

History:

2016

- Frey Construction & Home Improvement Addition. *
 1. First floor rear addition.
 2. Second floor addition of additional bedroom and expansion of existing bedroom through rear dormer.
 3. Existing stairs were noted to be non-code compliant by S. Rewey. **
 4. Final building inspection was approved without a stair variance. ***

2022

- Christensen Construction Addition.
 1. First floor front addition to enlarge living room.
 2. Existing 2nd floor hallway (used as an office area by owner) was enlarged through front dormer.
 3. Neither existing 2nd floor bedroom was altered.
 4. Existing stairs were not altered.

Synopsis:

1. Existing Structure

- A) Distance from 1st to 2nd floor finished floors is 106 3/4".
 1. (14) risers are required for stair from 1st floor to 2nd floor to be code compliant.
 2. Altering the existing stair rise of 7 5/8" cannot improve the stair design.
- B) The wall separating the living room and stairwell is a bearing wall.
 1. Extending the stairs above the intermediate landing would require a new floor opening that would undermine the 2nd floor floor system.
 2. The doorway between the hallway and kitchen cannot be moved without affecting the bath/linen closet.
- C) The existing stairs are housed-stringer.
 1. Any modification of the stairs would result in a loss of headroom in one or both of the stacked stairs from the throat width of new stringers.
 2. Any modification of the stairs would be prohibitively costly, as it would need to be completely removed and replaced.

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P-1

Methodology:

1. Developing An Alternate Stair Plan.

A) It was suggested by K. Bunnow that the stairs could be reconstructed to minimums established by variance precedence. Based upon this:

1. We do not model construction of a code compliant stair, as it would be more problematic that this standard.
 - a.) The stair variance minimums based on precedence are:
 1. Tread depth: 8".
 2. Landing depth: 31".
2. The only way to shorten the stair run while increasing tread depth is through the use of winders.

B) Given the above, we propose the two least problematic stair models.

1. A straight stair with an intermediate landing.
2. A stair with winders in series.

Conclusions:

In order to create a stair with a tread depth of 8" and either no intermediate landing, or one of at least 31" depth, one of two results is unavoidable.

1. The home would become less code compliant.
 - A) Violations would be created where the home is currently compliant.
 - B) Violations would be exacerbated where the home is currently not in compliance.
 - C) No violations would be eliminated.
2. Major and costly structural work would be required.
 - A) Existing point loads would be disturbed.
 - B) Floor systems would need to be altered, thus creating new point loads.
 - C) Interior walls would need to be moved and the floor plan altered.

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P-2

References:

* Accela Citizen Access record BLDNRC-2016-07504 (pg 1), submitted drawings by Frey Construction & Home Improvement.

