

David Mezger Engineering LLC

Tel: Cell 913-481-3774
Office 816-736-4043

212 NE Circle Dr
Kansas City, MO 64116

Email:
mezgerde@gmail.com

DME

January 16, 2023

BeHome LLC

1101 SW 40th 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.

David Mezger Engineering LLC

Tel: Cell 913-481-3774
Office 816-736-4043

212 NE Circle Dr
Kansas City, MO 64116

Email:
mezgerde@gmail.com

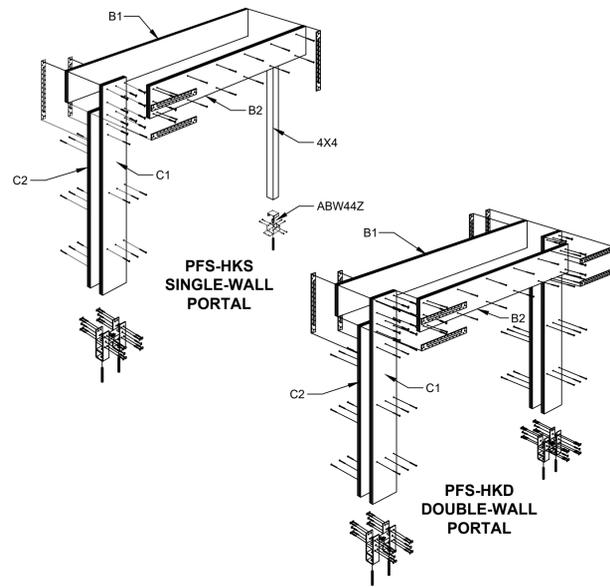
DME

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,

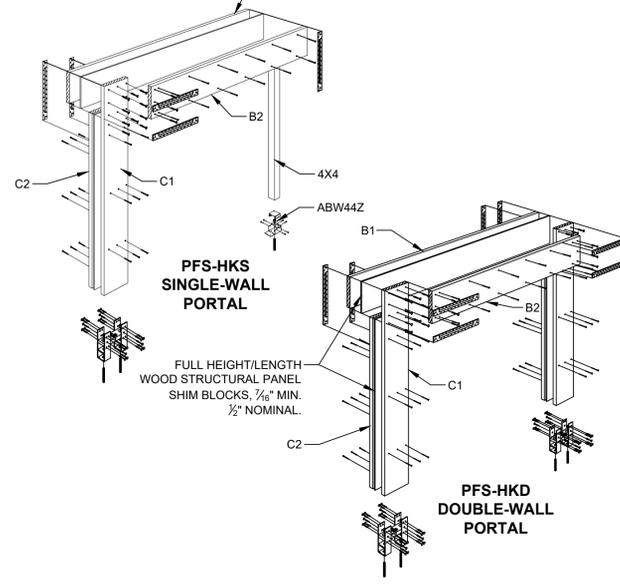
David E. Mezger P.E.





