

# David Mezger Engineering LLC

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**DME**

January 16, 2023

BeHome LLC

1101 SW 40<sup>th</sup> St.

Blue Springs, MO 64015

Re: Failed Inspection at 2035 SW Hook Farm Drive (Carter Plan)

Dear Sirs,

I have reviewed the framing inspection report for the subject address which notes that the wall bracing at the rear dining room window which is specified as CS-PF is not adequate to meet the code requirements. In my initial review and approval of these plans I failed to recognize that the adjacent wall panel width (approximately 12") does not meet the minimum requirement specified by IRC Table R602.10.5 of 18" for a CS-PF portal brace. It is unclear why the continuous wall sheathing was not applied to the exterior surface of this wall at the time of construction. The photographs you have provided me indicate that the wood structural panel sheathing has been applied to the interior surface and nailed to meet the CS-PF nailing requirements. The absence of any wall panel or framing anchors tying this sheathing to the rim joist below along with the inadequate panel width contribute to the failure to meet code requirements. I propose the following procedure to provide what I feel will be sufficient lateral capacity at this wall to meet the intent of the code even though it admittedly does not meet the letter of the code:

- 1) Attached is a PDF of Simpson Strong-Tie drawing of their portal frame system which would have been in retrospect the proper application for this issue using the PFS kit. We will try to replicate system #5 in the drawing titled "Double Wall Portal Installation" using the existing interior sheathing and some additional Simpson strap ties.
- 2) The four lateral strap ties shall be Simpson MSTC 28 strap ties fully nailed to the header and the framing members on the sides.
- 3) The four vertical straps shall be Simpson SSP stud plate ties nailed into the end studs and king studs on each end of the window. Blocking needs to be placed below the plywood in the floor to attach the outstanding leg of these ties with Simpson SD wafer head screws.
- 4) I propose that the combination of the shear strength provided by the interior sheathing enhanced by the strapping modifications above, along with the strength provided by the exterior LP panel siding and the interior gypsum drywall will be adequate for the bracing of this relatively short section of braced wall.

Please feel free to pass this letter and procedure along to the permitting agency as a description of our proposed remedy to this problem.

