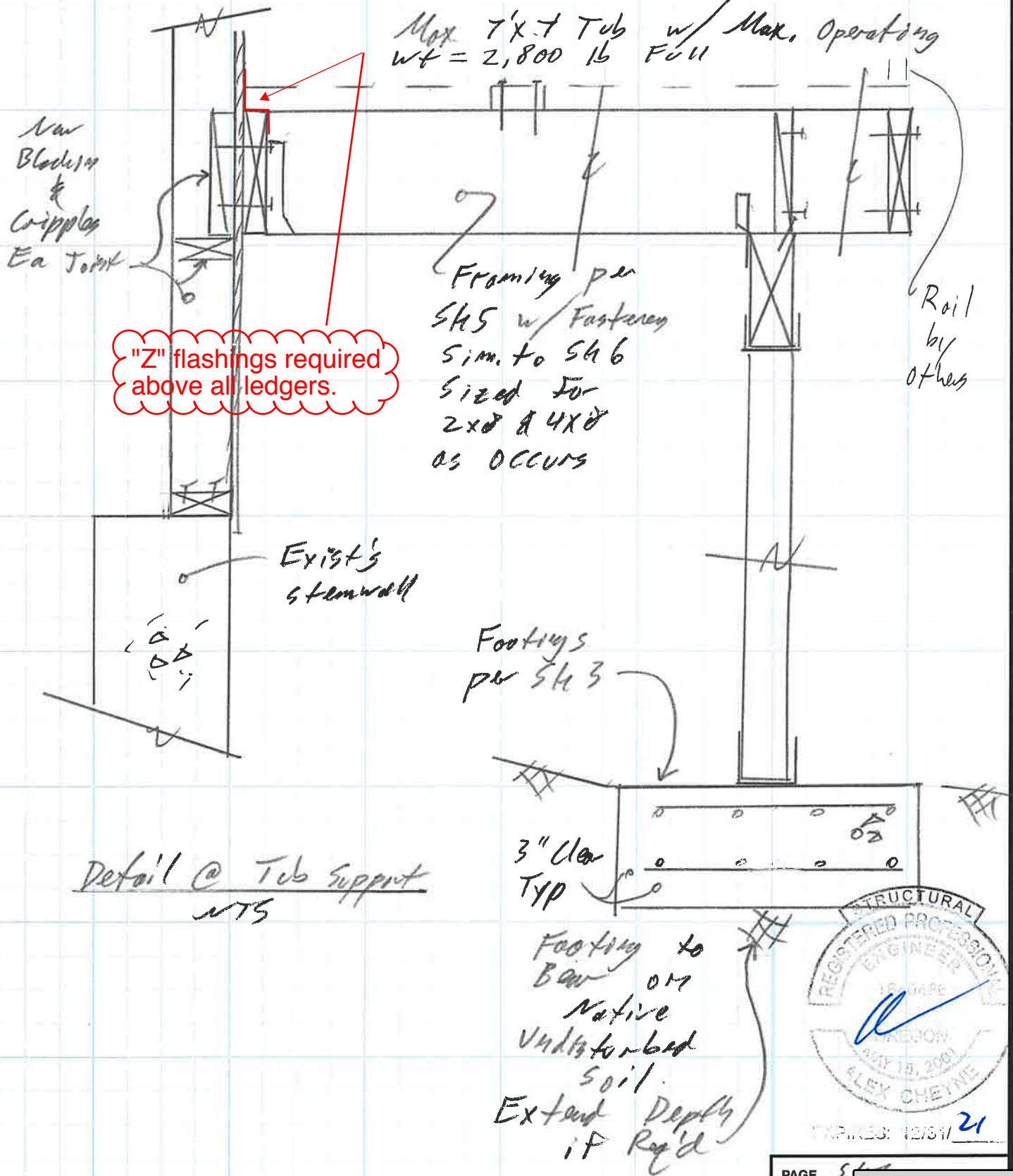
(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Maxley Deck Renovation*

PROJECT NO: *20-6*

DESIGN: *AC*

DATE: *6/20*





521-20-000278-STR

Approved plans shall be on site and accessible at inspection.

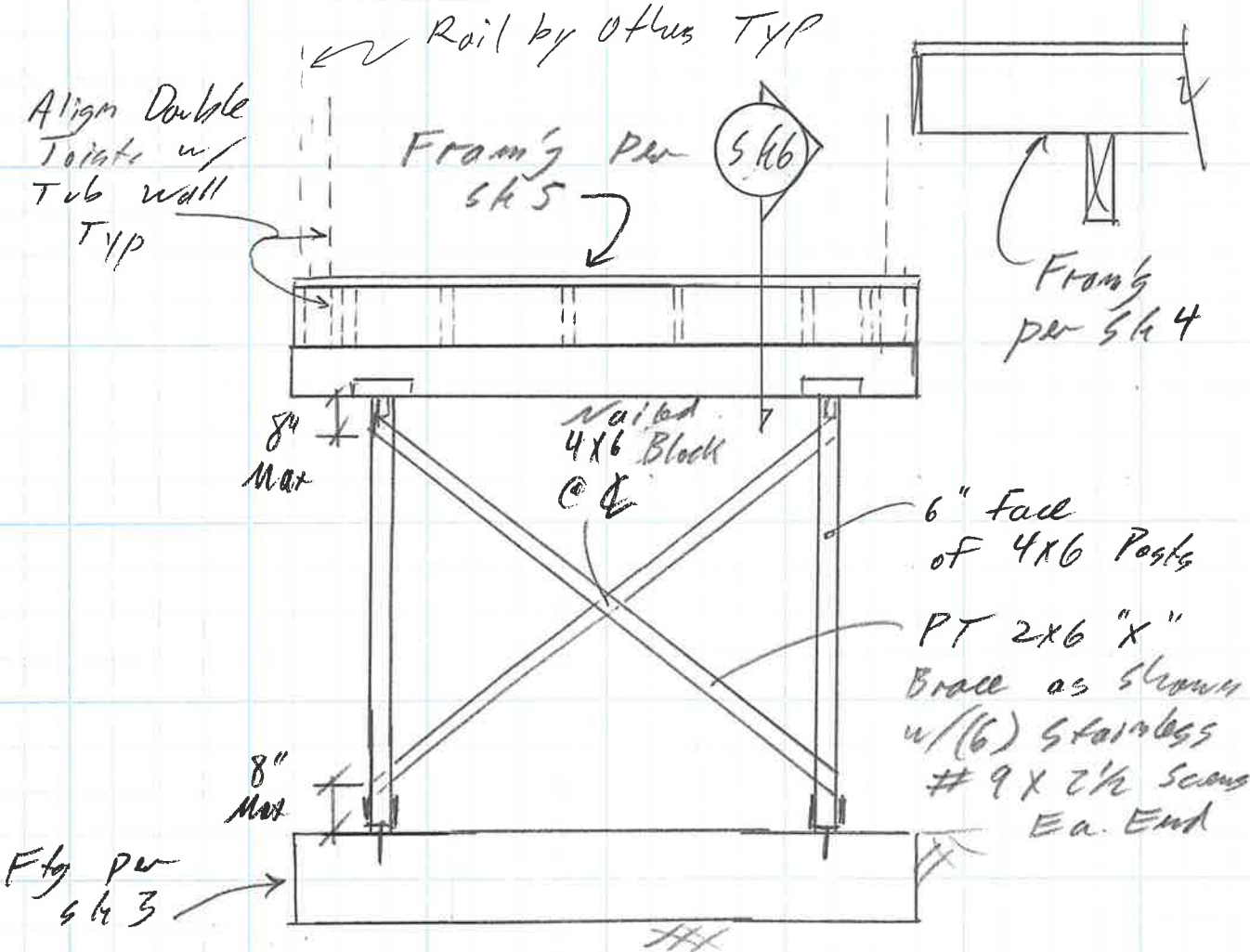
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Corvallis, OR 97330

Mailing Address  
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PROJECT: *Marlin Deck Renovations* PROJECT NO: *20-6* DESIGN: *AC* DATE: *6/20*



Bracing Detail @ North side of  
New Tub supports  
NTS



EXPIRES: 12/31/21



**521-20-000278-STR**

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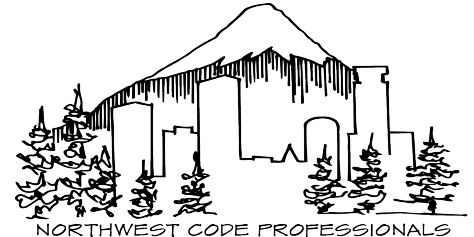
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## Structural Calculations

### Markin Residence Deck Renovation

### Lincoln City, Oregon

Prepared For: Cathy and Jim Markin  
Project No.: 20-625  
Date: July 12, 2020



**Reviewed for Code Compliance**

Approved by: Brandon Zipser

Permit #: **521-20-000278-STR**

Date: **08/06/2020**

**Reviewed for Lincoln City**

**Deck repairs/replacement**

**Table of Contents**  
**Structural Calculations**  
**for**  
**Markin Residence Deck Renovation**  
**Lincoln City, Oregon**

Devco Job # 20-625  
July 12,2020

<b><u>Subject</u></b>	<b><u>Page</u></b>
Design Loads	1
Beam, Column and Footing Design	2



EXPIRES 12/31/21



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PROJECT: *Mar-Lisa Deck Remo*

PROJECT NO: *20-679*

DESIGN: *1/20*

DATE: *AC*

### Design Loads

Live Load = 60 psf Deck - Residential  
Snow Load = 20 psf  
Dead Load = 8 psf

### Seismic Loads

$S_s = 1.315$  ,  $S_1 = 0.682$   
 $S_{DS} = 1.05$

$F_p = 0.75 W_p$   
ASD

w/  $u_p = 1.25$  ,  $R_p = 1.0$  ,  $I_p = 1.0$   
 $h = 20'$  &  $z = 10'$

@ Exterior Wall Fastener Level Forces

$F_p = 0.20 W_p$  w/  $u_p = 1.0$  ,  $R_p = 2.5$   
ASD

@ Exterior Wall Member Level Forces

### Wind Loads

$V = 135$  mph , Exp D

$W_{ASD} = -30$  psf w/  $G_C = 1.0$  @ Zone 4

## ATC Hazards by Location

### Search Information

**Address:** 5340 NE Logan Rd, Lincoln City, OR 97367, USA  
**Coordinates:** 45.0049327, -124.0065339  
**Elevation:** 130 ft  
**Timestamp:** 2020-07-21T05:00:35.020Z  
**Hazard Type:** Seismic  
**Reference Document:** ASCE7-16  
**Risk Category:** II  
**Site Class:** D-default



### Basis Parameters

Name	Value	Description
$S_0$	1.315	MCE <sub>R</sub> ground motion (period=0.2s)
$S_1$	0.662	MCE <sub>R</sub> ground motion (period=1.0s)
$S_{M0}$	1.578	Site-modified spectral acceleration value
$S_{M1}$	* null	Site-modified spectral acceleration value
$S_{0.2}$	1.052	Numeric seismic design value at 0.2s SA
$S_{1.0}$	* null	Numeric seismic design value at 1.0s SA

\* See Section 11.4.8

### \*Additional Information

Name	Value	Description
SDC	* null	Seismic design category
$F_0$	1.2	Site amplification factor at 0.2s
$F_1$	* null	Site amplification factor at 1.0s
$GR_0$	0.863	Coefficient of risk (0.2s)
$GR_1$	0.856	Coefficient of risk (1.0s)
PGA	0.651	MCE <sub>g</sub> peak ground acceleration
$F_{PGA}$	1.2	Site amplification factor at PGA
$PSA_M$	0.762	Site modified peak ground acceleration
$T_L$	16	Long-period transition period (s)
$S_{0.2}^T$	1.315	Probabilistic risk-targeted ground motion (0.2s)
$S_{0.2}^U$	1.524	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
$S_{0.2}^D$	1.911	Factored deterministic acceleration value (0.2s)
$S_{1.0}^T$	0.662	Probabilistic risk-targeted ground motion (1.0s)
$S_{1.0}^U$	0.796	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
$S_{1.0}^D$	0.998	Factored deterministic acceleration value (1.0s)
$PGA^d$	0.898	Factored deterministic acceleration value (PGA)

\* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

### Disclaimer

Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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Fax: (541) 757-9885

PROJECT: Marina Deck Rmn

PROJECT NO: 20-625

DESIGN: 1/20

DATE: AC

Check Joists @ Upper Deck

$l_{max} = 7.5'$  , spacing =  $16" O.C.$

Per Vitruvius Calc #2 HF PT 2x12 ok

Check Westmost Beam w/ New Posts

$l = 21'$

$\frac{2'}{2'} \quad \frac{10'}{2'} \quad \frac{7'}{2'} \quad \frac{2'}{2'}$

Per Vitruvius Use PT #2 HF 4x12 Conf.

Check Existing Beams @ North Side w/ New Posts

$l = 7'$  Trib width  $< 8'$

Per Vitruvius (E) 5 1/8 x 12 GLB ok

New Beam @ Midspan of North Side

$l = 7'$  Trib width  $< 8'$

per Vitruvius Use PT HF #2 4x10

DATE:	7/15/2020	COMPANY:	Devco Engineering Inc		
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	ac		
CUSTOMER:	Devco	REVIEWED BY:	ac		
PROJECT LOCATION:	, 97339				
LEVEL:	Main Floor	LOADING:	ASD		
LOCATION:	New Floor Joist	CODE:	2018 International Building Code		
TYPE:	FLOOR JOIST	NDS:	2018 NDS		
MATERIAL:	SOLID SAWN				
Hem-Fir	No. 2	(1) 1.5 X 11.25	16(in) O.C.	WET	INCISED

## New Floor Joist DIAGRAM



## BEAM PROPERTIES

Start (ft): 0 End (ft): 7 Member Slope: 0/12 Actual Length (ft): 7 O.C. Spacing(in): 16

Area (in <sup>2</sup> )	I <sub>x</sub> (in <sup>4</sup> )	I <sub>y</sub> (in <sup>4</sup> )	BSW (lb/ft)	Lams	G	K <sub>cr</sub> Creep Factor
16.88	177.98	3.16	3.49	1	0.43	1

## STRENGTH PROPERTIES

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c</sub> ⊥ (psi)	E (psi) x10 <sup>3</sup>	E <sub>min</sub> (psi) x10 <sup>3</sup>
Base Values	850	525	150	1300	405	1300	470
Adjusted Values	782	420	116	832	271	1112	402
C <sub>M</sub>	1	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1	1	1	1	1	1	1
Bending Adjustment Factors	C <sub>fu</sub> = 1 C <sub>r</sub> = 1.15						

## BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End		CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
		Top	Bottom	Elev. Diff (ft)					
1	7	0	10	0		1.00	0.59	1.00	1.00

## PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	PASS (74.7%)	29.4	116.4	0	D+L	1
Bending Stress Y (psi)	PASS (71.9%)	219.5	782.0	3.5	D+L	1
Deflection (in)	PASS (90.6%)	0.022 (=L/3853)	0.233 (=L/360)	3.5	L	
Bearing Stress (psi)	PASS (76.8%)	63.0	271.4	0	D+L	1

## REACTIONS

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	51	280	0	0	0	0	0	0	0	0	0
B	51	280	0	0	0	0	0	0	0	0	0

Reaction Location

## LOAD LIST

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft)	80	80	0	7	Live	Y
Uniform (lb/ft)	11	11	0	7	Dead	Y
Self Weight (lb/ft)	3.49	3.49	0	7	Dead	Y

DATE:	7/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	ac
CUSTOMER:	Devco	REVIEWED BY:	ac
PROJECT LOCATION:	97339		
LEVEL:	Main Floor	LOADING:	ASD
LOCATION:	New West Side Deck Beam	CODE:	2018 International Building Code
TYPE:	FLOOR BEAM	NDS:	2018 NDS
MATERIAL:	SOLID SAWN		
Hem-Fir	No. 2	(1) 3.5 X 11.25	WET
			INCISED