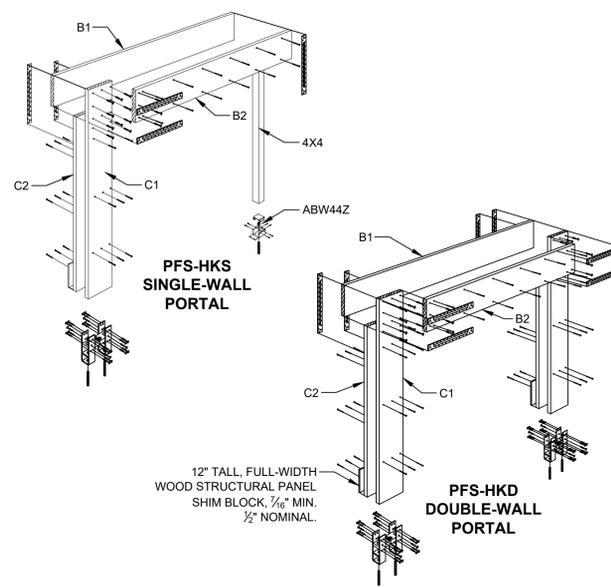
LVL ASSEMBLY

1



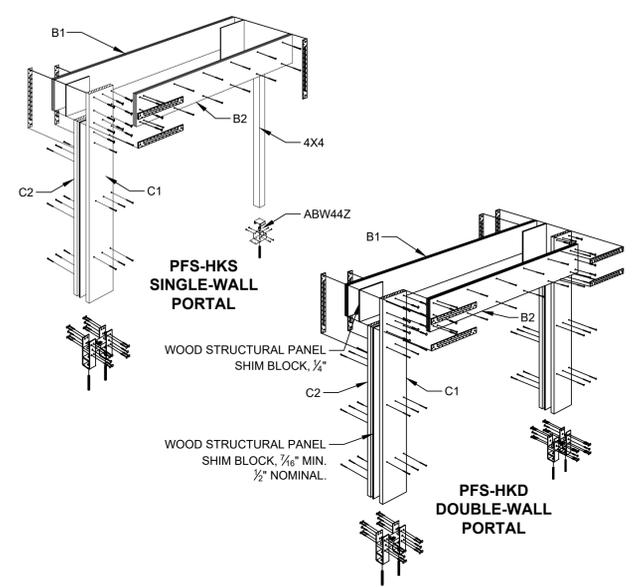
2X SOLID SAWN ASSEMBLY WITH FULL LENGTH SHIM BLOCKS

4



2X SOLID SAWN ASSEMBLY WITH SHIM BLOCK AT HOLDOWN

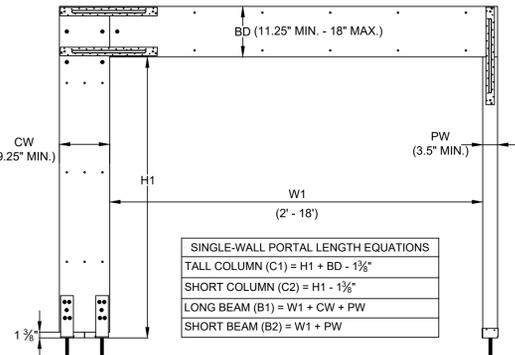
7



2X SOLID SAWN COLUMN WITH LVL BEAM ASSEMBLY

10

NOTE: REFERENCE BUILDING PLAN FOR PFS MODEL AND FRAMING MATERIAL TYPE.

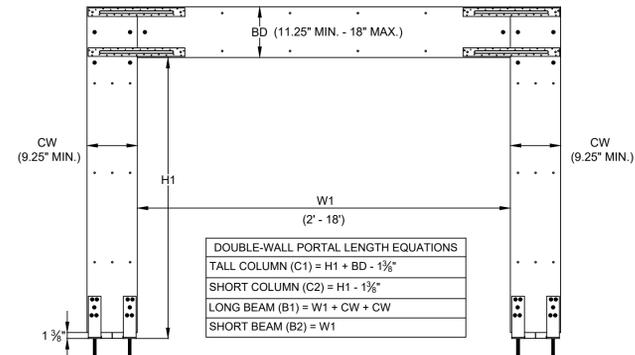


SINGLE-WALL PORTAL LENGTH EQUATIONS	
TALL COLUMN (C1)	$H1 + BD - 1\frac{1}{2}''$
SHORT COLUMN (C2)	$H1 - 1\frac{1}{2}''$
LONG BEAM (B1)	$W1 + CW + PW$
SHORT BEAM (B2)	$W1 + PW$

LEGEND	
BD = BEAM DEPTH	H1 = OPENING HEIGHT
CW = COLUMN WIDTH	W1 = OPENING WIDTH
PW = POST WIDTH	

* H1 FOR THE PFS FRAMING IS THE OPENING HEIGHT MEASURED FROM THE TOP OF CONCRETE AT THE HOLDOWN LOCATION TO THE BOTTOM OF BEAM. ACTUAL OPENING HEIGHTS WILL VARY DEPENDING FOOTING TYPE. TAKE CURB HEIGHTS INTO CONSIDERATION WHEN CALCULATING COLUMN LENGTHS.

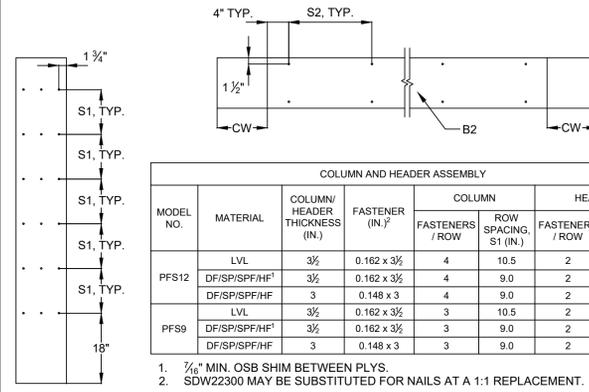
NOTE: REFERENCE BUILDING PLAN FOR PFS MODEL AND FRAMING MATERIAL TYPE.



