

ACTIVITY ONE

Firehall Remediation Submission Form

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STEPS TO COMPLETE THIS ACTIVITY

1. Open the firehall model and click on the white circle indicators on the ground to move around the space. Become familiar with the functionality of the model.
2. Review the 2 terminology points to learn about the technical terminology used on the job site.
3. Review the 6 information points for general learning about existing site conditions that were discovered.
4. Read the 12 activity points. These activity points reference the photos provided for a closer look at each site condition.
5. Fill out this submission form with your written answers, referencing the 12 activity points in the model. You are not required to answer all 12 questions, but answer as many as possible to demonstrate your understanding of the conditions and your problem-solving skills.
6. Send in this completed submission form with your full application to Entuitive.

Good luck and have fun.

FLOOR ONE

Activity 1: Foundations? Who Needs 'Em?

Describe what information you would need to gather from the site and other consultants to complete the design of a new foundation for these columns. Hint: Consider a combined column condition for the new foundation. (Max. 250 words.)

Activity 2: New Foundation?

If someone were concerned about the capacity of this footing, how could they determine the thickness of this footing without removing the surrounding slab? (Max. 250 words.)

Activity 3: Steel Lintel Over Door

Describe the loading to be considered when sizing this lintel. Bonus: Provide a sketch of the loading to be considered when sizing this lintel. The sketch can be added as a PDF to the end of this form. Make sure you indicate that you have provided a sketch so the review team can find it. Hint: Review arching action of the masonry. (Max. 250 words.)

FLOOR TWO

Activity 4: Blocking Requirements in Floor Joists

As per local building code, determine the required blocking spacing in millimeters.

Activity 5: Column Support Condition/ Vertical Load Transfer

Referring to photos 1, 2, and 3, provide a short description of your observations and indicate any issues with the connection detail. (Max. 250 words.)

Activity 6: Bearing Condition

Does this bearing condition concern you? What considerations should take place when observing this bearing condition? Write a short paragraph to explain your thinking. (Max. 250 words.)

FLOOR TWO

Activity 7: Lateral Restraint

Are these beams considered to be laterally restrained? If not, provide a short description of the process to complete a lateral restraint check. (Max. 250 words.)

Activity 8: LVL or Steel?

Can you think of a reason why the roof is supported by LVL beams and the second floor is supported by W-section steel beams? Provide a short paragraph to explain your thinking. (Max. 250 words.)

Activity 9: Sistered Floor Joists

Review photos 4 and 5 and write a short description of the site condition and why or why not it is acceptable. Provide comment for an alternate repair detail that could be used in this situation. (Max. 250 words.)

Activity 10: Spliced Floor Beam

Determine if this is an acceptable condition. If yes, why, and if no, why not? Provide a short description of your thought process for this unique condition. How might this condition be confirmed as acceptable? (Max. 250 words.)

Activity 11: Twisted Sister

Referring to photos 6 and 7, sketch a detail for stabilizing these beams. Consider how you might approach this problem knowing that while each of these beams must support its own load, a systems approach can help solve an individual member's issue. (Max. 250 words.)

Activity 12: Typical Roof Beam Support Condition

Referring to photos 8, 9, and 10, identify some possible issues with this connection condition. If you suggest a new bearing condition, provide a sketch of your ideas to help illustrate your recommendations. Items to think about include lateral action of the roof beams, moisture protection of the roof beams, location of roof beams, and minimum bearing requirements. (Max. 250 words.)

PERSONAL STATEMENT

Every candidate is unique with an interesting background and passions. Here is an opportunity to share that with us.

Why are you interested in working in the AEC industry, consulting engineering, or what are you *most passionate* about?

ACTIVITY FEEDBACK

We hope you enjoyed the Firehall Remediation case study and that you learned something new about engineering and how we tackle tough projects at Entuitive. As part of the Entuitive U program, we are always looking to improve our case studies so that you, the students of engineering, learn as much as possible. Please take a few minutes to fill out our feedback form and let us know how we can do better:

Was this activity interesting?

Was this activity challenging?

Did you learn something new completing this activity?

What would you do to improve this activity?

Would you recommend this activity to a friend?

How did you hear about Entuitive U?