**New West Side Deck Beam DIAGRAM**



**BEAM PROPERTIES**

Start (ft): 0 End (ft): 19 Member Slope: 0/12 Actual Length (ft): 19

Area (in <sup>2</sup> )	I <sub>x</sub> (in <sup>4</sup> )	I <sub>y</sub> (in <sup>4</sup> )	BSW (lb/ft)	Lams	G	Kcr Creep Factor
39.38	415.28	40.2	8.13	1	0.43	1

**STRENGTH PROPERTIES**

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c</sub> ⊥ (psi)	E (psi) x10 <sup>3</sup>	E <sub>min</sub> (psi) x10 <sup>3</sup>
Base Values	850	525	150	1300	405	1300	470
Adjusted Values	748	420	116	832	271	1112	402
C <sub>M</sub>	1	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1.1	1	1	1	1	1	1

Bending Adjustment Factors C<sub>fu</sub> = 1 C<sub>r</sub> = 1

**BEAM DATA**

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2	2	2	0	1.00	1.00	1.00	1.00
2	10	0	10	0	1.00	1.00	1.00	1.00
3	7	0	7	0	1.00	0.99	1.00	1.00

**PASS-FAIL**

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	<b>PASS (33.2%)</b>	77.7	116.4	11.97	D+L	1
Bending Stress Y (psi)	<b>PASS (28.2%)</b>	530.5	738.8	11.97	D+L	1
Deflection (in)	<b>PASS (68.8%)</b>	0.042 (=L/1154)	0.133 (=L/360)	0	L	
Bearing Stress (psi)	<b>PASS (33.7%)</b>	180.0	271.4	2	D+L	1

**REACTIONS**

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	0	0	0	0	0	0	0	0	0	0	0
B	365	1881	0	0	0	0	0	0	0	0	0
C	614	3166	0	0	0	0	0	0	0	0	0
D	126	652	0	0	0	0	0	0	0	0	0

Reaction Location



---

Uniform (lb/ft)	50	50	0	19	Dead	Y
Uniform (lb/ft)	300	300	0	19	Live	Y
Self Weight (lb/ft)	8.13	8.13	0	19	Dead	Y

---

**NOTES**

DATE:	7/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	ac
CUSTOMER:	Devco	REVIEWED BY:	ac
PROJECT LOCATION:	, 97339		
LEVEL:	Main Floor	LOADING:	ASD
LOCATION:	Existing Floor Beam at North Side	CODE:	2018 International Building Code
TYPE:	FLOOR BEAM	NDS:	2018 NDS
MATERIAL:	GLULAMS		
Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 5.125 X 12	WET

## Existing Floor Beam at North Side DIAGRAM



## BEAM PROPERTIES

Start (ft): 0 End (ft): 7 Member Slope: 0/12 Actual Length (ft): 7

Area	Ix	Iy	BSW	Lams	G	Kcr
(in <sup>2</sup> )	(in <sup>4</sup> )	(in <sup>4</sup> )	(lb/ft)			Creep Factor
61.5	738	134.61	14.61	1	0.5	1

## STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc⊥	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	1920	1480	1160	880	232	201	1204	344	1499400	791350	1332800	708050
C <sub>M</sub>	0.8	0.8	0.8	0.8	0.875	0.875	0.73	0.53	0.833	0.833	0.833	0.833
C <sub>T</sub>	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C<sub>vr</sub> = 1

## BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End		CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
		Top	Bottom	Elev. Diff (ft)					
1	7	0	7	0		1.00	0.99	1.00	1.00

## PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	PASS (78.8%)	49.1	231.9	0	D+L	1
Bending Stress Y (psi)	PASS (82.1%)	343.4	1920.0	3.5	D+L	1
Deflection (in)	PASS (90.0%)	0.023 (=L/3589)	0.233 (=L/360)	3.5	L	
Bearing Stress (psi)	PASS (67.5%)	112.1	344.5	0	D+L	1

## REACTIONS

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	331	1680	0	0	0	0	0	0	0	0	0
B	331	1680	0	0	0	0	0	0	0	0	0

Reaction Location

A B

## LOAD LIST

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft)	480	480	0	7	Live	Y
Uniform (lb/ft)	80	80	0	7	Dead	Y
Self Weight (lb/ft)	14.61	14.61	0	7	Dead	Y

DATE:	7/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	ac
CUSTOMER:	Devco	REVIEWED BY:	ac
PROJECT LOCATION:	, 97339		
LEVEL:	Main Floor	LOADING:	ASD
LOCATION:	New Floor Beam at North Side	CODE:	2018 International Building Code
TYPE:	FLOOR BEAM	NDS:	2018 NDS
MATERIAL:	SOLID SAWN		
Hem-Fir	No. 2	(1) 3.5 X 11.25	WET
			INCISED

## New Floor Beam at North Side DIAGRAM



## BEAM PROPERTIES

Start (ft): 0 End (ft): 7 Member Slope: 0/12 Actual Length (ft): 7

Area (in <sup>2</sup> )	I <sub>x</sub> (in <sup>4</sup> )	I <sub>y</sub> (in <sup>4</sup> )	BSW (lb/ft)	Lams	G	K <sub>cr</sub> Creep Factor
39.38	415.28	40.2	8.13	1	0.43	1

## STRENGTH PROPERTIES

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c</sub> ⊥ (psi)	E (psi) x10 <sup>3</sup>	E <sub>min</sub> (psi) x10 <sup>3</sup>
Base Values	850	525	150	1300	405	1300	470
Adjusted Values	748	420	116	832	271	1112	402
C <sub>M</sub>	1	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1.1	1	1	1	1	1	1
Bending Adjustment Factors	C <sub>fu</sub> = 1 C <sub>r</sub> = 1						

## BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End		CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
		Top	Bottom	Elev. Diff (ft)					
1	7	0	7	0	1.00	0.99	1.00	1.00	

## PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	PASS (34.9%)	75.8	116.4	0	D+L	1
Bending Stress Y (psi)	PASS (24.4%)	565.6	748.0	3.5	D+L	1
Deflection (in)	PASS (75.9%)	0.056 (=L/1494)	0.233 (=L/360)	3.5	L	
Bearing Stress (psi)	PASS (40.2%)	162.3	271.4	0	D+L	1

## REACTIONS

Y axis	V-(lbf)		M-(lbf-ft)								
	DEAD	LIVE	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	308	1680	0	0	0	0	0	0	0	0	0
B	308	1680	0	0	0	0	0	0	0	0	0

Reaction Location

A

B

## LOAD LIST

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft)	480	480	0	7	Live	Y
Uniform (lb/ft)	80	80	0	7	Dead	Y
Self Weight (lb/ft)	8.13	8.13	0	7	Dead	Y



Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330  
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P.O. BOX 1211  
Corvallis, OR 97339  
(541) 757-8991  
Fax: (541) 757-9885

PROJECT: Mon-his Deck Reno

PROJECT NO: 20-625

DESIGN: AL

DATE: 1/20

Check Posts

Max Rm @ North & West Beams

Rm = 3200 + 600 lb @ West Beam Center Support  
h < 8'

Per Vitruvius Use PT#1 HF Post 6plcs

Check Associated Fty

Rm = 3200 + 600 lb as above

Per Vitruvius Use 2'x2'x10" Pad Fty

& 18"x18"x10" Pad Fty Elsewhere by IMSP

DATE:	7/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	ac
CUSTOMER:	Devco	REVIEWED BY:	ac
PROJECT LOCATION:	, 97339		
LEVEL:	Main Floor	LOADING:	ASD
LOCATION:	New Worst Case Post	CODE:	2018 International Building Code
TYPE:	COLUMN	NDS:	2018 NDS
MATERIAL:	SOLID SAWN		
Hem-Fir	No. 1	(1) 3.5 X 3.5	WET
			INCISED

## New Worst Case Post DIAGRAM



## COLUMN PROPERTIES

Start (ft): 0 End (ft): 8 Member Slope: 0/12 Actual Length (ft): 8

Area	I <sub>x</sub>	I <sub>y</sub>	BSW	Lams	G	K <sub>cr</sub>
(in <sup>2</sup> )	(in <sup>4</sup> )	(in <sup>4</sup> )	(lb/ft)			Creep Factor
12.25	12.51	12.51	2.53	1	0.43	1

## STRENGTH PROPERTIES

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c</sub> ⊥ (psi)	E (psi) x10 <sup>3</sup>	E <sub>min</sub> (psi) x10 <sup>3</sup>
Base Values	975	625	150	1350	405	1500	550
Adjusted Values	994	750	116	994	271	1282	470
C <sub>M</sub>	0.85	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1.5	1.5	1	1.15	1	1	1
Bending Adjustment Factors	C <sub>fu</sub> = 1 C <sub>r</sub> = 1						

## COLUMN DATA

Span	Length (ft)	Unbraced Length (ft)		Column End		CP	K <sub>e</sub> (X Axis)	K <sub>e</sub> (Y Axis)	K <sub>e</sub> L/d (X Axis)	K <sub>e</sub> L/d (Y Axis)
		X	Y	Offset						
1	8	8	8	0		0.40	1.00	1.00	27.43	27.43

## PASS FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress X (psi)	PASS (98.6%)	1.9	133.9	0	D+S	1.15
Bending Stress X (psi)	PASS (81.3%)	212.7	1139.9	8	D+S	1.15
Deflection (in)	PASS (81.8%)	0.049 (=L/1980)	0.267 (=L/360)	4.72	S	
Compressive Stress (psi)	PASS (31.3%)	311.9	454.0	0	D+S	1.15
Bending-Compression (Unit)	PASS (6.2%)	0.94	1.00	8	D+S	1.15

## REACTIONS

Z axis	V-(lbf)		M-(lbf-ft)		SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
	DEAD	LIVE	LIVE ROOF									
A	620	0	0	3200	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0	0	0	0
X axis												
A	-3	0	0	-13	0	0	0	0	0	0	0	0
B	3	0	0	13	0	0	0	0	0	0	0	0

Reaction Location

A

B

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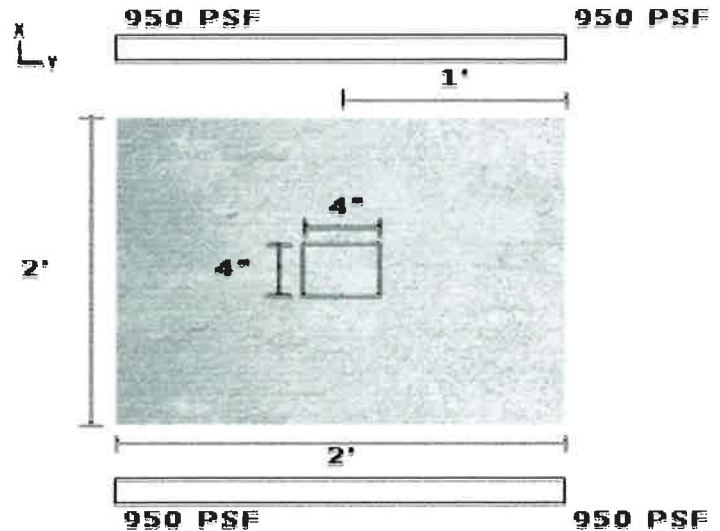
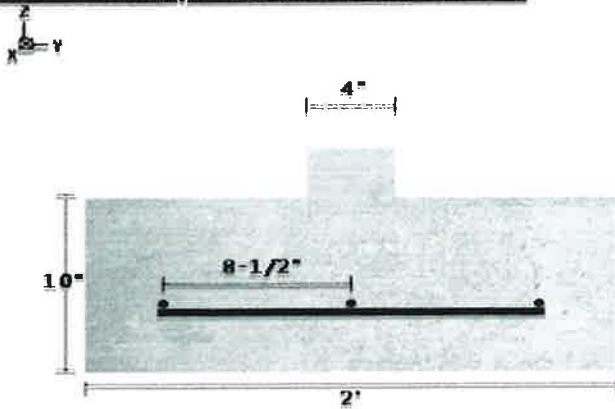
Point (lbf)	-3200	-	8	-	Snow	Z
Point (lbf)	-600	-	8	-	Dead	Z
Self Weight (lbf/ft)	2.53	2.53	0	8	Dead	Z

---

**NOTES**

DATE:	7/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	ac
CUSTOMER:	Devco	REVIEWED BY:	ac
PROJECT LOCATION:	, 97339		
LEVEL:	Main Floor	LOADING:	
LOCATION:	New Pad Footing Worst Case	CODE:	2018 International Building Code
TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	CONCRETE		
2 (ft) X 2 (ft) X 10 (in)		Soil Depth TOF: 0 (ft)	(3) #4 Long, (3) #4 Short

## New Pad Footing Worst Case DIAGRAMS



## MATERIAL PROPERTIES

FOOTING						
fc' (psi)	Ec (psi)	Density (lb/ft <sup>3</sup> )	Width (ft)	Length (ft)	Depth (in)	Volume (ft <sup>3</sup> )
2500	2880952	145	2	2	10	3.33
CALCULATION VARIABLES						
Bo (in)	Φ-X	Φ-Y				
42	0.6	0.6				
COLUMN						
Width (in)	Length (in)	Material	Offset (in)			
4	4	Concrete	0			
SOIL						
Bearing Strength (lb/ft <sup>2</sup> )	Density (lb/ft <sup>3</sup> )	Cohesion	Friction Angle	Depth (ft)	Rankine Coefficient (Kp)	
1500	140	0	30	0	3	
REBAR						
Bar Size #	# Bars Long	# Bars Short	fy (psi)	Es (psi)		
4	3	3	60000	2.9E+07		

## PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO
Soil Bearing Pressure (lb/ft <sup>2</sup> )	<b>PASS (36.7%)</b>	950.0	1500.0	D+L
Two-Way Shear (Punching) (lbf)	<b>PASS (85.7%)</b>	5840.0	40950.0	1.2D+1.6L+0.5Lr
One-Way Shear X (lbf)	<b>PASS (92.7%)</b>	851.7	11700.0	1.2D+1.6L+0.5Lr
Moment X (lbf-ft)	<b>PASS (68.3%)</b>	1013.9	3200.0	1.2D+1.6L+0.5Lr
One-Way Shear Y (lbf)	<b>PASS (92.7%)</b>	851.7	11700.0	1.2D+1.6L+0.5Lr
Moment Y (lbf-ft)	<b>PASS (68.3%)</b>	1013.9	3200.0	1.2D+1.6L+0.5Lr
Crushing (lbf)	<b>PASS (73.6%)</b>	365.0	1381.3	1.2D+1.6L+0.5Lr

## LOAD LIST

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	3200	-	0	-	Live	Z
Point (lbf)	600	-	0	-	Dead	Z



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Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339  
(541) 757-8991  
Fax: (541) 757-9885

PROJECT: Marlin Deck Reno PROJECT NO: 20-625 DESIGN: AC DATE: 1/20

Check Ledger Conn @ N side

$$w \leq 3' (60 + 10) \text{ pcf} = 180 + 30 \text{ pcf} = 210 \text{ pcf}$$

∴ Use (2) Stainless Simpson SDSW @ 16" o.c.  
to Exist'g Rim Joist

Check New North Side BM to (E) Rim Joist

$$R_{YM} \leq 1,180 + 30 \times 16 \leq 2,000 \text{ lb}$$

∴ Use Simpson HUC 412 in stainless  
w/ SDS screws to Rim & Beam

# Ledger Connections

## Building Code Requirements

- Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal.

IRC 2015/2018 Section R507.1  
IBC 2015/2018 Section 1604.8.3

- Deck ledgers shall not be supported on stone or masonry veneer.

IRC 2015/2018 Section R507.2.1

- 1/2" lag screws and 1/2" bolts may be used for a ledger to band joist, to support a live or snow load of 40 psf or less and a dead load of 10 psf.

IRC 2015/2018 Table R507.2

- Deck ledger connections to band joists shall be in accordance with this section. For other grades, species, connection details and loading conditions, deck ledger connections shall be designed in accordance with IRC Section R301.

