Development Services Department

220 SE Green Street Lee's Summit, MO 64063
(816) 969-1200   FAX (816) 969-1201

Inspection Summary

Permit #:PRRES20180838, Building Permit - Residential
Address: 1841 SW BLACKSTONE CT, LEES SUMMIT, MO 64082

This work has been inspected and the inspection results noted below. Please call for re-inspection once all corrective actions have been completed. Do not cover any work until approved.

Inspection:	Inspector:	Outcome:	Date:
All Rough Inspection - Residential	Jason McRoy	Passed	Wednesday, October 10, 2018

Corrective Action Required
2   Misc   * ENGINEERS REPORT ON HINGED WALL IS FORTHCOMING*
                                              * OK TO INSULATE *

Comments:

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Comments:

APEX
ENGINEERS, INC.

October 9, 2018

Kevin Higdon Construction
PO Box 847
Lee's Summit, MO 64063

Re: 1841 NW Blackstone Ct
        Lot 104 Napa Valley
        Lee's Summit, MO 64082

Apex Engineers, Inc. observed the house at the above referenced address. The contractor has retained our firm to address the following items from the city rough-in inspection:

1. 2x6 exterior wall studs are discontinuous at stairway near entry.
    a. The exterior walls studs near the entry at the front of the house at the stairway are discontinuous.
    b. The 2x6 wall studs shall be connected at the discontinuity with a Simpson CS20 strap (1-1/4"x24" 20-gauge strap). Install according the manufacturer's recommendations ((12) 10d common nails (0.148"x3") and 6" minimum end length). The straps shall be placed on the narrow edge of the 2x6 studs, on the interior side of the wall. Install a strap at each wall stud.

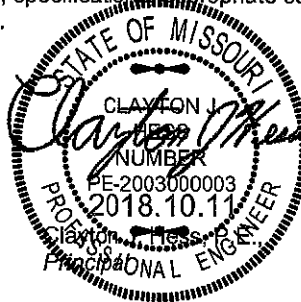Please call if Apex Engineers, Inc. can be of further assistance.

LIMITATIONS
The scope of our services includes only those items specifically addressed herein. No attempt was made to design or check the design of any structural members other than those specifically addressed herein. All other items are outside the scope of this inspection; including but not limited to, any environmental assessment (such as, but not limited to mold, mildew, presence of hazardous or toxic materials in the soil, surface water, ground water, etc.).

In addition, the scope our services does not include any evaluation of the building or site for job-site safety and/or hazardous conditions. All construction shall be performed in compliance with IRC and OSHA standards at all times. Our firm has not been retained to examine the site or building for any of these conditions. In addition, the contractor shall retain sole responsibility for the quality of work, for adhering to plans, specifications, appropriate codes, and, for repairing defects, deficiencies or omission, regardless of when they are found.

Best Regards,
Apex Engineers, Inc.

Joshua M. Jensen, E.I.T.
Project Engineer

MAIN LEVEL PLAN

Rooms and labels on plan:

- 3-CAR GARAGE
- KITCHEN
- PANTRY
- BREAKFAST
- HEARTH ROOM
- DINING ROOM
- ENTRY
- PORCH
- GREAT ROOM

Notes on plan:

INSTALL SIMPSON CMST16 STRAPS AT ALL DISCONTINUOUS 2X6 WALL STUDS

INSTALL SIMPSON CMST16 STRAPS AT ALL DISCONTINUOUS 2X6 WALL STUDS

9'-0" CEILING
2" X 6" EXT WALLS
2" X 10" FLOOR SYSTEM

MAIN LEVEL

SCALE: 1/4" = 1'-0"

MAIN LEVEL: 1286 SQ. FT.
SECOND LEVEL: 1399 SQ. FT.
TOTAL: 2685 SQ. FT.

GARAGE: 696 SQ. FT.

FRAMING NOTES (illegible)

"For God so loved the world, that he gave his only begotten Son, that whosoever believeth in him should not perish, but have everlasting life" (John 3:16).

Coiled Straps

CMSTC provides nail slots for easy installation; it can be cut to length. CS are continuous utility straps which can be cut to length on the jobsite. Packaged in lightweight (about 40 lb.) cartons.

Finish: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 15–18.

Installation: • Use all specified fasteners; see General Notes.

• Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.

• Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.

• The table shows the maximum allowable loads and the nails required to obtain them. Fewer nails may be used; reduce the allowable load as shown in footnote #3.