DOUBLE-WALL PORTAL LENGTH EQUATIONS	
TALL COLUMN (C1)	$H1 + BD - 1\frac{1}{2}''$
SHORT COLUMN (C2)	$H1 - 1\frac{1}{2}''$
LONG BEAM (B1)	$W1 + CW + PW$
SHORT BEAM (B2)	$W1$

LEGEND	
BD = BEAM DEPTH	H1 = OPENING HEIGHT
CW = COLUMN WIDTH	W1 = OPENING WIDTH
PW = POST WIDTH	

* H1 FOR THE PFS FRAMING IS THE OPENING HEIGHT MEASURED FROM THE TOP OF CONCRETE AT THE HOLDOWN LOCATION TO THE BOTTOM OF BEAM. ACTUAL OPENING HEIGHTS WILL VARY DEPENDING FOOTING TYPE. TAKE CURB HEIGHTS INTO CONSIDERATION WHEN CALCULATING COLUMN LENGTHS.



1. 1/4\"/>
2. SDW22300 MAY BE SUBSTITUTED FOR NAILS AT A 1:1 REPLACEMENT.

NOTE: EVERY OTHER ROW OF NAILS IS INSTALLED ON OPPOSITE SIDE.

MODEL NO.	MATERIAL	COLUMN/HEADER THICKNESS (IN.)	FASTENER (IN.)	COLUMN		HEADER	
				FASTENERS / ROW	ROW SPACING, S1 (IN.)	FASTENERS / ROW	ROW SPACING, S2 (IN.)
PFS12	LVL	3/4"	0.162 x 3/8"	4	10.5	2	16.0
	DF/SP/SPF/HF	3/4"	0.162 x 3/8"	4	9.0	2	16.0
PFS9	LVL	3/4"	0.162 x 3/8"	3	10.5	2	16.0
	DF/SP/SPF/HF	3/4"	0.162 x 3/8"	3	9.0	2	16.0