IRC 2015 Section R507.2

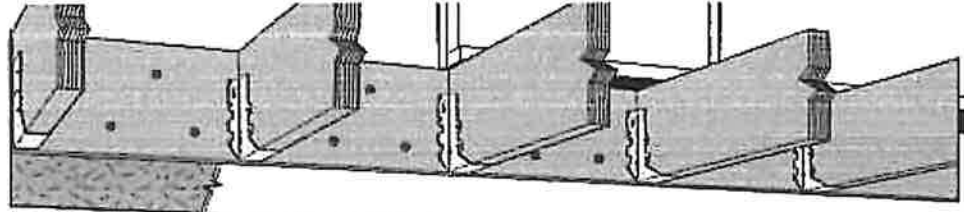
- Vertical and lateral supports at band joist. Vertical and lateral support for decks shall follow this section.

IRC 2018 Section R507.9

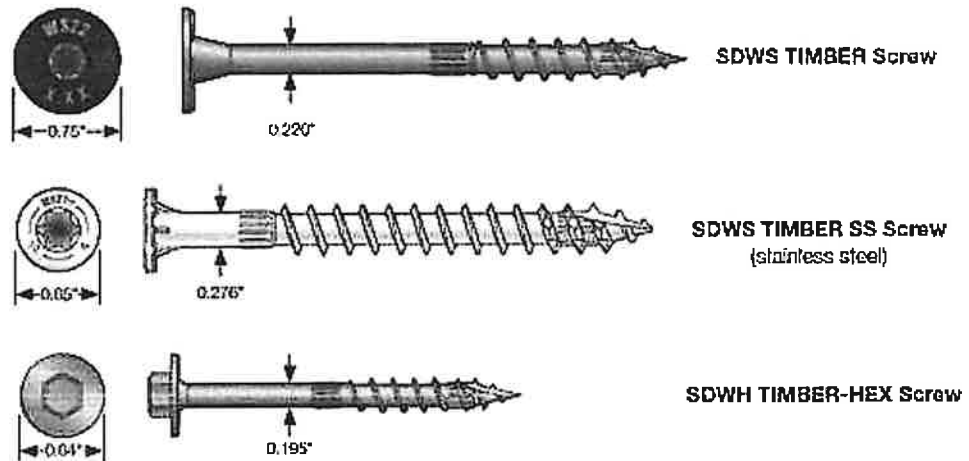
## Vertical Ledger Support at Home's Band Joist

One of the most common causes for deck failure is ledgers that pull away from the primary structure, resulting in complete collapse.

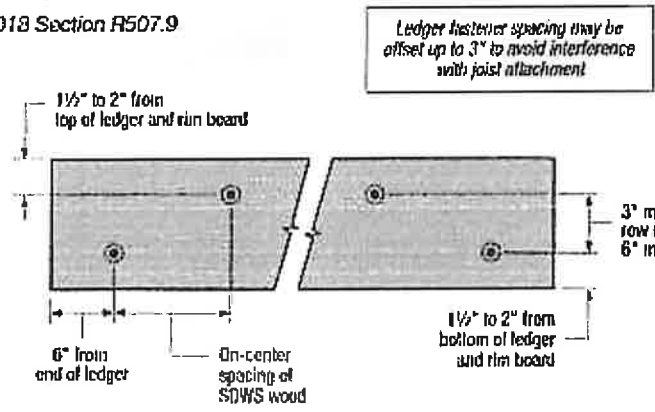
The Simpson Strong-Tie® Strong-Drive® SDWS Timber, SDWS Timber SS and SDWH Timber-Hex structural wood screws provide an easy-to-install, high-strength alternative to lag screws and through-bolts. They are ideal for securely attaching ledgers to structural wood members, are easier to drive than comparable fasteners and are available in stainless steel or coated for many exterior and preservative-treated wood applications.



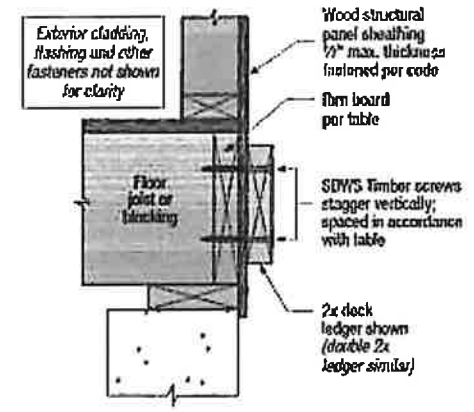
### Strong-Drive Structural Wood Screw



- Patented SawTooth™ points, serrated thread and knurled shank reduce installation torque
- Identification on all screw heads
- Low-profile washer head on SDWS provides excellent bearing area and a clean look
- For decks in severe corrosion environments, use the Strong-Drive SDWS Timber SS (page 37) or Strong-Drive SDWH Timber-Hex HDG (page 37)



SDWS/SDWH Screw Spacing Detail



Ledger-to-Rim Board Assembly

For more information on ledger attachment, see Fastening Systems catalog Technical Supplement G-F-2019TECH-ISUP and filler F-F-SDWS/SDWH.



Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339

www.devcoengineering.com

(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Marlin Deck Rem*

PROJECT NO: *20-625*

DESIGN: *AK*

DATE: *1/20*

Check Lateral Tie Each of Deck

$$F_{ASD} = 0.75 W_P$$

$$W_P = 8' \cdot 15' \cdot 10 \text{ psf} \quad \text{@ West side}$$

$$= 1200 \text{ lb}$$

$$F_{WD} = 0.75 W_P = 900 \text{ lb}$$

$$\underline{T_{TIE}} = F_{WD} / 2 = \underline{450 \text{ lb}}$$

so Use SS  
Simpson DTT 12  
ea End

North side ok by Imp w/ Exis'tg  
con't Beams Tied into structure



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Fax: (541) 757-9885

PROJECT: Martin Deck Remo

PROJECT NO: 20-625

DESIGN: AC

DATE: 7/20

Check Tub Dropped Deck Section

Tub DL = 2600 lb  
LL = 60 psf  
Deck DL = 10 psf

Per Vitruvius w/ 7' Joist length & 1' Cant  
Use 2x8 PT HF @ 16" o.c. w/  
Double Joist @ Tub walls

&

4x8 PT HF Beam on N side w/  
4x4 posts & 24" w x 84" L x 12" h  
Pad flg

Check Conn to House wall

Joist Rm =  $467 + 45 \text{ lb} = \underline{515 \text{ lb/JOIST}}$

so Use 2x10 PT Rim w/ New (2) SDS  
3/8" dia Screws Ea Joist to New  
Blkg in (E) wall

**PASS**

DATE:	1/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	
CUSTOMER:	Devco	REVIEWED BY:	
PROJECT LOCATION:	, 97339		
LEVEL:		LOADING:	ASD
LOCATION:	New Floor Beam	CODE:	2018 International Building Code
TYPE:	FLOOR BEAM	NDS:	2018 NDS
MATERIAL:	SOLID SAWN		
Hem-Fir	No. 2	(1) 3.5 X 7.25	WET
			INCISED

**New Floor Beam DIAGRAM****BEAM PROPERTIES**

Start (ft) 0 End (ft): 7 Member Slope: 0/12 Actual Length (ft): 7

Area	I <sub>x</sub>	I <sub>y</sub>	BSW	Lams	G	K <sub>cr</sub>
(in <sup>2</sup> )	(in <sup>4</sup> )	(in <sup>4</sup> )	(lb/ft)			Creep Factor
25.38	111.15	25.9	5.24	1	0.43	1

**STRENGTH PROPERTIES**

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c</sub> ⊥ (psi)	E (psi) x10 <sup>9</sup>	E <sub>min</sub> (psi) x10 <sup>9</sup>
Base Values	850	525	150	1300	405	1300	470
Adjusted Values	884	504	116	874	271	1112	402
C <sub>M</sub>	1	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1.3	1.2	1	1.05	1	1	1

Bending Adjustment Factors C<sub>fu</sub> = 1 C<sub>r</sub> = 1**BEAM DATA**

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	1	0	1	0	1.00	0.99	1.00	1.00
2	5	0	5	0	1.00	1.00	1.00	1.00
3	1	0	1	0	1.00	1.00	1.00	1.00

**PASS-FAIL**

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR (C)
Shear Stress Y (psi)	<b>PASS</b>	64.5	116.4	1.05	D+L	1
Bending Stress Y (psi)	<b>PASS</b>	457.4	884.0	3.5	D+L	1
Deflection (in)	<b>PASS</b>	0.021	0.067	0	L	
Bearing Stress (psi)	<b>PASS</b>	127.2	300.4	1	D+L	1

**REACTIONS**

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	0	0	0	0	0	0	0	0	0	0	0
B	158	1400	0	0	0	0	0	0	0	0	0
C	158	1400	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0	0

Reaction Location

A B C C

## Location: New Floor Beam

**LOAD LIST**

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft)	400	400	0	7	Live	Y
Uniform (lb/ft)	40	40	0	7	Dead	Y
Self Weight (lb/ft)	5.24	5.24	0	7	Dead	Y

**NOTES**

**PASS**

DATE:	1/15/2020	COMPANY:	Devco Engineering Inc		
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:			
CUSTOMER:	Devco	REVIEWED BY:			
PROJECT LOCATION:	97339				
LEVEL:	Main Floor	LOADING:	ASD		
LOCATION:	Joist Under Tub	CODE:	2018 International Building Code		
TYPE:	FLOOR JOIST	NDS:	2018 NDS		
MATERIAL:	SOLID SAWN				
Hem-Fir	No. 2	(1) 1.5 X 7.25	16(in) O.C.	WET	INCISED

**Joist Under Tub DIAGRAM****BEAM PROPERTIES**

Start (ft) 0 End (ft): 7 Member Slope: 0/12 Actual Length (ft): 7 O.C. Spacing(in) 16

Area	I <sub>x</sub>	I <sub>y</sub>	BSW	Lams	G	Kcr
(in <sup>2</sup> )	(in <sup>4</sup> )	(in <sup>4</sup> )	(lb/ft)			Creep Factor
10.88	47.63	2.04	2.25	1	0.43	1

**STRENGTH PROPERTIES**

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c⊥</sub> (psi)	E (psi) x10 <sup>3</sup>	E <sub>min</sub> (psi) x10 <sup>3</sup>
Base Values	850	525	150	1300	405	1300	470
Adjusted Values	938	504	116	874	271	1112	402
C <sub>M</sub>	1	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1.2	1.2	1	1.05	1	1	1

Bending Adjustment Factors C<sub>fu</sub> = 1 C<sub>r</sub> = 1.15**BEAM DATA**

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	1	7	7	0	0.97	0.97	1.00	1.00
2	6	7	7	0	0.88	0.88	1.00	1.00

**PASS-FAIL**

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR (C)
Shear Stress Y (psi)	<b>PASS</b>	73.5	116.4	1.05	D+L	1
Bending Stress Y (psi)	<b>PASS</b>	682.0	820.7	4.06	D+L	1
Deflection (in)	<b>PASS</b>	0.041	0.067	0	L	
Bearing Stress (psi)	<b>PASS</b>	136.6	300.4	1	D+L	1

**REACTIONS**

Y axis	DEAD	LIVE	M-(lb-ft)	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	0	0		0	0	0	0	0	0	0	0	0
B	64	653		0	0	0	0	0	0	0	0	0
C	45	467		0	0	0	0	0	0	0	0	0

Reaction Location

A B C

**LOAD LIST**

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft <sup>2</sup> )	120	120	0	7	Live	Y
Uniform (lb/ft <sup>2</sup> )	10	10	0	7	Dead	Y
Self Weight (lb/ft)	2.25	2.25	0	7	Dead	



**PASS**

DATE:	1/15/2020	COMPANY:	Devco Engineering Inc
VITRUVIUS BUILD:	StruCalc	DESIGNED BY:	
CUSTOMER:	Devco	REVIEWED BY:	
PROJECT LOCATION:	, 97339		
LEVEL:		LOADING:	ASD
LOCATION:	Beam Under Tub	CODE:	2018 International Building Code
TYPE:	FLOOR BEAM	NDS:	2018 NDS
MATERIAL:	SOLID SAWN		
Hem-Fir	No. 2	(1) 3.5 X 7.25	WET
			INCISED

**Beam Under Tub DIAGRAM****BEAM PROPERTIES**

Start (ft) 0 End (ft): 7 Member Slope: 0/12 Actual Length (ft): 7

Area	I <sub>x</sub>	I <sub>y</sub>	BSW	Lams	G	K <sub>cr</sub>
(in <sup>2</sup> )	(in <sup>4</sup> )	(in <sup>4</sup> )	(lb/ft)			Creep Factor
25.38	111.15	25.9	5.24	1	0.43	1

**STRENGTH PROPERTIES**

	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>v</sub> (psi)	F <sub>c</sub> (psi)	F <sub>c⊥</sub> (psi)	E (psi) x10 <sup>3</sup>	E <sub>min</sub> (psi) x10 <sup>3</sup>
Base Values	850	525	150	1300	405	1300	470
Adjusted Values	884	504	116	874	271	1112	402
C <sub>M</sub>	1	1	0.97	0.8	0.67	0.9	0.9
C <sub>T</sub>	1	1	1	1	1	1	1
C <sub>i</sub>	0.8	0.8	0.8	0.8	1	0.95	0.95
C <sub>F</sub>	1.3	1.2	1	1.05	1	1	1

Bending Adjustment Factors C<sub>fu</sub> = 1 C<sub>r</sub> = 1**BEAM DATA**

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	1	0	1	0	1.00	0.99	1.00	1.00
2	5	0	5	0	1.00	1.00	1.00	1.00
3	1	0	1	0	1.00	1.00	1.00	1.00

**PASS-FAIL**

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR (C)
Shear Stress Y (psi)	<b>PASS</b>	76.1	116.4	1.05	D+L	1
Bending Stress Y (psi)	<b>PASS</b>	539.6	884.0	3.5	D+L	1
Deflection (in)	<b>PASS</b>	0.026	0.067	0	L	
Bearing Stress (psi)	<b>PASS</b>	150.1	300.4	1	D+L	1

**REACTIONS**

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	WIND +	WIND -	SEISMIC +	SEISMIC -	ICE	RAIN	EARTH
A	0	0	0	0	0	0	0	0	0	0	0
B	158	1680	0	0	0	0	0	0	0	0	0
C	158	1680	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0	0

Reaction Location



## Location: Beam Under Tub

**LOAD LIST**

Type	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft)	480	480	0	7	Live	Y
Uniform (lb/ft)	40	40	0	7	Dead	Y
Self Weight (lb/ft)	5.24	5.24	0	7	Dead	Y

**NOTES**



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Corvallis, OR 97339  
(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Markin Deck Remo*

PROJECT NO: *20-629*

DESIGN: *HC*

DATE: *7/20*

Check Lateral Bracing @ New Tab

$$W_p = 49 \text{ lb} \cdot 10 \text{ ft} + 2600 \text{ lb} = 3100 \text{ lb}$$

$$F_{p \text{ ASD}} = 0.20 W_p = 620 \text{ lb}$$

$$F_{p \text{ ASD}} @ \text{ Brace} = F_p / 2 = 325 \text{ lb}$$

∴ Use PT 2x6 "X" Brace w/ (6) #9 Ea End

Over turning of 24" x 84" x 12" Fg ok by Insp

Use (2) DTT 1E to (E) wall by Insp

**SITE PLAN  
APPROVED**  
SUBJECT TO NOTATIONS  
08/26/2020  
David Mattison  
PLANNING & COMMUNITY  
DEVELOPMENT DEPARTMENT

ANY DECKS, PORCHES, BAYS,  
CANTILEVERS OR OTHER FEATURES NOT  
SHOWN ON THE SITE PLAN ARE NOT  
APPROVED. EVEN IF SHOWN ON THE  
BUILDING PLANS.