• The cut length of the strap shall be equal to twice the "End Length" noted in the table plus the clear span dimension.

• CMST only — Use every other round hole if the wood tends to split. Use round and triangle holes for comparable MST loads, providing wood does not tend to split.

• For lap slice and alternate nailing information, refer to technical bulletin T-CMST at **strongtie.com**.

• CS straps are available in 25' lengths; order CS14-R, CS16-R, CS18-R, CS20-R or CS22-R.

Codes: See p. 14 for Code Reference Key Chart

These products are available with additional corrosion protection. For more information, see p. 18.

These products are approved for installation with the Strong-Drive® SD Connector screw. See pp. 39–40 for more information.

Model No.	Total L	Ga.	DF/SP Fasteners	DF/SP End Length	SPF/HF Fasteners	SPF/HF End Length	Allowable Tension Loads (160)	Code Ref.
CMST12	40'	12	(74) 16d	33"	(84) 16d	38"	9,215	
			(86) 10d	39"	(98) 10d	44"	9,215	
CMST14	52½'	14	(56) 16d	26"	(66) 16d	30"	6,490	
			(66) 10d	30"	(76) 10d	34"	6,490	
CMSTC16	54'	16	(50) 16d sinker	20"	(58) 16d sinker	25"	4,585	
CS14	100'	14	(26) 10d	15"	(30) 10d	16"	2,490	I4, L3, FL
			(30) 8d	16"	(36) 8d	19"	2,490	
CS16	150'	16	(20) 10d	11"	(22) 10d	13"	1,705	
			(22) 8d	13"	(26) 8d	14"	1,705	
CS18	200'	18	(16) 10d	9"	(18) 10d	11"	1,370	
			(18) 8d	11"	(22) 8d	12"	1,370	
CS20	250'	20	(12) 10d	6"	(14) 10d	9"	1,030	
			(14) 8d	9"	(16) 8d	9"	1,030	
CS22	300'	22	(10) 10d	7"	(12) 10d	7"	845	
			(12) 8d	7"	(14) 8d	8"	845	

1. Fastener quantities and end lengths are calculated using an increase for wind or seismic loading.
2. Use half of the required nails in each member being connected to achieve the listed loads.
3. Calculate the connector value for a reduced number of nails as follows:

$$\text{Allowable Load} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Load}$$

Example: CMSTC16 in DF/SP with 40 nails total.
(Half of the nails in each member being connected)

$$\text{Allowable Load} = \frac{40 \text{ Nails (Used)}}{50 \text{ Nails (Table)}} \times 4{,}585 \text{ lb.} = 3{,}668 \text{ lb.}$$
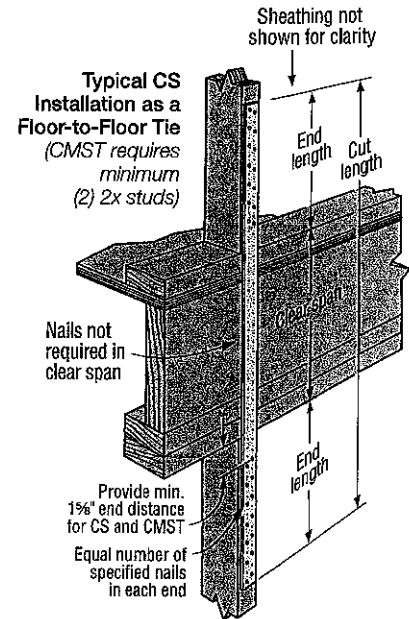
4. Tension loads apply for uplift when installed vertically.
5. Nails: 16d = 0.162" dia. x 3½" long, 16d sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See pp. 26–27 for other nail sizes and information.
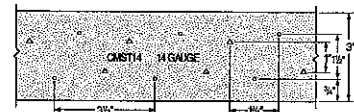
Not Sure How Much Coil Strap You Need?

Simpson Strong-Tie has a web-based app, the Coil Strap Length Calculator, which can help you quickly determine the cut length of each strap and the total amount of coil strap needed for each application on a project.

For more information or to access, go to **strongtie.com/software**.