SINGLE WALL PORTAL INSTALLATION

2

DOUBLE WALL PORTAL INSTALLATION

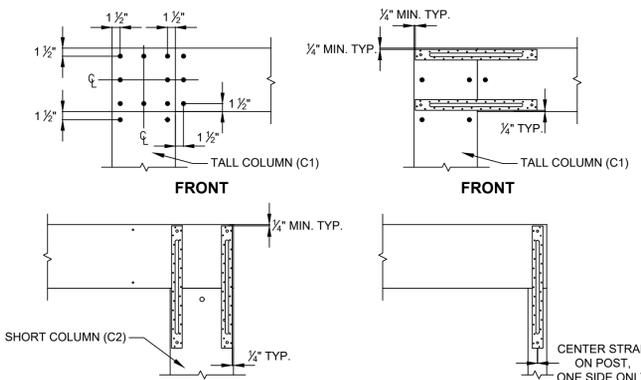
5

BUILT-UP COLUMN AND HEADER NAILING

8

PORTAL FRAME SYSTEM DIMENSIONS

11

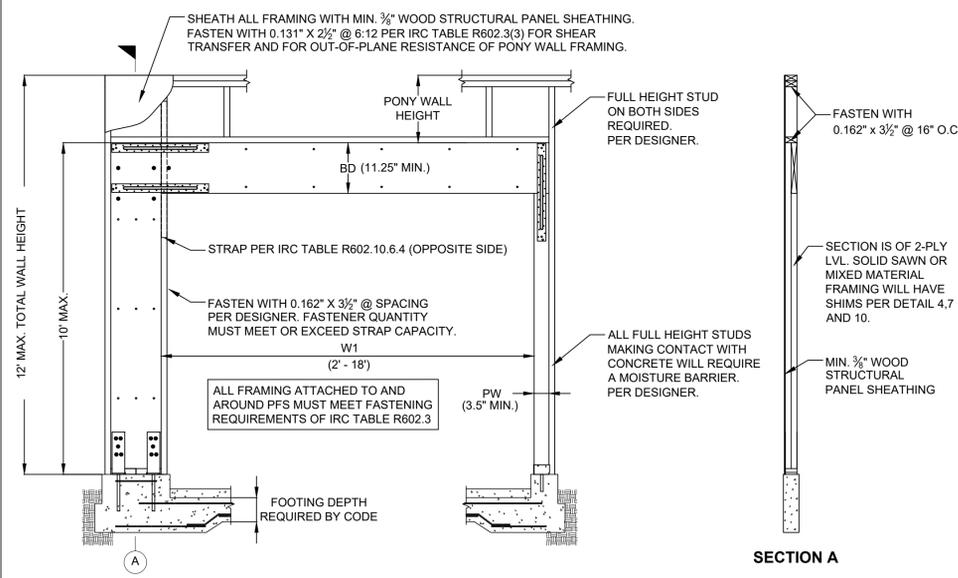


COLUMN-TO-HEADER - MOMENT CONNECTION DETAILS

- COLUMN-TO-HEADER MOMENT CONNECTION INSTALLATION**
1. CONNECT THE BEAM SUB-ASSEMBLY TO THE COLUMN SUB-ASSEMBLY STARTING WITH THE SDW SCREWS (PROVIDED), AS SHOWN.
 2. INSTALL THE PFS-MCS STRAPS USING 0.148\"/>
- NOTE: STRONG-DRIVE #10x2 1/2\"/>

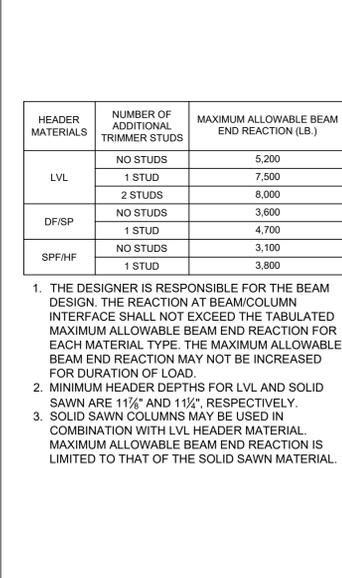
COLUMN-TO-HEADER CONNECTION

3



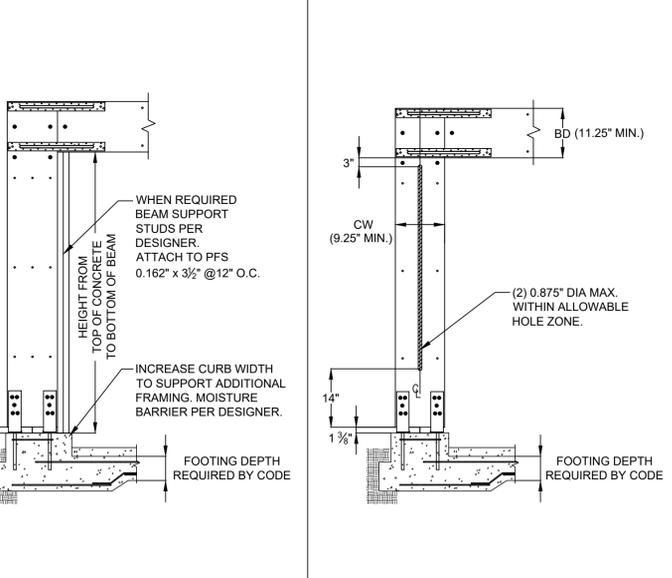
PONY WALL ASSEMBLY REQUIREMENTS

6



BEAM SUPPORT FRAMING

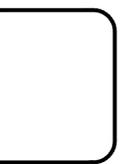
9



ALLOWABLE HOLE ZONE

12

NO.	DATE	REVISIONS
1	10/01/2022	ADDED TABLE MAXIMUM ALLOWABLE BEAM END REACTIONS



SIMPSON STRONG-TIE COMPANY, INC.
 HOME OFFICE: LAS POSITAS BLVD.
 5956 LAS POSITAS BLVD.
 SAN ANTONIO, CA 95128
 TEL: (800) 999-5099



STRONG-WALL® PFS
PORTAL FRAME SYSTEM
FRAMING DETAILS
PRESCRIPTIVE DESIGNS



NAME	
DATE	10-31-2022
SCALE	N.T.S.
CHECKED	
SHEET	PFS1
OF SHEETS	
JOB NO.	