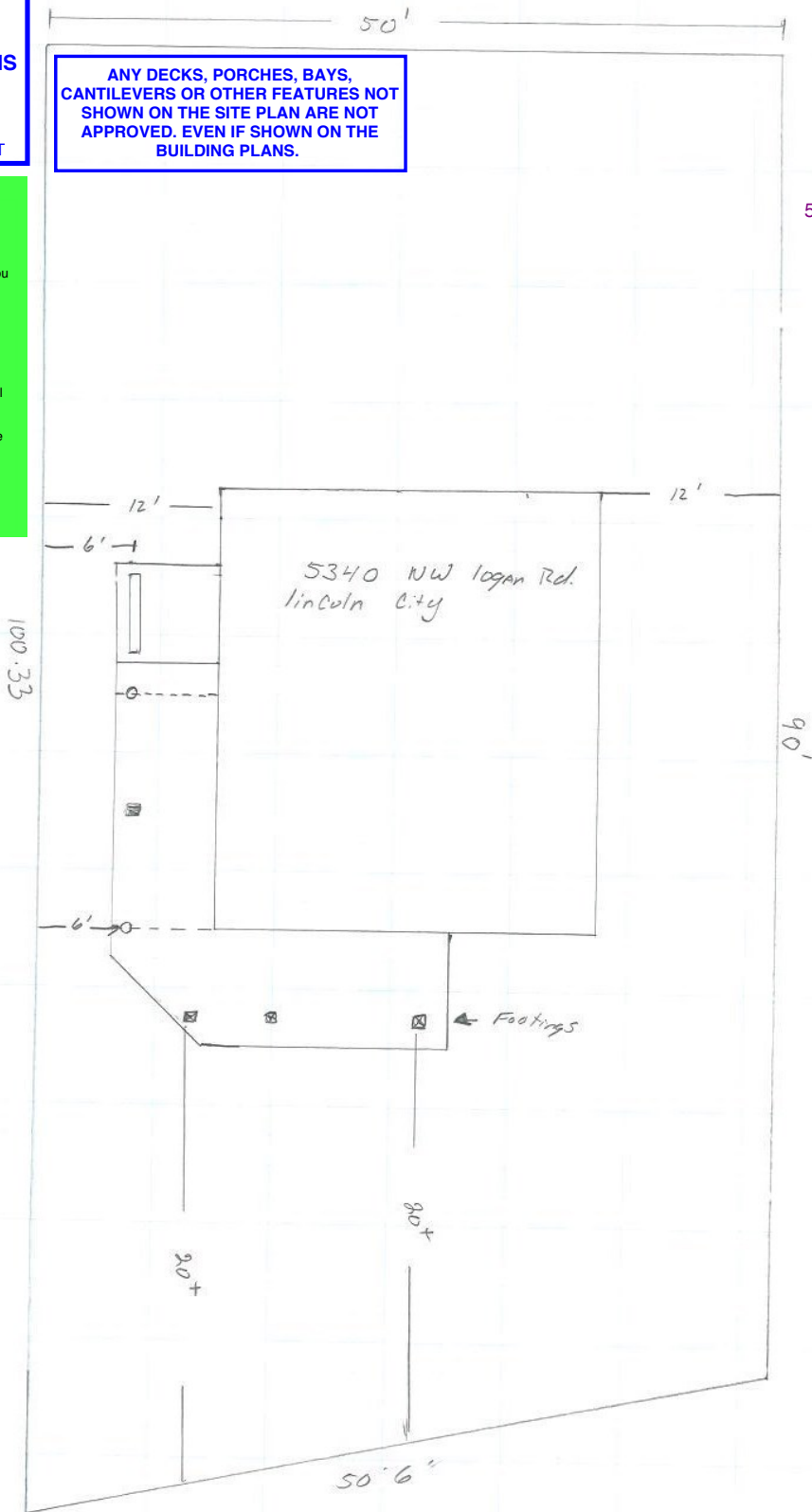
**WARNING**

You must follow these plans exactly as you submitted them and as approved. If you want to make ANY changes they must be approved by Both the building inspector AND the Planning Department. Approval by the building inspector alone is not enough. You might end up violating the setback or height requirements of the zoning ordinance. If that happens you will have to FIX THE PROBLEM AT YOUR OWN COST before we will issue a Certificate of Occupancy. It is possible the only way to fix the problem will be to DEMOLISH some or all of the structure.

THERE WILL BE NO EXCEPTIONS!

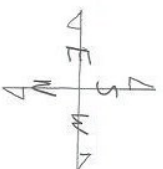
521-20-000278-STR

RECEIVED  
08/24/2020  
PLANNING



5340 NW Logan Rd.  
Lincoln City

Footings



1/8" scale

- ☒ - Footings Through Asphalt
- - FTG For Ex cant Glu 1/4 in Ex Cant Glu 1/4 in Beam
- ☒ - New Footing for over span

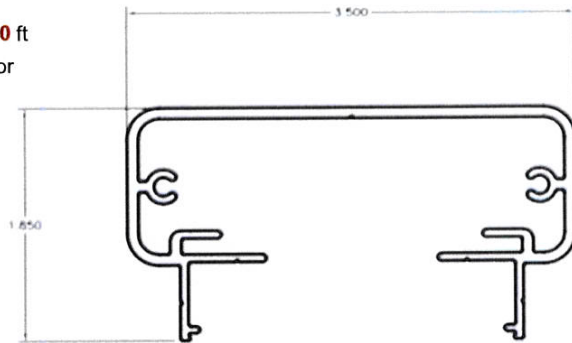
Approved plans shall be on site and accessible at inspection.

**CHECK 200 SERIES TOP RAILS FOR LOADING**

;L = 6 ft ;is desired maximum spacing of posts. ;L = **6.000** ft  
 Bending of Top Rail ; M = 200 lbs \* L / 4 = **300.000** lb\_ft ; or  
 ; M = **3600.000** lb\_in

**200 Series** Top Rail (SAPA part 25878)

;Svert<sub>200</sub> = 0.249 in<sup>4</sup> / 1.199 in = **0.208** in<sup>3</sup>  
 ;Shorz<sub>200</sub> = 1.442 in<sup>4</sup> / 1.75 in = **0.824** in<sup>3</sup>



Check for vertical loading direction:

;fb<sub>vert</sub> = M / Svert<sub>200</sub> = **17334.940** psi ; < 19,500 psi (for 6005-T5)  
 ;= **"Okay"**

Check for horizontal loading condition

;fb<sub>horz</sub> = M / Shorz<sub>200</sub> = **4368.932** psi ; < 19,500 psi

200 Series Top Rail okay for 6 ft spacing of posts for vertical or horizontal loading

<p><b>James G. Pierson, Inc.</b>                   Consulting Structural Engineers                  610 S.W. Alder, Suite 918 Portland, Oregon 97205                  Tel: (503) 226-1286 Fax: (503) 226-3130</p>	Project	Residential Guardrail systems	Job no.
	Location	Oregon and Washington	Date 5/1/2019
	Client	Precision Rail of Oregon	Sheet no.

**CHECK BOTTOM RAILS**

Check bottom rails for wind loads or 50 lbs over 1 sq. ft.

;L = 6 ft ;is desired maximum spacing of posts. ;L = **6.000** ft

100 Series Bottom Rail

;Svert<sub>100b</sub> = 0.201 in<sup>4</sup> / 1.159 in = **0.173** in<sup>3</sup>

;Shorz<sub>100b</sub> = 0.228 in<sup>4</sup> / 1 in = **0.228** in<sup>3</sup>

200 Series Bottom Rail

;Svert<sub>200b</sub> = 0.1447 in<sup>3</sup>

;Shorz<sub>200b</sub> = 0.2825 in<sup>3</sup>

50 lbs over 1 sq. ft. Use 50 lb point load at midspan

;M = 50 lb \* L / 4 = **75.000** lb\_ft

Check for vertical loading direction:

100 series stress ;f<sub>b100</sub> = M / Svert<sub>100b</sub> = **5189.552** psi

200 series stress ;f<sub>b200</sub> = M / Shorz<sub>200b</sub> = **3185.841** psi

Bottom rails okay for the 50 lb point load

Check for horizontal loading direction:

Check bottom rails for wind loads

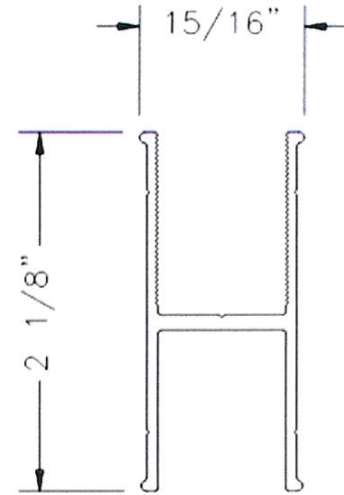
;W = 30 psf ;(i.e., Oregon coast) or ;w = W \* 39 in / 2 ; w = **48.750** plf

;M<sub>wind</sub> = w \* L \* L / 8 ; M<sub>wind</sub> = **2632.500** lb\_in

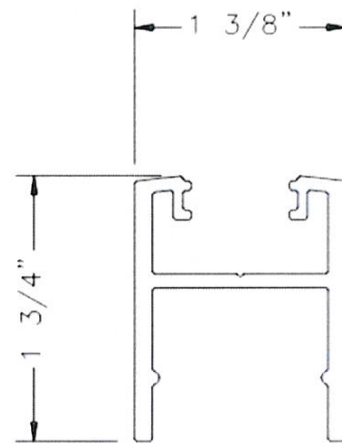
;100 series Bending ;M<sub>wind</sub> / Shorz<sub>100b</sub> = **11546.053**psi

;200 series Bending ;M<sub>wind</sub> / Shorz<sub>200b</sub> = **9318.584**psi

Use 200 series for bottom rails for all glass rail systems



100 SERIES BOTTOM RAIL



200 (HD) SERIES BOTTOM RAIL

<p><b>James G. Pierson, Inc.</b>                  Consulting Structural Engineers                  610 S.W. Alder, Suite 918 Portland, Oregon 97205                  Tel: (503) 226-1286 Fax: (503) 226-3130</p>	Project	Residential Guardrail systems	Job no.
	Location	Oregon and Washington	Date 5/1/2019
	Client	Precision Rail of Oregon	Sheet no.

## RAIL CONNECTIONS

The top rail sections either slide over connection blocks or are attached to the top of the posts. In either case, (2) #10 self-drilling steel screws are used to make the connections.

The connection blocks are attached to the sides of the vertical posts with (2) #10 self-drilling steel screws. In most cases, the 200 lb maximum load is shared by (4) screws but if the load (200 lbs) is placed at the end of a rail, it would be supported by just (2) screws.

Maximum shear is each screw ;  $v = 200 \text{ lbs} / 2 = \mathbf{100.000}$

Allowable shear in each screw:

### 5.4.3 Screw Shear and Bearing

The shear force on a screw shall not exceed the least of:

$$1) 2 F_{tu} D t_1 / n_u \quad (\text{Eq. 5.4.3-1})$$

If the screw is countersunk, one-half the depth of the countersink shall be deducted from  $t_1$ .

$$2) 2 F_{tu} D t_2 / n_u \quad (\text{Eq. 5.4.3-2})$$

$$3) 4.2(t_2^3 D)^{1/2} F_{tu} / n_s \text{ for } t_2 \leq t_1 \quad (\text{Eq. 5.4.3-3})$$

$$4) P_{ns} / (1.25 n_s) \quad (\text{Eq. 5.4.3-4})$$

;  $F_{tuscrew} = 38000 \text{ psi}$

;  $d_{screw} = 0.19 \text{ in}$  ;#10 screw

;  $n_u = 1.95$  ;asd factor

;  $n_s = 3$  ;factor of safety

;  $t_1 = 0.1 \text{ in}$  ;thickness bottom rail

;  $t_2 = 0.1 \text{ in}$  ;thickness post

;  $P_{ns} = 1526 \text{ lbs}$  ;ESR -3332 report

$$;1) ;2 * F_{tuscrew} * d_{screw} * t_1 / n_u = \mathbf{740.513 \text{ lbs}}$$

$$;2) ;2 * F_{tuscrew} * d_{screw} * t_2 / n_u = \mathbf{740.513 \text{ lbs}}$$

$$;3) ;4.2 * (t_2^3 * d_{screw})^{1/2} * F_{tuscrew} / n_s = \mathbf{733.311 \text{ lbs}}$$

$$;4) ;P_{ns} / (1.25 * n_s) = \mathbf{406.933 \text{ lbs}}$$

Okay

#10 screws are okay to attach top rail to posts

Bottom rail connection similar but 50 lb design load. #10 screws okay by inspection

**521-20-000278-STR**

Approved plans shall be on site and accessible at inspection.

<b>James G. Pierson, Inc.</b>  Consulting Structural Engineers 610 S.W. Alder, Suite 918 Portland, Oregon 97205 Tel: (503) 226-1286 Fax: (503) 226-3130	Project	Residential Guardrail systems	Job no.
	Location	Oregon and Washington	Date 5/1/2019
	Client	Precision Rail of Oregon	Sheet no.

**ATTACHMENT OF RAILS TO BUILDING**

Check end plate of the top rail for attachment to the building

Plate is attached to the top rail with (2) #10 Torx-drive flat head steel screws

;Shear capacity = 184 lbs each

;Tension Capacity ;TC =  $0.0175 \text{ in}^2 \times 30 \text{ ksi} / 2 = 262.500$

2 #10 screws are okay

Assume only one anchor bolt at the middle (conservative – more than one bolt will be used)

;M<sub>plate</sub> =  $200 \text{ lb} \times 3 \text{ in} / 4 = 150.000 \text{ lb\_in}$

For 3/16" thick plate x 1" x 3" ;t<sub>plate</sub> = 0.1875 in

;f<sub>b</sub> =  $M_{\text{plate}} \times 6 / (1 \text{ in} \times t_{\text{plate}} \times t_{\text{plate}}) = 25.600 \text{ ksi}$

F<sub>b</sub> = 27.6 ksi

3/16" plates okay for wall anchorage

**521-20-000278-STR**

Approved plans shall be on site and accessible at inspection.

<p><b>James G. Pierson, Inc.</b></p> <p>Consulting Structural Engineers          610 S.W. Alder, Suite 918 Portland, Oregon 97205          Tel: (503) 226-1286 Fax: (503) 226-3130</p>	Project	Residential Guardrail systems	Job no.
	Location	Oregon and Washington	Date 5/1/2019
	Client	Precision Rail of Oregon	Sheet no.

## Posts

All of the railing systems use the R Series Post for 36" or 42" height

R Series Post (SAPA part 36430)

$$;S_{x1} = 0.935 \text{ in}^4 / 1.188 \text{ in} = \mathbf{0.787 \text{ in}^3}$$

;

For 40" tall posts (fascia mounted), 6 ft max spacing ;L<sub>6</sub> = 6 ft

Per IRC ;M<sub>1</sub> = 200 lbs \* (H<sub>36</sub> + 4 in) = **8000.000 lb\_in**

Per IBC ;M<sub>2</sub> = 50 lbs/ft \* L<sub>6</sub> \* (H<sub>36</sub> + 4 in) = **12000.000 lb\_in**

For 46" tall posts (fascia mounted), 6 ft max spacing ;L<sub>6</sub> = 6 ft

Per IRC ;M<sub>3</sub> = 200 lbs \* (H<sub>42</sub> + 4 in) = **9200.000 lb\_in**

Per IBC ;M<sub>4</sub> = 50 lbs/ft \* L<sub>6</sub> \* (H<sub>42</sub> + 4 in) = **13800.000 lb\_in**

Standard Residential – 36" + 4" height

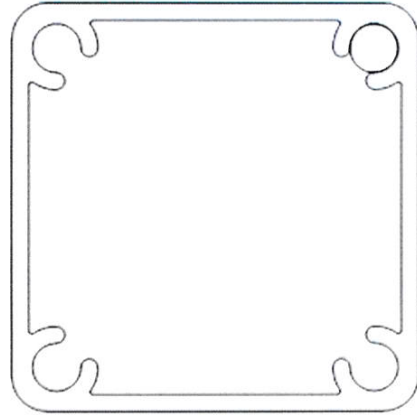
;F<sub>b1</sub> = M<sub>1</sub> / S<sub>x1</sub> = **10164.706 psi** ;or ;F<sub>b2</sub> = M<sub>2</sub> / S<sub>x1</sub> = **15247.059 psi**

Taller Posts – 46" height

;F<sub>b3</sub> = M<sub>3</sub> / S<sub>x1</sub> = **11689.412 psi** ;or ;F<sub>b4</sub> = M<sub>4</sub> / S<sub>x1</sub> = **17534.118 psi**

Allowable; F<sub>b</sub> = **19.487 ksi**

R Series Posts are good using both IBC or IRC for up to 6 ft spacing in bending at a height of 46" or less (fascia mounted 4" below deck, worst case)



**521-20-000278-STR**

Approved plans shall be on site and accessible at inspection.