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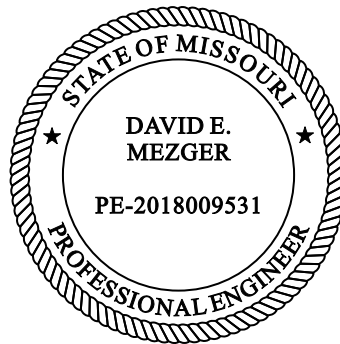
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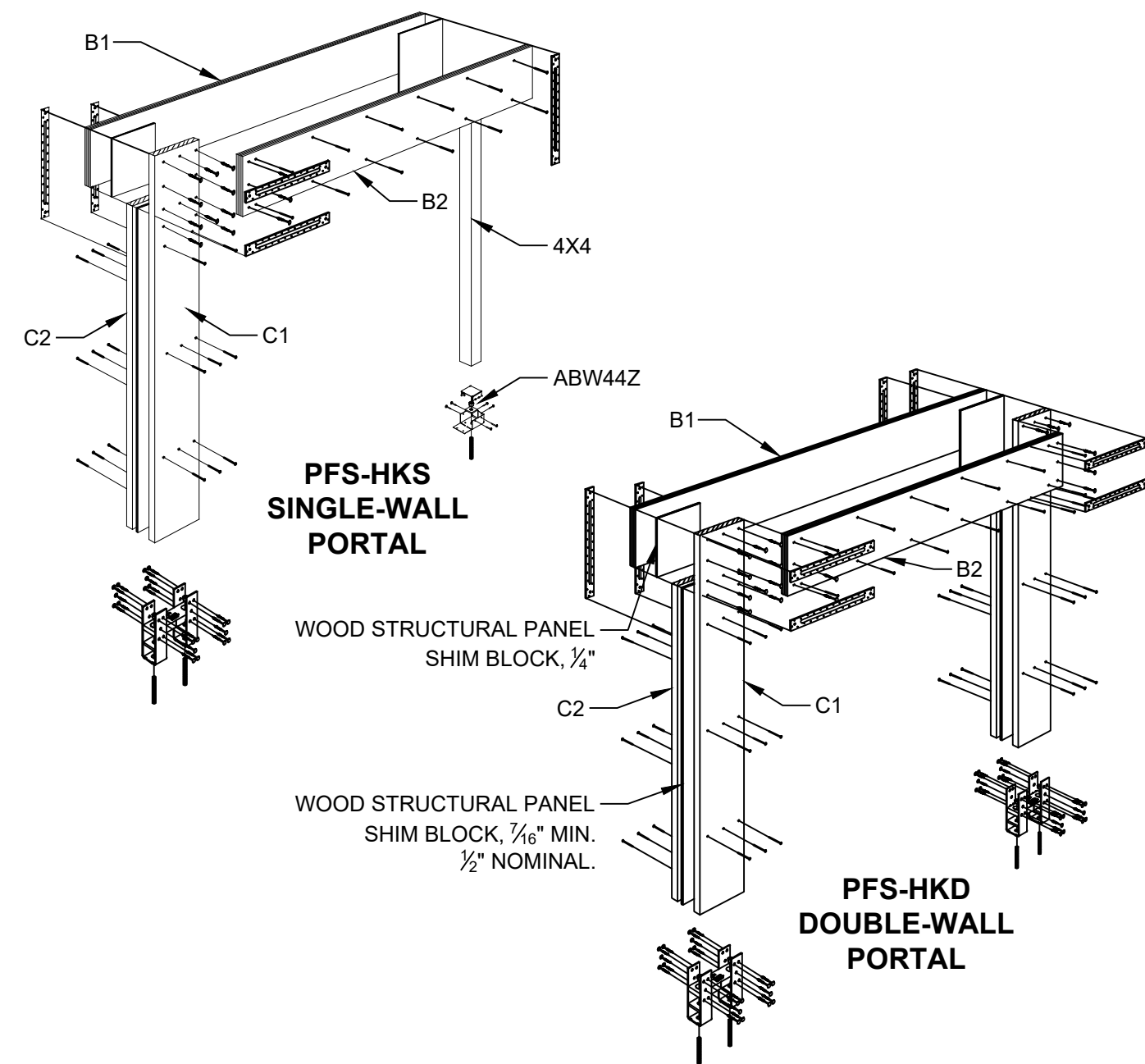
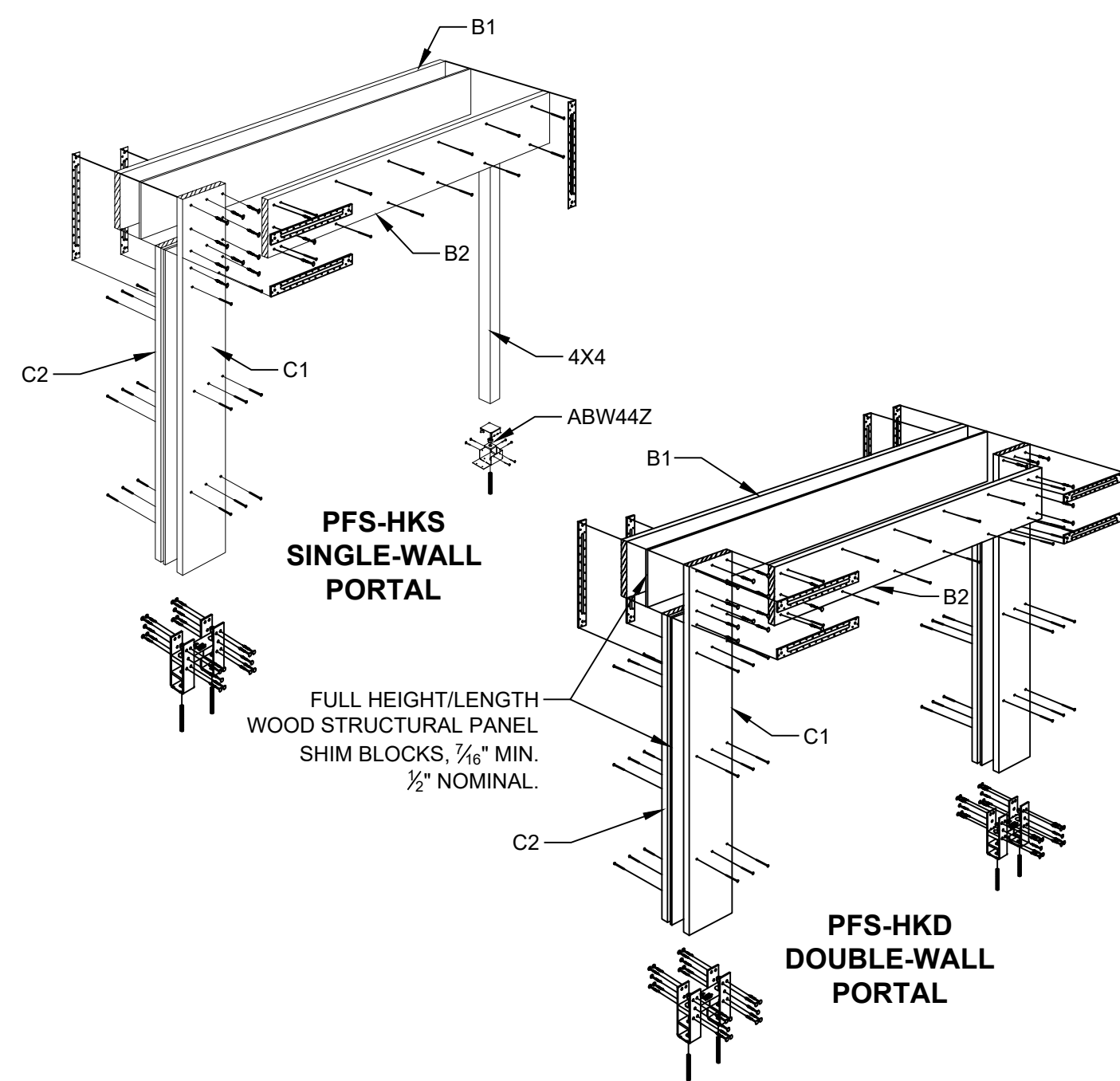
**DME**