** Accela Citizen Access record BLDNRC-2016-07504 result comments by S. Rewey (8/16/2016).

*** Accela Citizen Access record BLDNRC-2016-07504 (pg 2).

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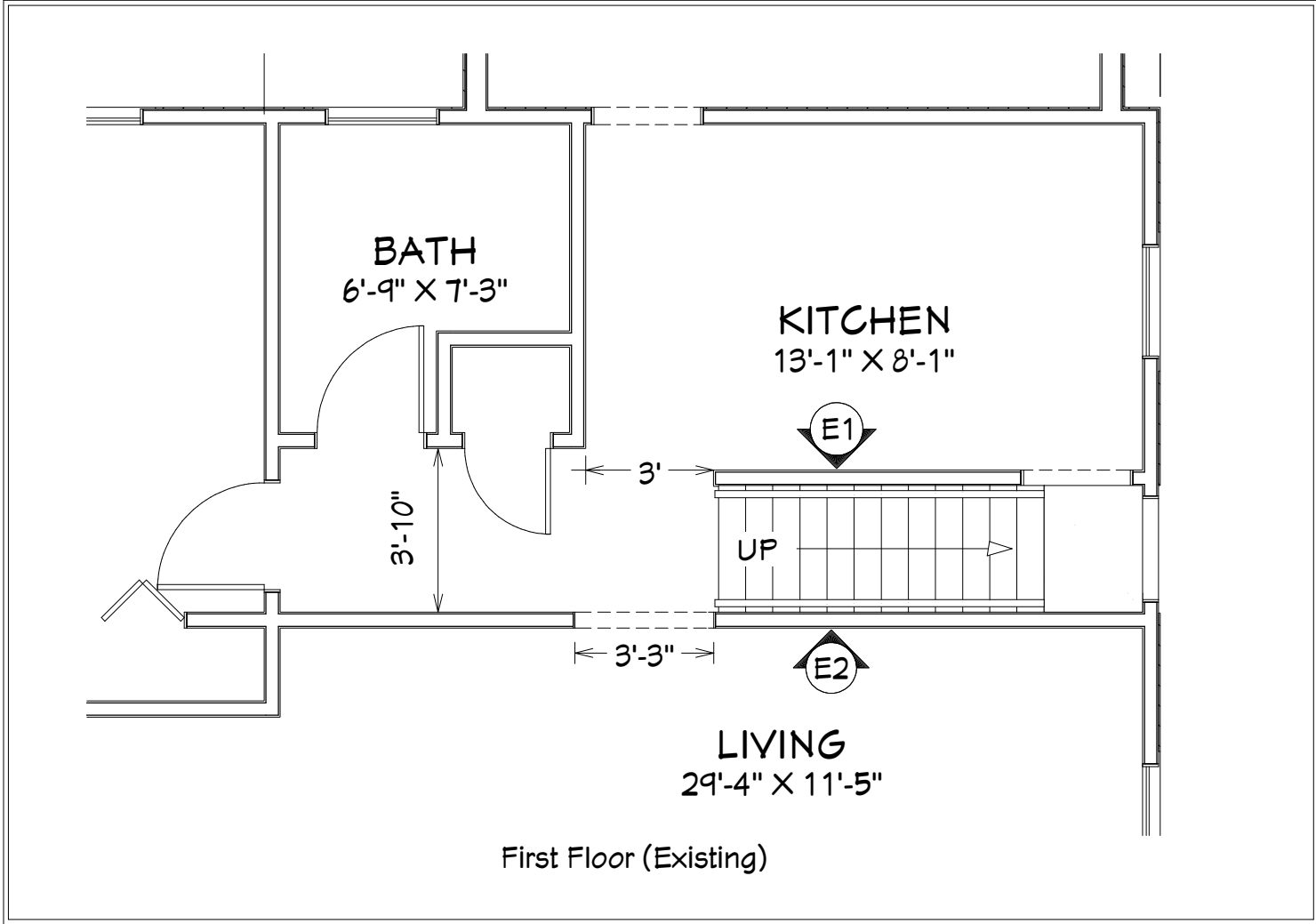
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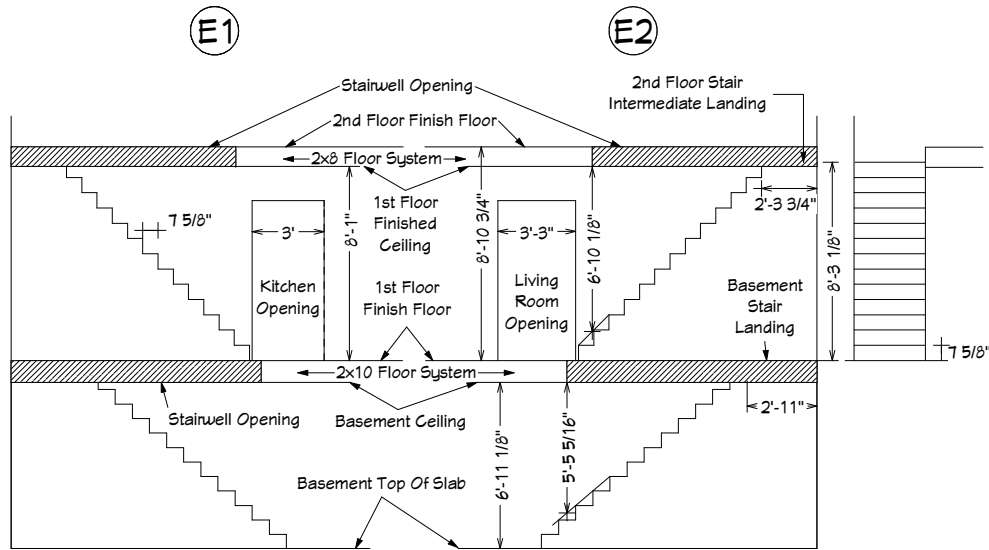
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P-3



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Stairwell Cross Sections (Existing)