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**POSTS - SHEAR**

Check shear in post walls

Circumference of resisting area for screw pull-thru

$$;C_{screw} = 0.2 \text{ in} * \pi = \mathbf{0.628 \text{ in}}$$

Post wall thickness ;t<sub>1</sub> = 0.10 in ; (13503)

$$;Area_1 = C_{screw} * t_1 = \mathbf{0.063 \text{ in}^2}$$

$$;V = Area_1 * F_{shear} / 1.65 = \mathbf{761.598 \text{ lbs}} \quad ;> 100 \text{ lbs}$$

Check Posts for Shear

$$;f_v = 300 \text{ lbs} / (2 * 2.375 \text{ in} * t_1) = \mathbf{0.632 \text{ ksi}} \quad ; \text{ not an issue}$$

**521-20-000278-STR**

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**CHECK RAIL SPLICES**

Check hat channel (SAPA 25877) rail splices. These members, when used, are located at rail splices over posts

$$;M_{hat} = 200 \text{ lbs} * 6 \text{ in} = \mathbf{1200.000 \text{ lb\_in}}$$

Hat Channel (SAPA part 25877)

$$;Svert_{hat} = 0.0736 \text{ in}^3$$

$$;Shorz_{hat} = 0.149 \text{ in}^3$$

$$;F_{bvert} = M_{hat} / Svert_{hat} = \mathbf{16304.348 \text{ psi}}$$

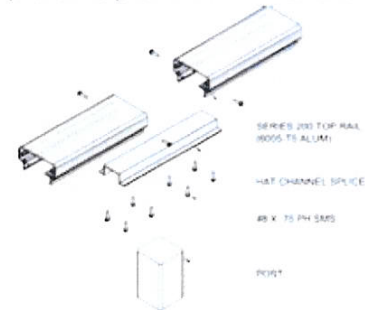
$$;F_{bhorz} = M_{hat} / Shorz_{hat} = \mathbf{8053.691 \text{ psi}}$$

$$;F_t / 1.65 = \mathbf{21212.121 \text{ psi}}$$

$$;F_b = \mathbf{19487.179 \text{ psi}}$$

**Hat channels are okay**

2. To join a straight connection, butt joint over the center of a post. Reinforce the joint with 8 #10 x 3/4" screws, fastened through pre-drilled holes, to a splice centered between the rails. Attach top rail to the post with 4 #8 x 1/2" screws.



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**TOP MOUNTED BASEPLATE**

Posts attach to plate at interior holes and is attached to substrate (deck) at hole located near the edges.

;OTM = 200 lbs \* (H<sub>36</sub> + .375 in) ;OTM = **7275.000 lb\_in**

Tension in post base screw connections is ;T = OTM / (2.116 in \* 2) ; T = **1719.045 lbs**

SAE Grade 5 screws ; F<sub>iscrew</sub> = 120 ksi \* .75 = **90.000 ksi**

Check Screws Per ADM 5.4

Try 5/16" diameter screws (minor area = .0524 in<sup>2</sup>)

;D = 0.3125 in ;D<sub>ws</sub> = 0.625 in ;D<sub>h</sub> = 0.28 in ;(screw chase)

;t<sub>c</sub> = 1 in ;(min into screw chase)

;F<sub>tu2</sub> = 38 ksi

;F<sub>tu1</sub> = 38 ksi

;F<sub>ty</sub> = 16 ksi

;n<sub>s</sub> = 3 ;factor of safety

;C = 1

;t<sub>1</sub> = .375 in

;P<sub>not</sub> = 1.63 \* D \* t<sub>c</sub> \* F<sub>tu2</sub> = **19356.250 lbs** ;(eq. 5.4.2.1-6)

;P<sub>nt</sub> = F<sub>iscrew</sub> \* .0524 in<sup>2</sup> = **4716.000 lbs** ;(nominal tensile strength fo screw)

;P<sub>nov</sub> = (0.27+1.45 \* 1.1) \* D \* t<sub>1</sub> \* F<sub>ty</sub> = **3496.875 lbs** ;(eq. 5.4.2.2-2)

ADM 5.4.2 Allowable

; P<sub>not</sub>/n<sub>s</sub> = **6452.083 lbs**

; P<sub>nt</sub> / (1.25\*n<sub>s</sub>) = **1257.600 lbs**

; P<sub>nov</sub> /n<sub>s</sub> = **1165.625 lbs**

**Load Test Connection**

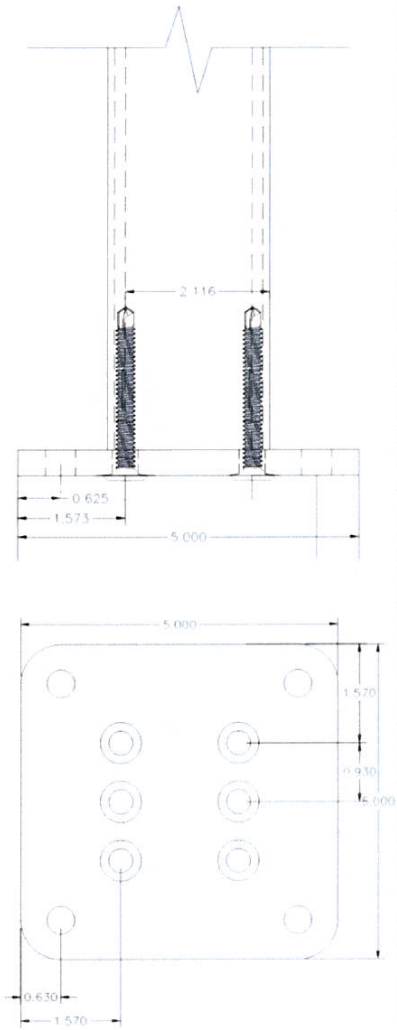
Load Test is 2.5x design load

Check Screws for 42" tall posts and IRC Loading at 6 ft post spacing

;OTM<sub>42</sub> = 200 lbs \* 2.5 \* (H<sub>42</sub> + .375 in) ; OTM<sub>42</sub> = **21187.500 lb\_in**

Tension in post base screw connections is ;T<sub>42</sub> = OTM<sub>42</sub> / (2.116 in \* 2) ; T<sub>42</sub> = **5006.498 lbs** ; Load Test to verify

Use (2) 5/16" diameter x 2" long SAE Grade 5 (min.) self tapping Torx drive flate head screws (1 1/2" min. Embedment into post)



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	Location	Oregon and Washington	Date 5/1/2019
	Client	Precision Rail of Oregon	Sheet no.

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**Check Top Mounted Base Plate Bending**

Check 3/8" x 5" x 5" plate

;T<sub>plate</sub> = OTM / 3.75 in = **1940.000 lb**

;Bending = OTM / (5 in \* (5 in)<sup>2</sup> / 6); Bending = **349.200 psi**

;d = 2.22 in

;T = Bending \* d / 2 \* 5 in; T = **1938.060 lb**

Plate bending is maximum below edge of post or 1.3125" from plate edge

;P<sub>2</sub> = (2.22 in - 1.3125 in) / 2.22 in \* Bending = **142.747 psi**

;Mmax = ((P<sub>2</sub> \* 1.3125 in<sup>2</sup> / 2) + ((Bending - P<sub>2</sub>) \* 1.3125 in<sup>2</sup> / (2) \* (2/3))) \* 5 in

;Mmax = **920.005 lb\_in**

;F<sub>b</sub> = Mmax \* 6 / (5 in \* .375 in \* .375 in) = **7850.708 psi**

Bending Okay for standard 5x5 plate

Check 3/8" x 3" x 5" plate (stair use)

;T<sub>plate2</sub> = OTM / 2.38 in = **3056.723 lb**

;Bending2 = OTM / (3 in \* (5 in)<sup>2</sup> / 6); Bending2 = **582.000 psi**

;d = 2.22 in

;T = Bending2 \* d / 2 \* 3 in; T = **1938.060 lb**

Plate bending is maximum below edge of post or .3125" from plate edge

;P<sub>3</sub> = (2.22 in - .3125 in) / 2.22 in \* Bending = **300.045 psi**

;Mmax2 = ((P<sub>3</sub> \* .3125 in<sup>2</sup> / 2) + ((Bending - P<sub>3</sub>) \* .3125 in<sup>2</sup> / (2) \* (2/3))) \* 5 in

;Mmax2 = **260.012 lb\_in**

;F<sub>b</sub> = Mmax2 \* 6 / (5 in \* .375 in \* .375 in) = **2218.766 psi**

Bending in smaller plate also okay

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	Client	Precision Rail of Oregon	Sheet no.

Approved plans shall be on site and accessible at inspection.

<p><b><u>BASE PLATE ATTACHMENT</u></b></p> <p>Anchor Tension ; AT = <math>OTM_{42} / 4.375</math> in ; AT = <b>2905.714</b> lb                  2 anchors per side ; Atbolt = AT / 2 = <b>1452.857</b> lb</p> <p>Wood:</p> <p>Try 3/8" diameter lag bolts and assume Douglas Fir</p> <p>;T<sub>allow</sub> = 305 lb/in * 1.6 * 2.78 in ;, 5" long lag, 2 25/32" embed 1.6 Cd wood factor                  ;T<sub>allow</sub> = <b>1356.640</b> lb</p> <p>Use 3/8" diameter x 5" embedment lag screws (4 corners)</p> <p>Concrete:</p> <p>Assume 4" thick concrete – use Simpson 3/8" diameter strong bolts                  5" concrete – can use 3/8" Titen HD w/ 3" embedment</p> <p>See attached ACI 318 Appendix D calc.</p>	
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	<p>Location Oregon and Washington</p>	<p>Date 10/10/2018</p>
	<p>Client Precision Rail of Oregon</p>	<p>Sheet no. Page 15 of 48</p>

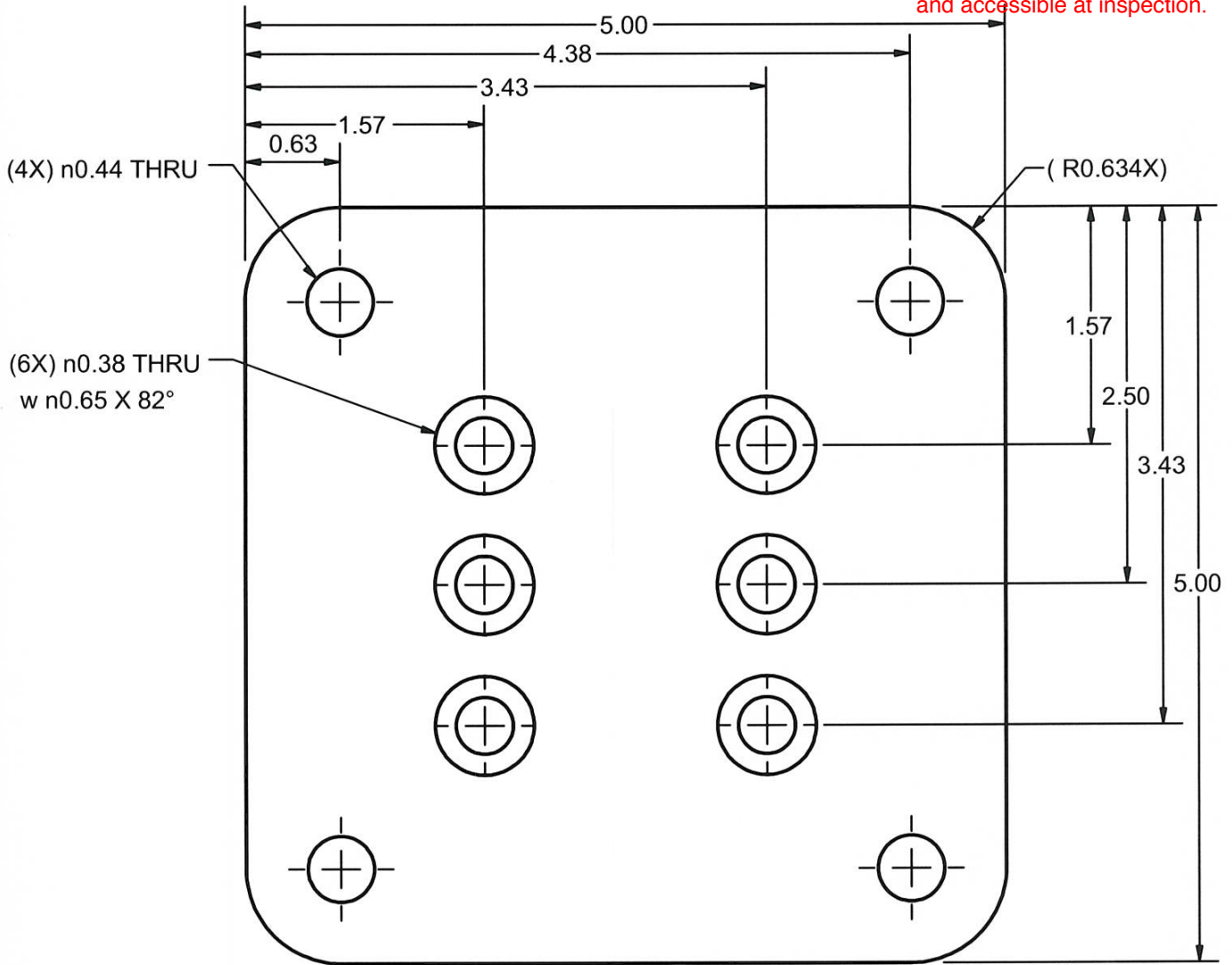
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	BP-5X5-STD-30248	.375 ALUM PLATE

NOTES:

1. PART TO BE FREE OF ALL BURRS AND SHARP EDGES.
2. THIS BASEPLATE TO BE USED WITH SAPA HEAVY COMMERCIAL POST (DIE NO. 30248).