For future use of this plan, I suggest we work with AK Design Inc. to specify the Simpson Strong-Tie PFS Strong-Wall system for this application. I would be happy to answer any questions you or the permitting agency may have about this issue and our proposed resolution. Thank you.

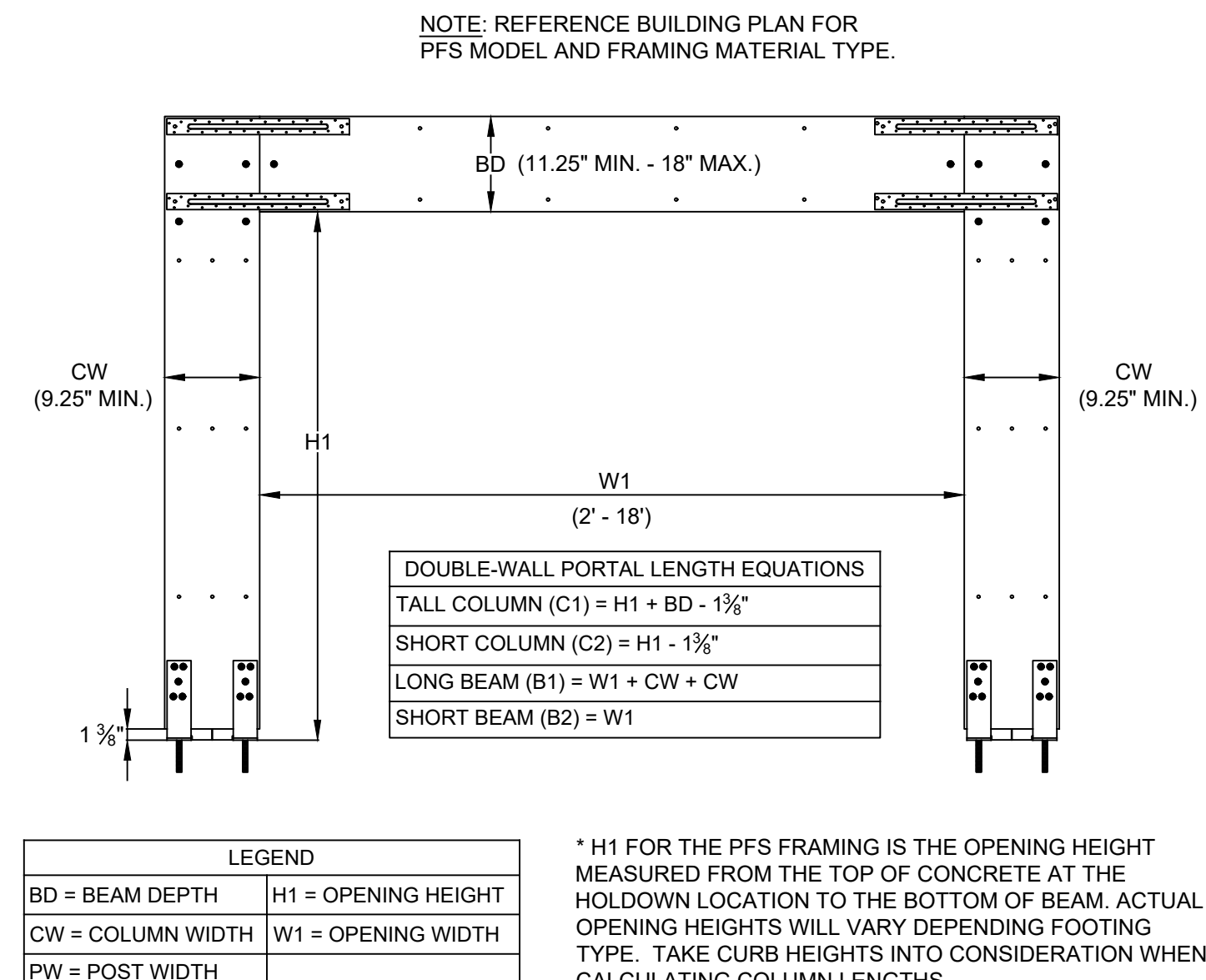
Sincerely,

David E. Mezger P.E.