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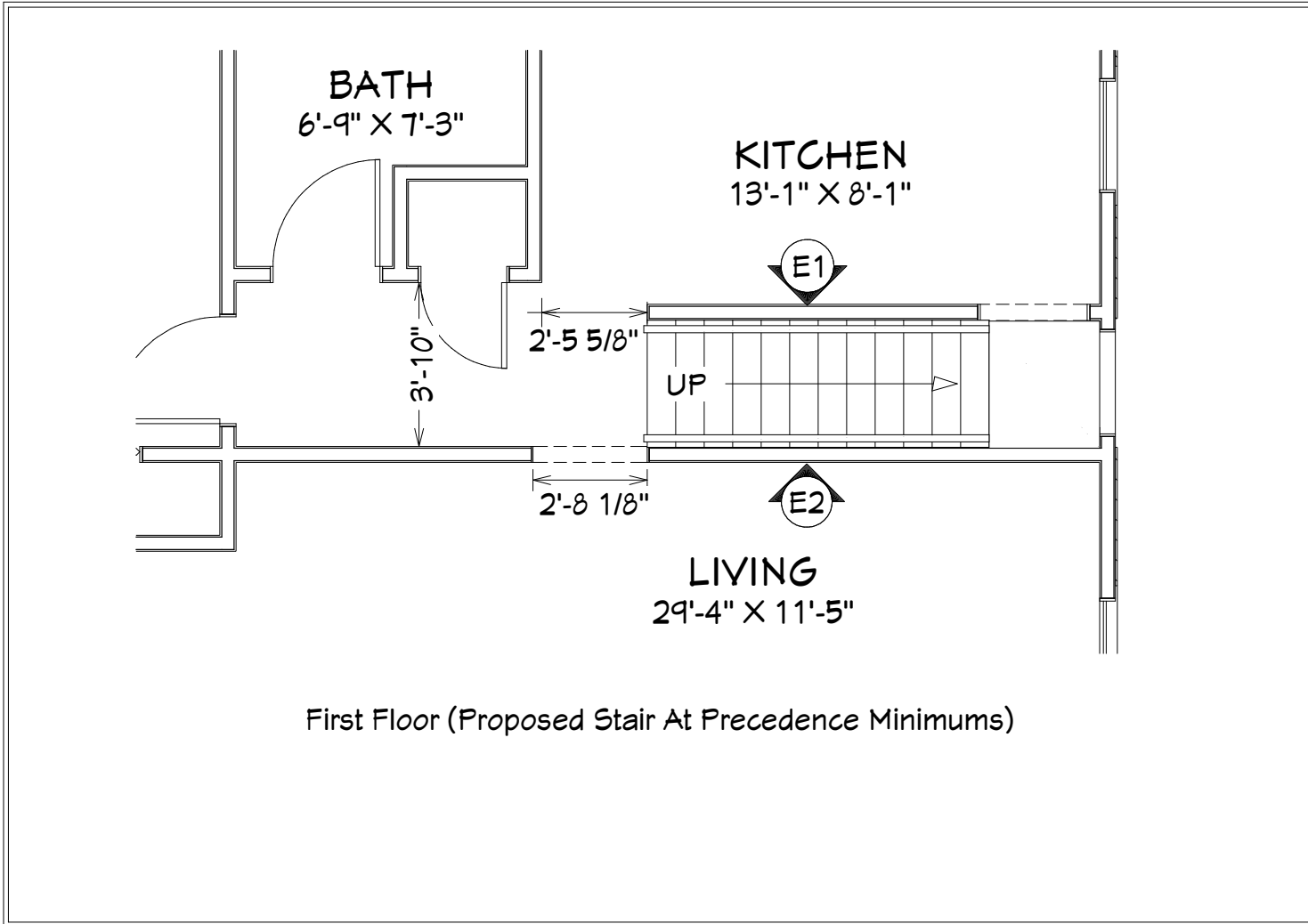
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1/4"=1'