**521-20-000278-STR**

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DRAWN TIM C	7/3/2007	SAPA PROFILES, INC.		
CHECKED				
QA		TITLE		
MFG		BASEPLATE, 5X5, STD, HVY COMM, DIE 30248		
APPROVED		SIZE	DWG NO	REV
		B	BP-5X5-STD-30248	1
		SCALE	SHEET 1 OF 1	

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EXPIRES 10/13/19

521-20-000278-STR

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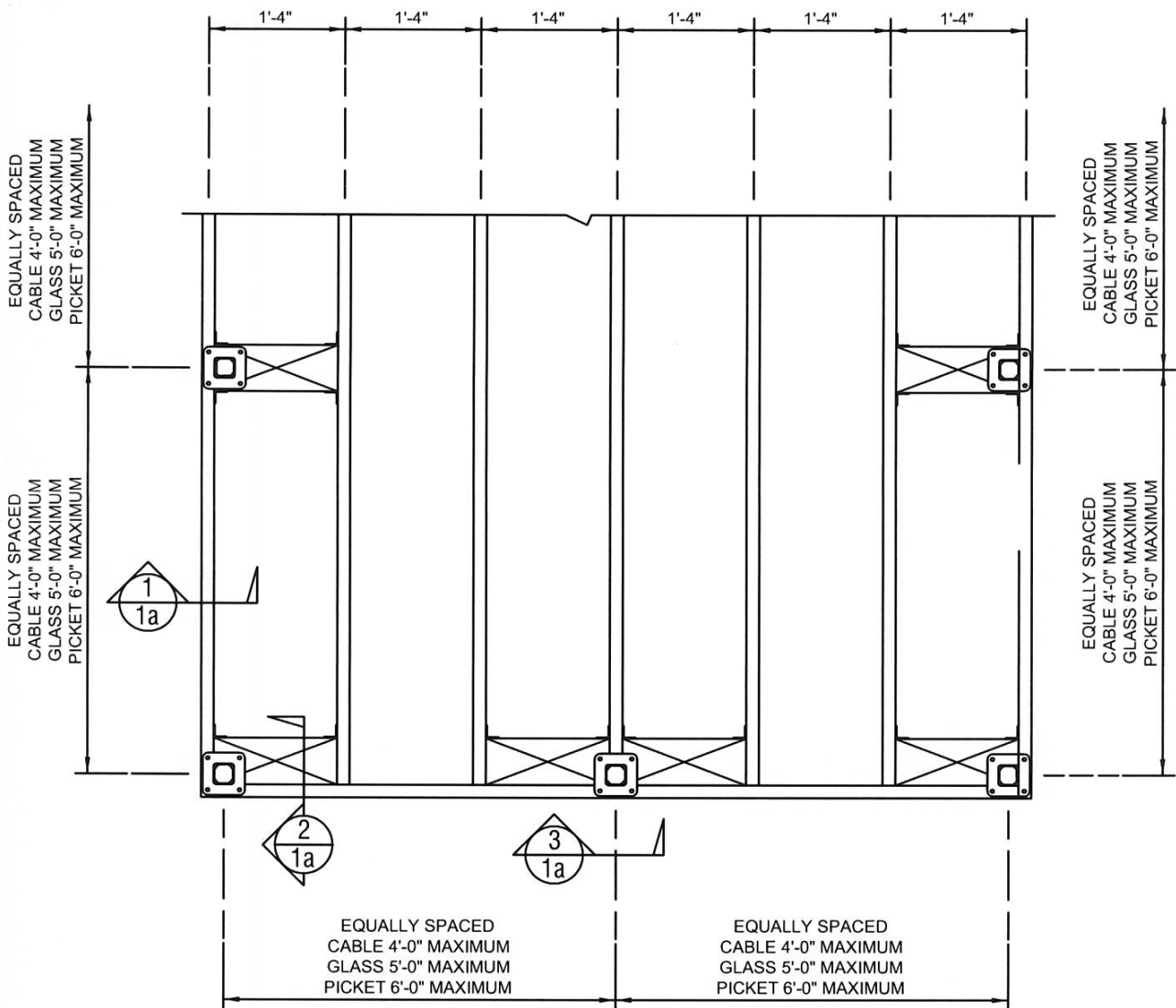


EXPIRES: 6-30-21

REVISION BY

5.1.g

PRECISION RAIL  
10735 SE FOSTER ROAD  
PORTLAND, OREGON 972



ALUMARAIL RAILING SYSTEM  
BASE PLATE MOUNT

1 PLAN VIEW - TYP DECK FRAMING  
1 1/2" = 1'-0"

DATE: 7/27/15  
SCALE:  
DRAWN: sm  
JOB:  
SHEET

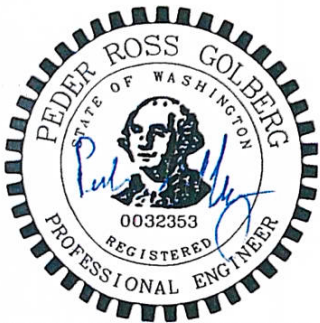
521-20-000278-STR

Approved plans shall be on site and accessible at inspection.

BY	
REVISION	5.1.g



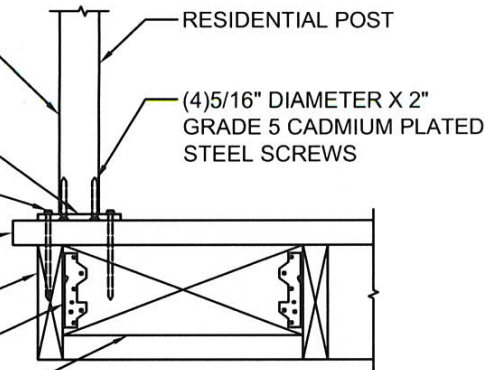
PRECISION RAIL  
10735 SE FOSTER ROAD  
PORTLAND, OREGON 97266



EXPIRES 10/13/21

RAILING SYSTEM WITH POST 42" MAXIMUM HEIGHT. EXPOSURE B. 135 MPH MAXIMUM WIND. MAXIMUM 25' BLDG HEIGHT. OR 30 PSF NOMINAL WIND PRESSURE.

- 5X5 X 3/8" BASE PLATE
- (4)5" LEDGERLOK FASTENER
- DECKING
- DOUG FIR 2X FRAMING
- (4)SIMPSON A35

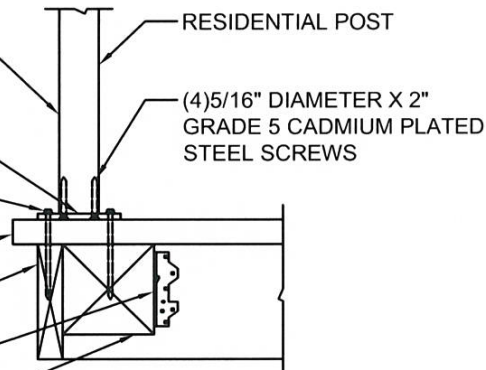


1 SECTION  
1" = 1'-0"

DOUG FIR 6X6 BLOCKING WITH (4) 16d EACH END

RAILING SYSTEM WITH POST 42" MAXIMUM HEIGHT. EXPOSURE B. 135 MPH MAXIMUM WIND. MAXIMUM 25' BLDG HEIGHT. OR 30 PSF NOMINAL WIND PRESSURE.

- 5X5 X 3/8" BASE PLATE
- (4)5" LEDGERLOK FASTENER
- DECKING
- DOUG FIR PERIMETER JOIST
- (4)SIMPSON A35



2 SECTION  
1" = 1'-0"

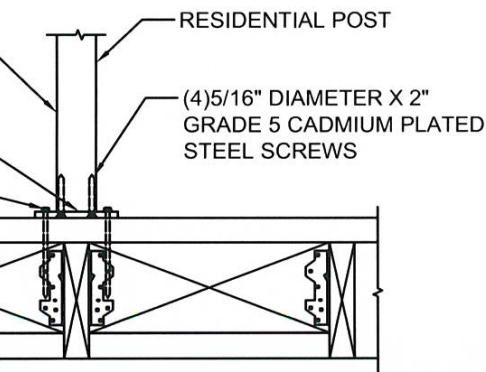
DOUG FIR 6X6 BLOCKING WITH (4) 16d EACH END



EXPIRES: 6-30-21

RAILING SYSTEM WITH POST 42" MAXIMUM HEIGHT. EXPOSURE B. 135 MPH MAXIMUM WIND. MAXIMUM 25' BLDG HEIGHT. OR 30 PSF NOMINAL WIND PRESSURE.

- 5X5 X 3/8" BASE PLATE
- (4)5" LEDGERLOK FASTENER
- DECKING
- DOUG FIR PERIMETER JOIST
- (4)SIMPSON A35



3 SECTION  
1" = 1'-0"

DOUG FIR 6X6 BLOCKING WITH (4) 16d EACH END

ALUMARAIL RAILING SYSTEM  
BASE PLATE MOUNT

DATE:	7/27/15
SCALE:	
DRAWN:	sm
JOB:	
SHEET	

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1a

**GLASS RAILING SYSTEMS**

**521-20-000278-STR**

**5.1.g**

Approved plans shall be on site and accessible at inspection.

Guardrails with Glass Infill

Task: Check wind loading on balcony rails. To determine maximum wind force, look at railing or post maximum loading and work backwards for maximum wind force.

100 Series Top Rail. ;Shorz<sub>100</sub> = 0.228 in<sup>3</sup>  
;F<sub>b</sub> = 19487.179 psi

100 Series Bottom Rail: ; Shorz<sub>100b</sub> = 0.102 in<sup>3</sup>

M<sub>max</sub> = F<sub>b</sub> \* Shorz<sub>100</sub> = 4443.077 lb\_in

M<sub>maxb</sub> = F<sub>b</sub> \* Shorz<sub>100b</sub> = 1987.692 lb\_in

;L = 5 ft ;(max chosen for glass systems)

;w<sub>max</sub> = M<sub>maxb</sub> \* 8 / (L<sup>2</sup>) = 53.005 plf

;h<sub>glass</sub> = 39 in

;w<sub>windmax</sub> = 2 \* w<sub>max</sub> / h<sub>glass</sub> = 32.619 psf

Check Posts using wind from above

;M<sub>post</sub> = w<sub>max</sub> \* L \* 42 in + w<sub>max</sub> \* L \* 3 in = 11926.154 lb\_in

Post okay –

Bottom Rail Properties controls allowable wind pressures on glass system.

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Wind Loading on Balcony Glass

ASCE 7-10, Chapter 29: Wind Loads on Other Structures and Building Appurtenances – MWFRS

ASCE 7-10, Section 29.4 most closely applies to typical balcony railing as balconies are open on both sides and most similar to the section for solid freestanding walls or signs. If balcony was located less than 3 ft from building, would be looked at as component and cladding forces (Section 29.4.2). If balcony is at roof top, needs to be looked at as parapet which results in higher wind pressures and outside of scope of this analysis. Section 29.4.1 – Solid Free standing signs provides a resonable wind pressure between the two sections (cladding force and parapet force)

**29.3.2 Velocity Pressure.** Velocity pressure,  $q_z$ , evaluated at height  $z$  shall be calculated by the following equation:

$$q_z = 0.00256 K_z K_{zt} K_d V^2 \text{ (lb/ft}^2\text{)} \quad (29.3-1)$$

[In SI:  $q_z = 0.613 K_z K_{zt} K_d V^2 \text{ (N/m}^2\text{); } V \text{ in m/s}$ ]

$K_d$  = wind directionality factor defined in Section 26.6

$K_z$  = velocity pressure exposure coefficient defined in Section 29.3.1

$K_{zt}$  = topographic factor defined in Section 26.8.2

$V$  = basic wind speed from Section 26.5

$q_h$  = velocity pressure calculated using Eq. 29.3-1 at height  $h$

The numerical coefficient 0.00256 (0.613 in SI) shall be used except where sufficient climatic data are available to justify the selection of a different value of this factor for a design application.

;  $K_z = 0.70$  ;(30 ft tall, Exposure B)

;  $K_{zt} = 1$  ;(topo flat)

;  $K_d = 0.85$

;  $V_{3sec} = 135$  ;mph (Clark County Washington) =  $V_{ult}$

;  $q_h = 0.00256 \text{ psf} * K_z * K_{zt} * K_d * V_{3sec}^2 = 27.760 \text{ psf}$

**TABLE R301.2.1.3  
WIND SPEED CONVERSIONS<sup>a</sup>**

$V_{ult}$	110	115	120	130	140	150	160	170	180	190	200
$V_{asd}$	85	89	93	101	108	116	124	132	139	147	155

For SI: 1 mile per hour = 0.447 m/s.

a. Linear interpolation is permitted.

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	Location	Oregon and Washington	Date
	Client	Precision Rail of Oregon	Sheet no.
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## Wind force on Free Standing Balcony, F

$$F = q_h G C_f A_s \text{ (lb) (N)} \quad (29.4-1)$$

where

$q_h$  = the velocity pressure evaluated at height  $h$  (defined in Fig. 29.4-1) as determined in accordance with Section 29.3.2

$G$  = gust-effect factor from Section 26.9

$C_f$  = net force coefficient from Fig. 29.4-1

$A_s$  = the gross area of the solid freestanding wall or freestanding solid sign, in  $\text{ft}^2$  ( $\text{m}^2$ )

;  $G = 0.85$  ;(Gust-effect from Section 26.9, ASCE 7-10)

;  $C_f = 1.98$  ;(From Figure 29.4-1 Case C - assume  $B=20$  ft,  $s = 3.25$  ft,  $s/h < .16$ , Aspect Ratio

;  $B/s = 6 = 3.3 \cdot 0.6 = 1.98$  max for glass at corner of balcony – see next page)

;  $F = q_h * G * C_f = 46.721$  psf ;(3 sec wind)

;  $F_{asd} = F * 0.6 = 28.032$  psf ;(ASD wind force with  $V = 135$  mph wind, Exp B) =Vult (Vasd = 105 mph)

;  $V_{120_{3sec}} = 120$  ;mph =Vult (Vasd = 95 mph)

;  $K_z = 0.94$  ;(25 ft tall, Exposure C)

;  $q_h = 0.00256$  psf \*  $K_z * K_{zt} * K_d * V_{120_{3sec}}^2 = 29.454$  psf

;  $F = q_h * G * C_f = 49.572$  psf ;(3 sec wind)

;  $F_{asd} = F * 0.6 = 29.743$  psf ;(ASD wind force with  $V = 120$  mph wind, Exp C)

;  $V_{115_{3sec}} = 115$  ;mph =Vult (Vasd = 90 mph)

;  $K_z = 0.98$  ;(30 ft tall, Exposure C)

;  $q_h = 0.00256$  psf \*  $K_z * K_{zt} * K_d * V_{115_{3sec}}^2 = 28.202$  psf

;  $F = q_h * G * C_f = 47.464$  psf ;(3 sec wind)

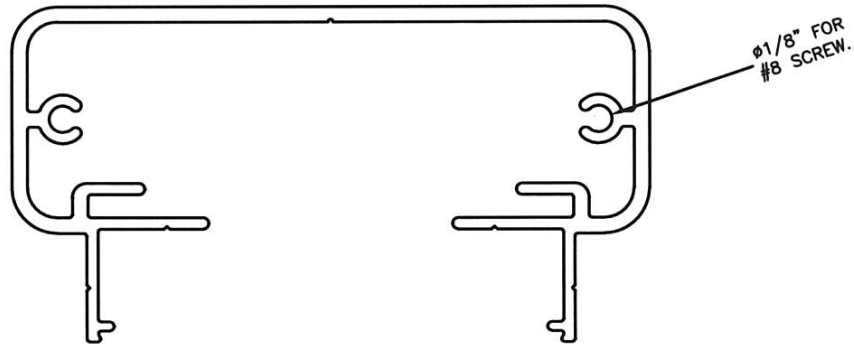
;  $F_{asd} = F * 0.6 = 28.478$  psf ;(ASD wind force with  $V = 115$  mph wind, Exp C)