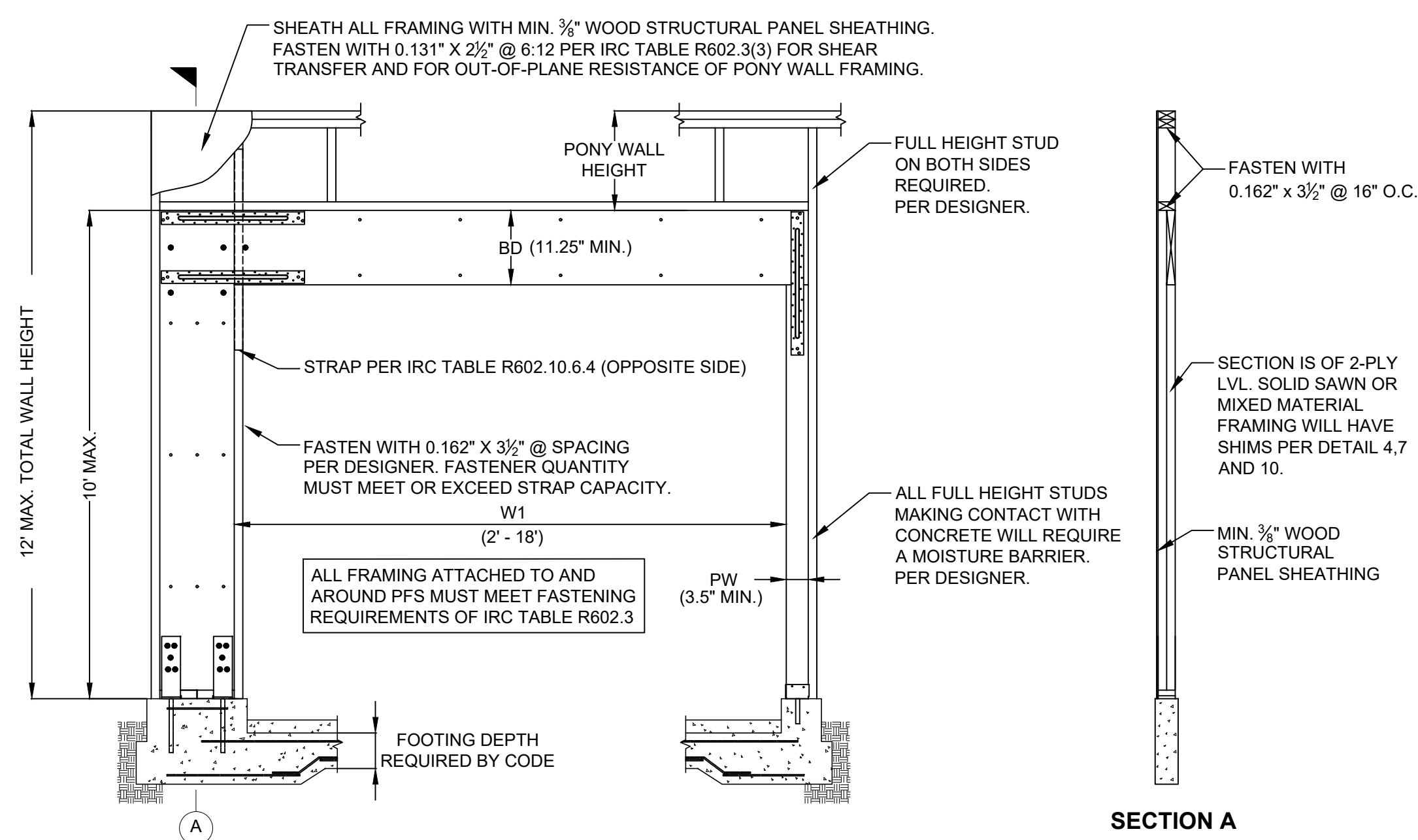
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PORTAL FRAME SYSTEM DIMENSIONS							
ACCEPTABLE FRAMING MATERIALS	COLUMN SIZES (IN.)		MINIMUM HEADER DEPTHS (IN.)	ANCHOR BOLTS PER COLUMN	MAX. TOTAL HEIGHT (IN.)	ROUGH OPENING DIMENSIONS	
	10-IN. NOMINAL	12-IN. NOMINAL				MAX. HEIGHT (IN.)	ALLOWABLE WIDTH (FT.)
LVL	(2) 1¼ X 9½	(2) 1¼ X 11½	11½"	(2) ¾"	120	108½"	2 - 18
SOLID SAWN DF/SP/SPF/HF	(2) 1½ X 9½	(2) 1½ X 11½	11½"			108½"	2 - 18