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P-5



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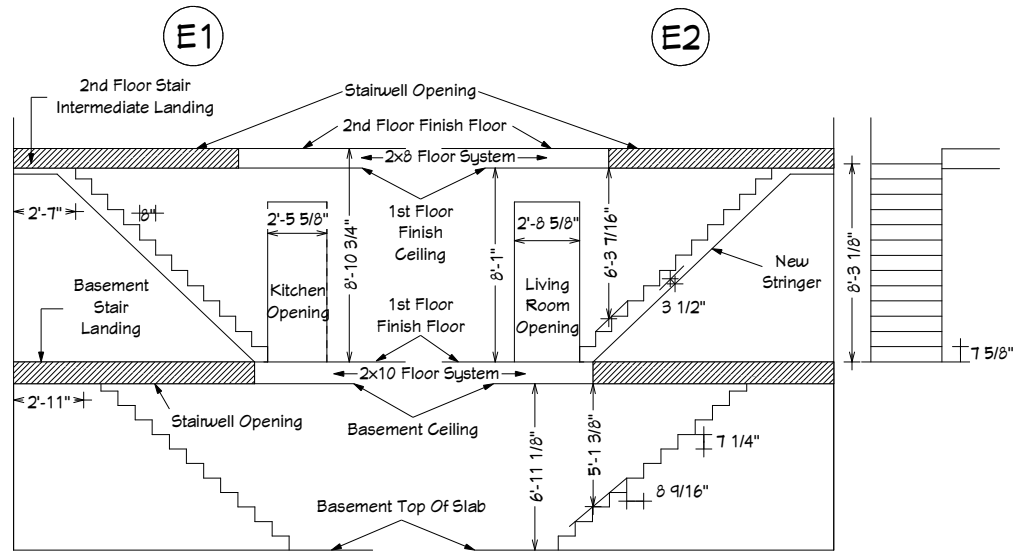
1/6/2023

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1/2"=1'

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P-6



Stairwell Cross Sections (Proposed Stair At Precedence Minimums)

Code Violations Created By This Modification:

- SPS 321.035 (1): Reduction of kitchen opening from 1st floor hallway to <30" net clear.
- SPS 321.04 (2) (d) 1: Reduction of headroom in 1st floor stairwell to <76".

Code Violations Exacerbated By This Modification:

- SPS 321.04 (2) (d) 1: Reduction of headroom in basement stairwell by 3 15/16".

Code Violations Eliminated By This Modification:

None.

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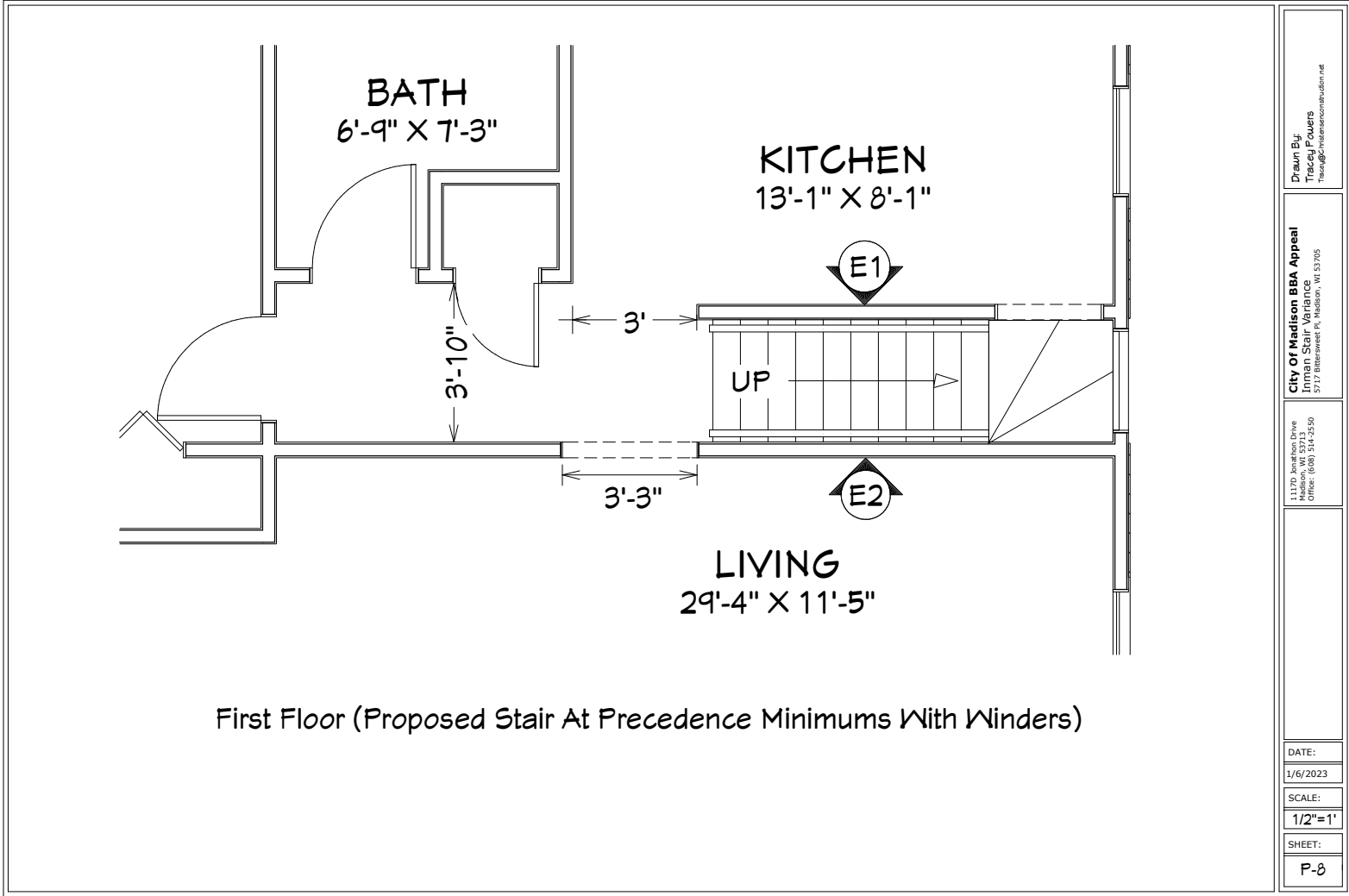
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1/4"=1'