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Design Wind Loads		All Heights																	
Figure 29.4-1	Force Coefficients, $C_f$	Solid Freestanding Walls & Solid Freestanding Signs																	
Other Structures																			
<p>ELEVATION VIEW</p>		<p>PLAN VIEWS</p>																	
<b><math>C_f</math>, CASE A &amp; CASE B</b>																			
Clearance Ratio, $s/h$	Aspect Ratio, $B/s$																		
	$\leq 0.05$	0.1	0.2	0.5	1	2	4	5	10	20	30	$\geq 45$							
1	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30							
0.9	1.85	1.75	1.70	1.60	1.55	1.50	1.45	1.45	1.40	1.40	1.40	1.40							
0.7	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55							
0.5	1.95	1.85	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75							
0.3	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85							
0.2	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.90	1.90	1.95							
$\leq 0.15$	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95							
<b><math>C_f</math>, CASE C</b>																			
Region (horizontal distance from face)	Aspect Ratio, $B/s$										Region (horizontal distance from face)	Aspect Ratio, $B/s$							
	2	3	4	5	6	7	8	9	10	13		$\geq 45$							
0 to $s$	2.75	2.60	2.50	2.45	2.40	2.35	2.30	2.25	2.25	2.25	2.00	2.00	2.00						
$s$ to $2s$	1.50	1.70	1.90	2.05	2.25	2.25	2.30	2.35	2.45	2.60	2.60	2.65	2.65						
$2s$ to $3s$		1.15	1.30	1.45	1.55	1.65	1.70	1.75	1.85	2.00	2.00	2.00	1.95						
$3s$ to $10s$			1.10	1.05	1.05	1.05	1.05	1.05	1.00	0.95	1.50	1.50	1.85						
											4s to 5s	1.35	1.85						
											5s to 10s	0.90	1.10						
											$> 10s$	0.55	0.55						
<p>Values shall be multiplied by the following reduction factor for when a return corner is present:</p> <table border="1"> <tr> <td>L/s</td> <td>Reduction Factor</td> </tr> <tr> <td>0.3</td> <td>0.90</td> </tr> <tr> <td>0.2</td> <td>0.80</td> </tr> </table> <p>PLAN VIEW OF WALL OR SIGN WITH A RETURN CORNER</p>														L/s	Reduction Factor	0.3	0.90	0.2	0.80
L/s	Reduction Factor																		
0.3	0.90																		
0.2	0.80																		
<p>Notes</p> <ol style="list-style-type: none"> <li>The term "signs" in notes below also applies to "freestanding walls"</li> <li>Signs with openings comprising less than 30% of the gross area are classified as solid signs. Force coefficients for solid signs with openings shall be permitted to be multiplied by the reduction factor <math>(1 - (a)^{1.5})</math>.</li> <li>To allow for both normal and oblique wind directions, the following cases shall be considered:                     <ul style="list-style-type: none"> <li>For <math>s/h &lt; 1</math>:                             <ul style="list-style-type: none"> <li>CASE A: resultant force acts normal to the face of the sign through the geometric center</li> <li>CASE B: resultant force acts normal to the face of the sign at a distance from the geometric center toward the windward edge equal to 0.2 times the average width of the sign</li> </ul> </li> <li>For <math>B/s &gt; 2</math>: CASE C must also be considered.</li> <li>CASE C: resultant forces act normal to the face of the sign through the geometric centers of each region</li> </ul> </li> <li>For <math>s/h = 1</math>:                     <ul style="list-style-type: none"> <li>The same cases as above except that the vertical locations of the resultant forces occur at a distance above the geometric center equal to 0.05 times the average height of the sign.</li> </ul> </li> <li>For CASE C where <math>s/h &gt; 0.8</math>, force coefficients shall be multiplied by the reduction factor <math>(1.8 - s/h)</math>.</li> <li>Linear interpolation is permitted for values of <math>s/h</math>, <math>B/s</math> and <math>L/s</math> other than shown.</li> <li>Notation:                     <ul style="list-style-type: none"> <li>B: horizontal dimension of sign, in feet (meters)</li> <li>h: height of the sign, in feet (meters)</li> <li>s: vertical dimension of the sign, in feet (meters)</li> <li>a: ratio of solid area to gross area</li> <li>L: horizontal dimension of return corner, in feet (meters)</li> </ul> </li> </ol>																			

STANDARDS 7-10

<p><b>James G. Pierson, Inc.</b></p> <p>Consulting Structural Engineers</p> <p>610 S.W. Alder, Suite 918 Portland, Oregon 97205</p> <p>Tel: (503) 226-1286 Fax: (503) 226-3130</p>	Project	Residential Guardrail systems	Job no.	
	Location	Oregon and Washington	Date	8/16/18
	Client	Precision Rail of Oregon	Sheet No.	Page 48 of 48



ALL VALUES REFER TO THE FOLLOWING UNITS :  
LENGTH = 1 INCHES  
ANGLE = 1 DEG

## FACE 1:

NUMBER OF HOLES

noh = 0

DENSITY

rho = 1

PERIMETER LENGTH

P = 21.8300430950085

AREA

A = 0.839214186843193

CENTER OF AREA = CENTER OF MASS

(Cx,Cy) = (34.24999898726,-3.98150095300674)

PRINCIPAL AXES THROUGH THE CENTER OF AREA (DIRECTIONS)

u = (1,0)

v = (0,1)

SECOND MOMENTS OF AREA (ABOUT PRINCIPAL AXES)

Icu = 0.249355106313525

Icv = 1.44208299061069

SECOND MOMENTS OF AREA (ABOUT COORDINATE SYSTEM AXES)

Ix = 13.5528719858305

Iy = 985.892769222497

PRODUCT OF SECOND MOMENT OF AREA (ABOUT COORDINATE SYSTEM AXES)

Ixy = 114.440623556893

MOMENTS OF INERTIA (ABOUT PRINCIPAL AXES)

Jcu = 0.249355106313525

Jcv = 1.44208299061069

MOMENTS OF INERTIA (ABOUT COORDINATE SYSTEM AXES)

Jx = 13.5528719858305

Jy = 985.892769222497

PRODUCT OF MOMENT OF INERTIA (ABOUT COORDINATE SYSTEM AXES)

Jxy = 114.440623556893

SECTION MODULI ABOUT PRINCIPAL AXES

Zcu = 0.207952954058004

Zcv = 0.824047155759991

DISTANCE FROM NEUTRAL AXIS u TO EXTREME FIBER

Du = 1.19909384044611

DISTANCE FROM NEUTRAL AXIS v TO EXTREME FIBER

Dv = 1.75000056796592

RADI OF GYRATION WITH RESPECT TO THE CENTER OF AREA

Rcu = 0.545095660466914

Rcv = 1.31086726595216

ANGLE BETWEEN COORDINATE SYSTEM AND PRINCIPLE AXES

phi = 0



## SECTION PROPERTIES

Approved plans shall be on site and accessible at inspection.

2015 INTERNATIONAL RESIDENTIAL CODE®

R301.5 Live load.

The minimum uniformly distributed live load shall be as provided in Table R301.5.

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)

USE	LIVE LOAD
Uninhabitable attics without storage <sup>b</sup>	10
Uninhabitable attics with limited storage <sup>b, g</sup>	20
Habitable attics and attics served with fixed stairs	30
Balconies, exterior, and decks <sup>c</sup>	40
Fire escapes	40
Guards and handrails <sup>d</sup>	200 <sup>h</sup>
Guard in-fill components <sup>f</sup>	50 <sup>h</sup>
Passenger vehicle garages	50 <sup>c</sup>
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40 <sup>c</sup>

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm<sup>2</sup>, 1 pound = 4.45 N

- a. Elevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.
- b. Uninhabitable attics without storage are those where the clear height between joists and rafters is not more than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.
- c. Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greater stresses.
- d. A single concentrated load applied in any direction at any point along the top.
- e. See Section R507.1 for decks attached to exterior walls.
- f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.
- g. Uninhabitable attics with limited storage are those where the clear height between joists and rafters is not greater than 42 inches, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.  
The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:
  1. The attic area is accessible from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is not less than 30 inches.
  2. The slopes of the joists or truss bottom chords are not greater than 2 inches vertical to 12 units horizontal.
  3. Required insulation depth is less than the joist or truss bottom chord member depth.
 The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.
- h. Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

<p><b>James G. Pierson, Inc.</b>                   Consulting Structural Engineers                  610 S.W. Alder, Suite 918 Portland, Oregon 97205                  Tel: (503) 226-1286 Fax: (503) 226-3130</p>	Project	Residential Guardrail systems	Job no.
	Location	Oregon and Washington	Date 10/31/2017
	Client	Precision Rail of Oregon	Sheet no.

Approved plans shall be on site and accessible at inspection.

**2015 INTERNATIONAL BUILDING CODE®**

**SECTION 310 RESIDENTIAL GROUP R**

**310.1 Residential Group R.**

Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code*.

**310.2 Definitions.**

The following terms are defined in Chapter 2:

**BOARDING HOUSE.**

**CONGREGATE LIVING FACILITIES.**

**DORMITORY.**

**GROUP HOME.**

**GUEST ROOM.**

**LODGING HOUSE.**

**PERSONAL CARE SERVICE.**

**TRANSIENT.**

<p><b>James G. Pierson, Inc.</b>                   Consulting Structural Engineers                  610 S.W. Alder, Suite 918 Portland, Oregon 97205                  Tel: (503) 226-1286 Fax: (503) 226-3130</p>	Project Residential Guardrail systems	Job no.
	Location Oregon and Washington	Date 10/31/2017
	Client Precision Rail of Oregon	Sheet no.

**2015 INTERNATIONAL BUILDING CODE®****1607.8 Loads on handrails, guards, grab bars, seats and vehicle barriers.**

Handrails, *guards*, grab bars, accessible seats, accessible benches and vehicle barriers shall be designed and constructed for the structural loading conditions set forth in this section.

**1607.8.1 Handrails and guards.**

Handrails and *guards* shall be designed to resist a linear load of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1 of ASCE 7. Glass handrail assemblies and *guards* shall also comply with Section 2407.

**Exceptions:**

1. For one- and two-family dwellings, only the single concentrated load required by Section 1607.8.1.1 shall be applied.

2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50, the minimum load shall be 20 pounds per foot (0.29 kN/ m).

**1607.8.1.1 Concentrated load.**

Handrails and guards shall be designed to resist a concentrated load of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7.

**1607.8.1.2 Intermediate rails.**

Intermediate rails (all those except the handrail), balusters and panel fillers shall be designed to resist a concentrated load of 50 pounds (0.22 kN) in accordance with Section 4.5.1 of ASCE 7.

**1607.8.2 Grab bars, shower seats and dressing room bench seats.**

Grab bars, shower seats and dressing room bench seats shall be designed to resist a single concentrated load of 250 pounds (1.11 kN) applied in any direction at any point on the grab bar or seat so as to produce the maximum load effects.

**1607.8.3 Vehicle barriers.**

Vehicle barriers for passenger vehicles shall be designed to resist a concentrated load of 6,000 pounds (26.70 kN) in accordance with Section 4.5.3 of ASCE 7. Garages accommodating trucks and buses shall be designed in accordance with an *approved* method that contains provisions for traffic railings.

<b>James G. Pierson, Inc.</b>  Consulting Structural Engineers 610 S.W. Alder, Suite 918 Portland, Oregon 97205 Tel: (503) 226-1286 Fax: (503) 226-3130	Project	Residential Guardrail systems	Job no.
	Location	Oregon and Washington	Date 10/31/2017
	Client	Precision Rail of Oregon	Sheet no.



Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339

www.devcoengineering.com

(541) 757-8991  
Fax: (541) 757-9885


PROJECT: *Maxim Deck Renovation*

PROJECT NO: *20-625*

DESIGN: *AC*

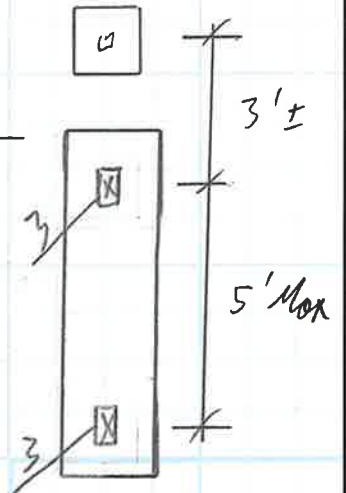
DATE: *6/20*

*9/20*

*3* /  = New PT #1 HF 4x6  
w/ Power-Fab CCR style  
Caps in stainless & CBSQ  
style Base in stainless  
on single *30"* w x 84" L x 12" h  
Conc. Ftg w/ (4) #5 Longit &  
#4 @ 12" o.c. Transverse  
(Top & Btm, w/ 3" clear)

Proposed Deck Footings  
@ East Side  
*NTS*

*Deck  
p/s  
st 4*



EXPIRES: 12/31/ *21*



Physical Address  
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Corvallis, OR 97330

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339

www.devcoengineering.com

(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Marlin Deck Renovation*

PROJECT NO: *20-625*

DESIGN: *AC*

DATE: *6/20*

*Δ 9/20*

*Ex'ist'g House walls*

*Ftg's per sk 4*

*Simpson DTTIE  
2 ples*

*Ex'ist'g  
Deck  
per  
sk 4*

*Proposed Deck  
Framing @ East End*  
*NTS*

*New PT Δ  
2x8 @ 12" o.c.  
w/ Double Joists  
@ Tub Wall  
Loc'ns*

*sk 1*

*New PT 2x10  
Ledger*

*New PT 2x8 Rim  
Joist*

*7'  
Max*

*New  
2x6 Decking  
w/ Min (2) #9x2 1/2"  
Deck Screws  
Ea Joist*

*6'  
Max*

*New PT  
4x8*

*Guardrail Not  
by Devco, Typ*



EXPIRES: 12/31/ *21*



Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339

www.devcoengineering.com

(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Marking Deck Renovation*

PROJECT NO: *20-625*

DESIGN: *AC*

DATE: *6/20*

*9/20*

*Max 7'x7 Tub w/ Max. Operating  
wt = 2,800 lb Full*

*New  
Blocker  
&  
Cripples  
Ea Joint  
per Sh 10*

*(2)  
SDSW @  
12" O.C*

*Framing per  
Sh 5 w/ Fastenng  
Sim. to Sh 6  
Sized for  
2x8 & 4x8  
as occurs*

*Rail  
by  
others*

*Exist's  
stemwall*

*See Sh-9  
for Braces  
Footings  
per Sh 3*

*Detail @ Tub Support  
NTS*

*3" Clear  
TYP*

*Footing to  
Bar on  
Native  
Undisturbed  
Soil.  
Extend Depth  
if Req'd*



EXPIRES: 10/31/21



Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339

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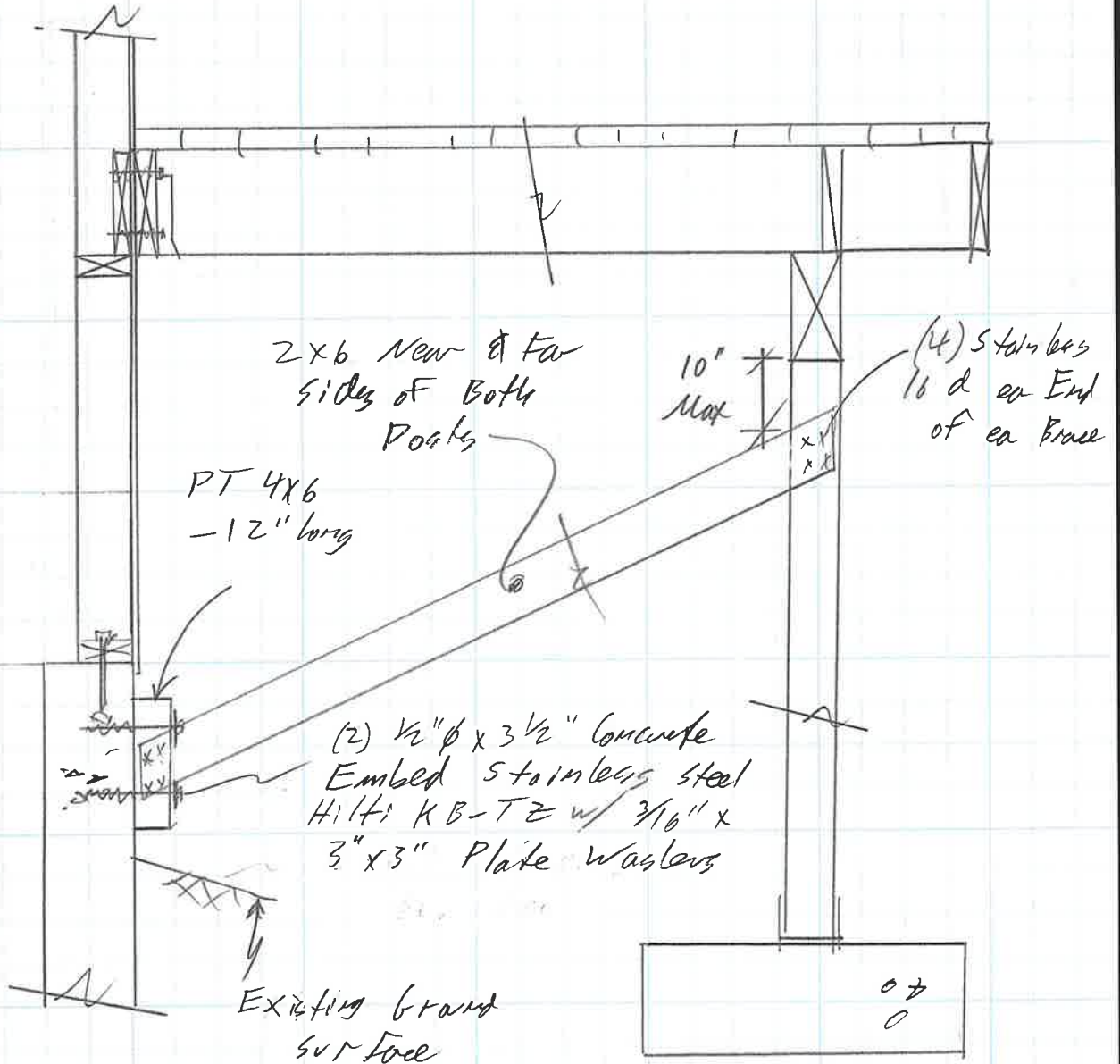
(541) 757-8991  
Fax: (541) 757-9885