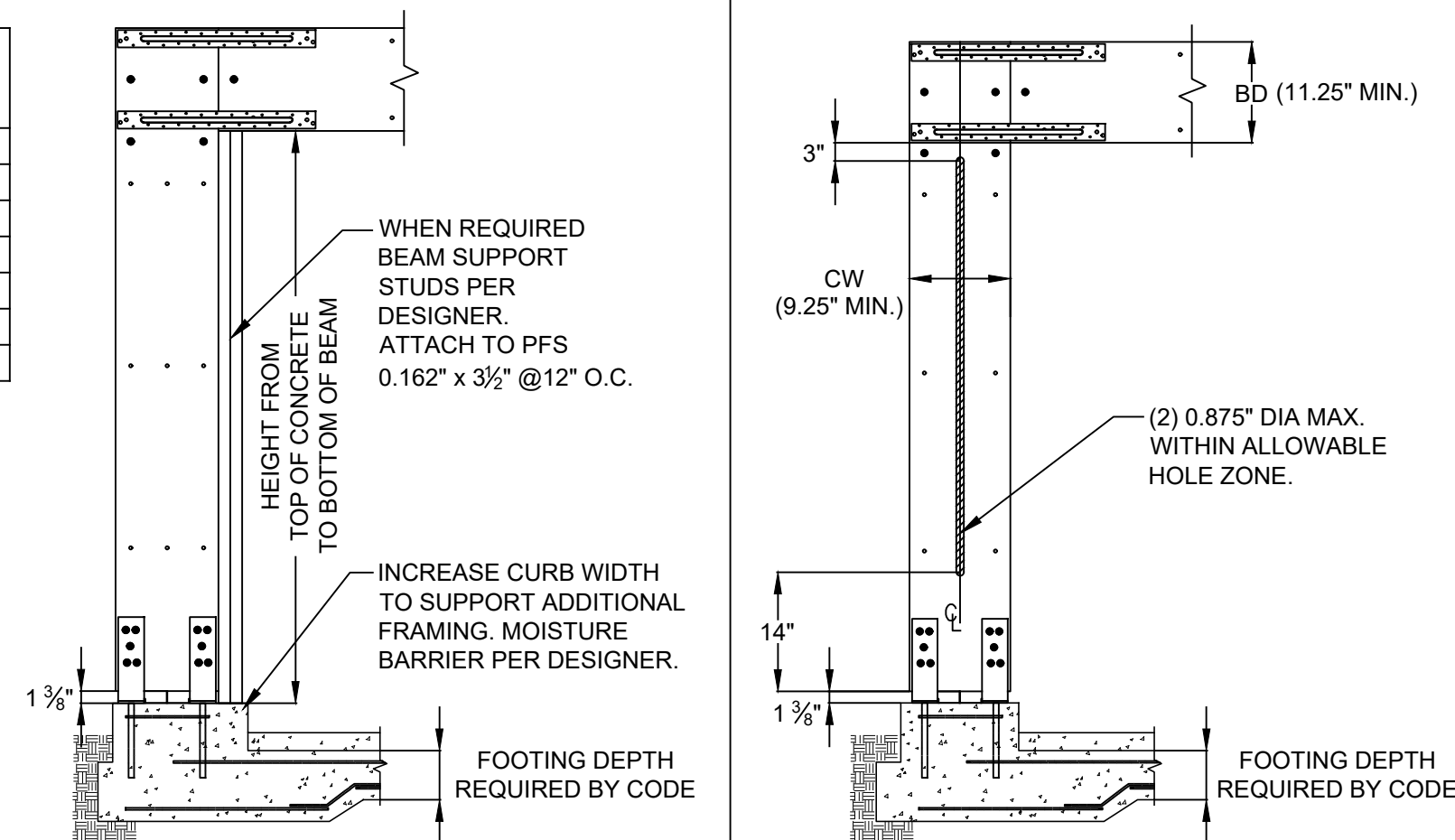
1. LVL IS 2.0E (MIN.); SOLID SAWN LUMBER IS #2 OR BETTER.
2. ANCHOR BOLTS ARE NOT INCLUDED IN THE PORTAL FRAME SYSTEM KIT.
3. REFER TO FOUNDATION DETAILS ON SHEET PFS2 FOR MINIMUM CONCRETE DIMENSIONS.
4. SOLID SAWN COLUMNS REQUIRE A WOOD SHIM AT THE HOLDOWN ASSEMBLIES.

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1. THE DESIGNER IS RESPONSIBLE FOR THE BEAM DESIGN. THE REACTION AT BEAM/COLUMN INTERFACE SHALL NOT EXCEED THE TABULATED MAXIMUM ALLOWABLE BEAM END REACTION FOR EACH MATERIAL TYPE. THE MAXIMUM ALLOWABLE BEAM END REACTION MAY NOT BE INCREASED FOR DURATION OF LOAD.
2. MINIMUM HEADER DEPTHS FOR LVL AND SOLID SAWN ARE  $1\frac{1}{2}"$  AND  $1\frac{1}{4}"$ , RESPECTIVELY.
3. SOLID SAWN COLUMNS MAY BE USED IN COMBINATION WITH LVL HEADER MATERIAL. MAXIMUM ALLOWABLE BEAM END REACTION IS LIMITED TO THAT OF THE SOLID SAWN MATERIAL.

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