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P-7



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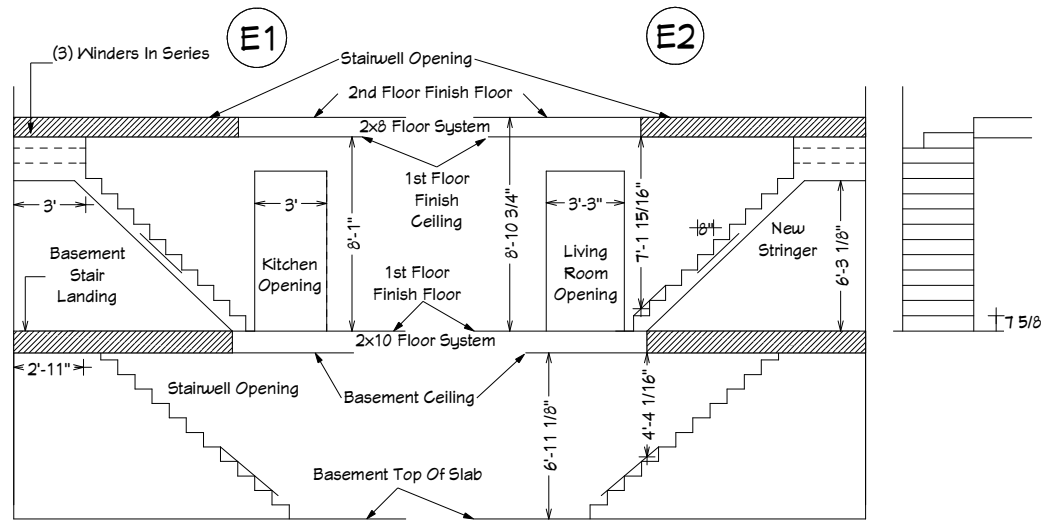
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P-8



First Floor (Proposed Stair At Precedence Minimums With Winders)

Code Violations Created By This Modification:

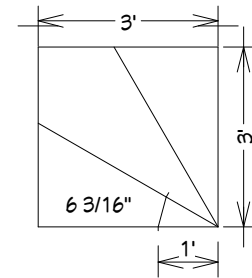
- SPS 321.04 (2) (c) 3a: Winder treads would have a tread depth of <7" measured from a point 12" from the narrow end of the treads.
- SPS 321.04 (2) (d) 3: Reduction of headroom at the upper landing in the basement stairwell to <76".

Code Violations Exacerbated By This Modification:

- SPS 321.04 (2) (d) 1: Reduction of headroom in basement stairwell by 1' 1 1/4".

Code Violations Eliminated By This Modification:

None.



Dimensions Of Winders

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P-9