PROJECT: *Marlin Deck Renovation*

PROJECT NO: *20-625*

DESIGN: *AL*

DATE: *10/20*



*Beam Bracing @ Tub  
NTS*



EXPIRES: 12/31/ *21*



Physical Address  
245 NE Conifer Blvd.  
Corvallis, OR 97330  
www.devcoengineering.com

Mailing Address  
P.O. BOX 1211  
Corvallis, OR 97339  
(541) 757-8991  
Fax: (541) 757-9885

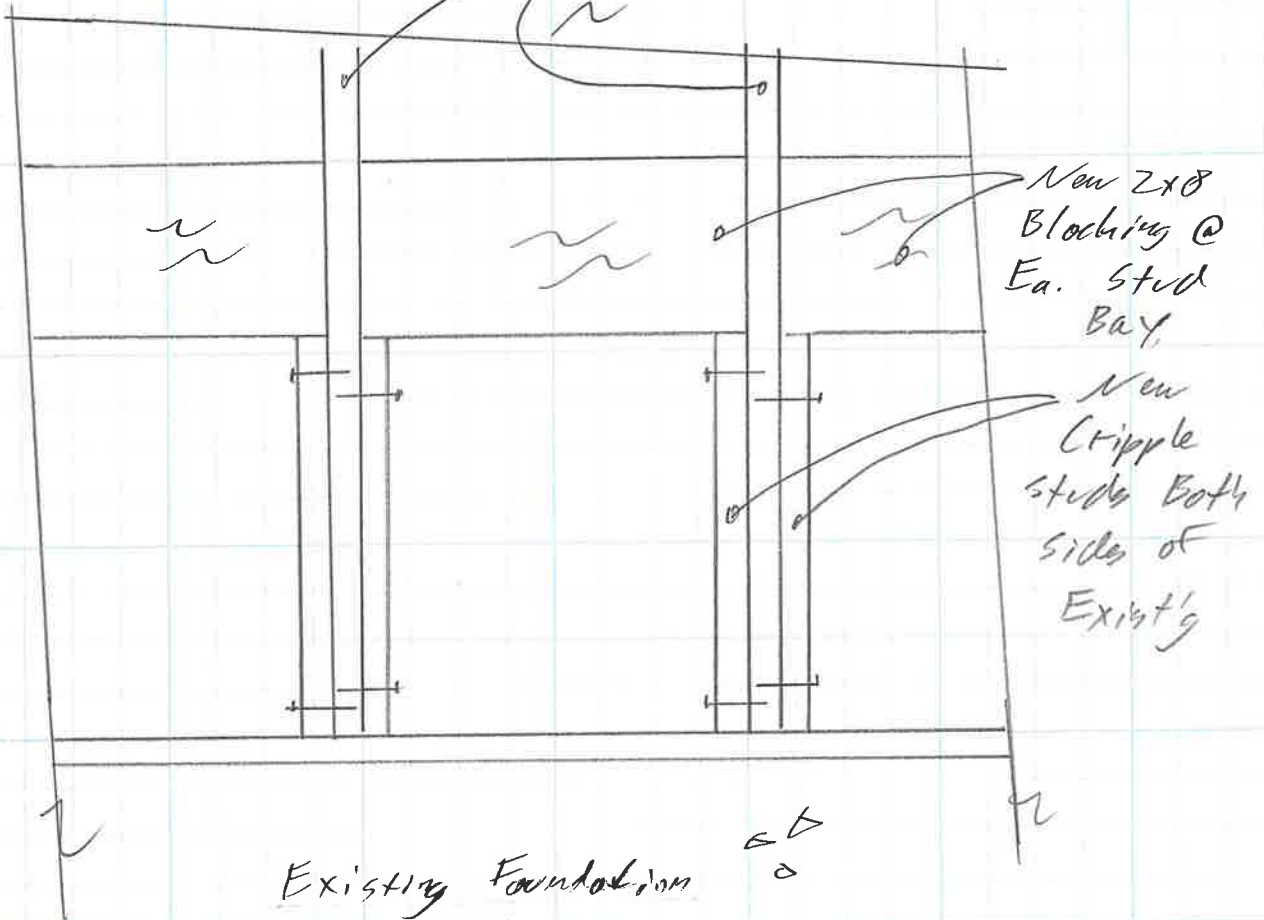
PROJECT: *Marlin Deck Renovation*

PROJECT NO: *20-625*

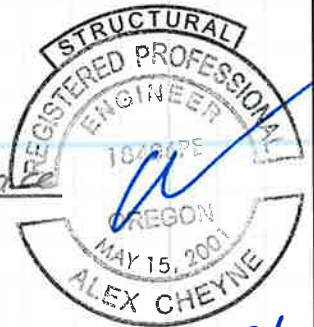
DESIGN: *A.C.*

DATE: *6/29*

Note: This occurs only Along the Length of New Tub Existing Wall studs (7'±)




Wall Reim Reinforcement @ Ledger  
Viewed From Inside Crawl space  
NTS



EXPIRES: 12/31/21

Expiration Date: 07/05/2021

Record Info/Schedule Inspections ▼	Payments ▼	Conditions <b>1</b>
------------------------------------	------------	---------------------

 A notice was added to this record on 10/28/2020.  
 Condition: Revision Submitted Severity: Notice  
 Total Conditions: 1 (Notice: 1) [View Condition](#)

## Inspections

Click [here](#) to view a list of the Oregon Standard Model Inspection Codes.  
[Modelo Estándar de Oregon Códigos de inspección](#)

Once scheduled, the inspection will move to the end of the list of Pending or Scheduled inspections, and its status will change from 'Pending' to 'Scheduled'.

### Upcoming (4)

#### [Schedule or Request an Inspection](#)

Click the link above to schedule or request one.

TBD at TBD Pending 1260 Framing [Actions ▼](#)  
 Inspector: *unassigned*

TBD at TBD Pending 1999 Final Building [Actions ▼](#)  
 Inspector: *unassigned*

TBD at TBD Pending 1996 Final Inspection - Planning [Actions ▼](#)  
 Inspector: *unassigned*

12/14/2020 at Morning Scheduled 1020 Zoning/Setbacks [Actions ▼](#)  
 Inspector: David Mattison

### Completed (2)

Approved - 1; Not Ready - 1

Not Ready 1110 Footing (4560786) [View Details](#)  
 Result by: Amanda Gustafson on 12/14/2020 at 12:00 AM

Approved 1110 Footing (4743996) [View Details](#)  
 Result by: Brandon Zipser on 01/06/2021 at 12:00 AM



Condition: Revision Submitted Severity: Notice  
Total Conditions: 1 (Notice: 1)

[View Condition](#)

### Status

### Details

Approved  
1/6/2021 12:00 AM  
Desired Date: TBD

**Record**  
521-20-000278-STR  
Residential Structural

**Contact**  
David Watson Watson  
5039369765  
Amanda Gustafson  
5039369765

*Last updated*  
Brandon Zipser  
1/6/2021 9:43 AM

[View Status History](#)

[View Result Comments](#)

### Result Comments

Showing 1-1 of 1

Brandon Zipser (1/6/2021 9:43 AM)  
Pump all water out of footings prior to pour. Ensure 3' min clear to rebar. Recommend small sono tube. Pt posts are not approved for below grade use.

### Related Inspections

Showing 0-0 of 0

ID	Inspection Name	Relationship	Status
No records found.			



Home



Planning

Licensing

Onsite/Septic

Public Works

Apply SearchSchedule Inspections

Record 521-20-000278-STR:

Residential Structural

Record Status: Under Insp/Revisions Rcvd

Expiration Date: 07/05/2021

[Add to collection](#)

- [Record Info/Schedule Inspections](#)
  - [Payments](#)
  - [Conditions 1](#)

A notice was added to this record on 10/28/2020.  
 Condition: Revision Submitted Severity: Notice  
 Total Conditions: 1 (Notice: 1)  
[View Condition](#)

### Fees

#### *Paid:*

Date	Invoice Number	Amount	
11/02/2020	15353	\$75.00	<a href="#">View Receipt</a>
08/27/2020	15185	\$100.00	<a href="#">View Receipt</a>
07/26/2020	15185	\$206.05	<a href="#">View Receipt</a>
07/26/2020	15185	\$24.73	<a href="#">View Receipt</a>
07/26/2020	15073	\$133.93	<a href="#">View Receipt</a>
<i>Total paid fees: \$539.71</i>			

J.



View from north side pre-repair—circa June 2020



View from north side post-repair—March 1, 2021

K.



View from west side pre-repair—circa June 2020



View from west side post-repair—March 1, 2021

L.



Set back of vertical footings north side—March 1, 2021



M.



Set back of house north side—March 1, 2021



O.



North deck with view of door—March 1, 2021



View of north deck set back from deck—March 1, 2021

<b>OFFICE USE ONLY</b> Date Filed: _____ Amount/Fee: _____ Receipt No: _____ Received By: _____ 30 Days: _____ Deemed Incomplete: _____ Deemed Complete: _____ 120 Day Deadline: _____	  <b>LAND USE APPLICATION</b>	<b>OFFICE USE ONLY</b> Stamp Date Received _____  File No: _____
--	--	---

**APPLICATION TYPE**

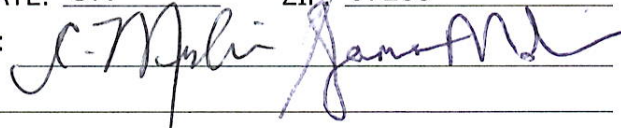
<input type="checkbox"/> ANNEXATION	<input type="checkbox"/> LOT LINE ADJUSTMENT	<input type="checkbox"/> SITE PLAN REVIEW
<input type="checkbox"/> APPEAL OF PLANNING COMMISSION DECISION	<input type="checkbox"/> MINOR PARTITION	<input type="checkbox"/> SUBDIVISION
<input type="checkbox"/> APPEAL OF PLANNING DEPARTMENT DECISION	<input type="checkbox"/> NATURAL RESOURCE DEVELOPMENT REVIEW	<input type="checkbox"/> URBAN GROWTH BOUNDARY AMENDMENT
<input type="checkbox"/> COMPREHENSIVE PLAN & ZONING MAP AMENDMENT	<input type="checkbox"/> NATURAL RESOURCE DEVELOPMENT VARIANCE	<input type="checkbox"/> VACATION
<input type="checkbox"/> COMPREHENSIVE PLAN &/OR ZONING ORDINANCE TEXT AMENDMENT	<input type="checkbox"/> PLANNED UNIT DEVELOPMENT PRELIMINARY MASTER PLAN	<input checked="" type="checkbox"/> VARIANCE
<input type="checkbox"/> CONDITIONAL USE PERMIT	<input type="checkbox"/> PLANNED UNIT DEVELOPMENT FINAL MASTER PLAN	<input type="checkbox"/> OTHER _____

**NAME OF APPLICANT:** James and Catherine J. Markin

MAILING ADDRESS: 1041 SW Westwood Court

CITY: Portland STATE: OR ZIP: 97239

DAYTIME PHONE: 503-754-1376

Signature: 

EMAIL (OPTIONAL): cmarkin123@lhs.org

**OWNER OF RECORD (if other than applicant)**

**NAME:** \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

DAYTIME PHONE: \_\_\_\_\_ Signature: \_\_\_\_\_

EMAIL (OPTIONAL): \_\_\_\_\_

**APPLICANT AND/OR OWNER'S INTEREST IN PROPERTY SUBJECT TO REQUEST:**

AGENT,  FEE OWNER,  CONTRACT PURCHASER,  OPTION HOLDER,  LESSEE,  OTHER

**PROJECT LOCATION:** Roads End, Lincoln City

**PROJECT ADDRESS:** 5340 NE Logan Road

**ASSESSOR'S MAP NO.:** 06-11-35-CC-00800<sup>-50</sup> **TAX LOT(S):** 800

**AREA:** 0.10 (acres) **SQ. FT.:** 4320 **ZONING:** residential

- 3. The variance should not be materially detrimental to the purposes of the ordinance, or to property in the zone or vicinity in which the property is located, or otherwise conflict with the objectives of any city planning policy.

A setback variance for this deck will not be material detrimental to adjacent properties because a) the deck footprint is consistent with the pre-existing deck footprint; 2) the added vertical beams supporting do not impede the view or access to any of the adjacent properties. In addition, the granting of this variance would not be detrimental to the current setback code.

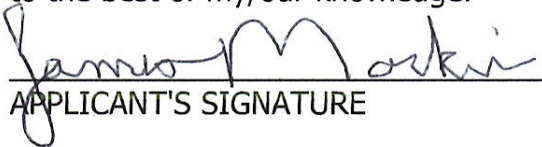
- 4. The variance requested is the minimum variance that would alleviate the hardship.

Granting of this variance request is all that is required to alleviate the hardship created by not replacing the deck. Without this variance, the deck on the north side will not be allowed by the city due to not being designable or buildable.

THE FOLLOWING ATTACHMENTS SHALL ACCOMPANY THE FILING OF A VARIANCE REQUEST APPLICATION:

- SITE PLAN AND/OR ELEVATIONS. (Or other depiction or documents indicating the nature of variance request).
- LEGAL DESCRIPTION OF PROPERTY SUBJECT TO VARIANCE REQUEST.
- EVIDENCE IN SUPPORT OF REQUISITE FINDINGS OF FACT.

This application is hereby submitted, and the statements and information are true and complete to the best of my/our knowledge.

  
 \_\_\_\_\_  
 APPLICANT'S SIGNATURE

4/5/2021  
 \_\_\_\_\_  
 DATE

**NOTE TO APPLICANT:** Since the burden of presenting evidence to support the request rests with the applicant at the public hearing, your attendance and participation at this public meeting, or that of your representative, is respectfully requested.

**VARIANCE  
EVIDENCE TO SUPPORT OF FINDINGS OF FACT**

**NATURE OF VARIANCE REQUEST:**

This is a request to allow the current repaired deck to remain in place. The pre-existing deck was repaired in excess of the requirements for a deck repair, and is now considered a deck replacement.

**FINDINGS OF FACT:**

The Planning Commission may authorize variances from the requirement of Ordinance No. 84-02 (as amended) where it can be shown that, owing to special and unusual circumstances related to a specific piece of property, strict application of the ordinance would cause an undue or unnecessary hardship. No variances shall be granted to allow the use of property for a purpose not authorized within the zone in which the proposed use would be located. In granting a variance, the Planning Commission may attach conditions that it finds necessary to protect the best interests of the surrounding property or neighborhood and otherwise achieve the purposes of the ordinance.

**A VARIANCE MAY BE GRANTED ONLY IN THE EVENT THAT ALL THE FOLLOWING CIRCUMSTANCES EXIST:**

- 1. Exceptional or extraordinary circumstances apply to the property which do not apply generally to other properties in the same zone or vicinity and result from lot size or shape legally existing prior to the date of the ordinance; topography, or other circumstances over which the applicant has not control.

The property is located in Roads End in Lincoln City. The deck is original to the house and built prior to annexation of the neighborhood into Lincoln City. The location of the home and the original deck are not in our control. The intent of this project is to repair the deck to its original footprint. The reclassification of this project from a 'repair' to a 'rebuild' was determined after excessive deconstruction of the original deck was done during repair, thus not meeting .10 ft structure set back requirement.

- 2. The variance is necessary for the preservation of a property right of the applicant which is substantially the same as owners of other property in the same zone or vicinity possess.

The original deck, built before annexation, is attached to the west and north side of the house. The repaired/rebuilt deck is the exact footprint of the original deck. Many of the houses in the neighborhood built prior to Roads End annexation have decks and other structures (garages, houses, etc.) that do not meet setback requirements by the city.