Typical CS Installation as a Floor-to-Floor Tie
(CMST requires minimum (2) 2x studs)

Sheathing not shown for clarity

Nails not required in clear span

Provide min. 1⅝" end distance for CS and CMST
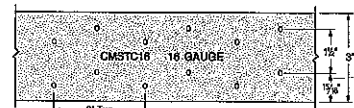
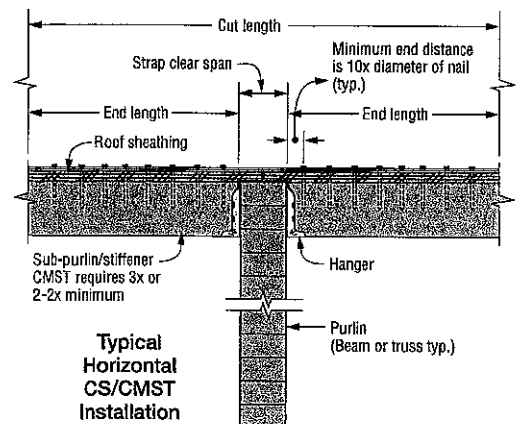Equal number of specified nails in each end

CS16 Hole Pattern
(All other CS straps similar)

CMST14 Hole Pattern
(CMST12 similar)

CMSTC16 Hole Pattern

Gauge stamped on part for easy identification

Straps and Ties

Cut length

Strap clear span

Minimum end distance is 10x diameter of nail (typ.)

End length

End length

Roof sheathing

Sub-purlin/stiffener — CMST requires 3x or 2-2x minimum

Hanger

Purlin (Beam or truss typ.)

Typical Horizontal CS/CMST Installation

Apex Engineers, Inc

Kansas City, MO || Denver, CO || Lawrence, KS

www.apex-engineers.com

Project:	1841 SW Blackstone Ct
Client:	Kevin Higdon Construction
Engineer:	JMJ
Date:	10/9/2018

Discontinuous Wall Calculation

L1	9.0	ft	Total length
L2	4.5	ft	Length from bottom plate to mid plate
d	3.5	in	Depth of stud
s	24	in	Stud spacing

Wind Design Pressure is calculated in accordance with ASCE 7-10:

$q_z = 0.00256 K_z K_{zt} K_d V^2$ ASCE 7-10 Equation (27.3-1)

$q_z =$	24.5	psf	
$K_z =$	0.85		Velocity Pressure Coefficient
$K_{zt} =$	1.00		Topographic Factor
$K_d =$	0.85		Directionality Factor
$V_{ULT} =$	115	MPH	Basic Wind Speed (Ultimate)

$p_{ULT} = q_z G C_p$

$p_{ULT} =$	24.5	psf	Wind design pressure
$G =$	1.00		Gust Effect Factor
$C_p =$	1.00		Pressure Coefficient

The term GCp is conservatively taken as 1.0.
From ASCE 7-10 Allowable Strength Design Load Combinations:

$p_{ASD} = p_{ULT}(0.60)$

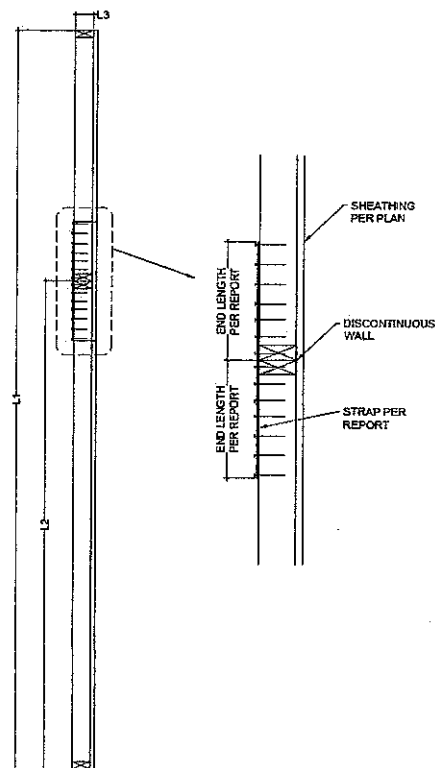 $p_{ASD} =$ 14.7   psf

$M = w L_2/2(L_1 - L_2)$

M	297	lb*ft	Moment at mid plate
w	29.35	plf	Wind distributed load

$T = M/d$

T	1019	lbs	Tension at interior face of stud.

Simpson Straps

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			Fasteners 160	End Length 160	Fasteners 160	End Length 160		
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			86 - 10d	39"	98 - 10d	44"	9215	
CMST14	52½'	14	56 - 16d	26"	66 - 16d	30"	6490	
			66 - 10d	30"	76 - 10d	34"	6490	
CMSTC16	54'	16	50 - 16d sinker	20"	58 - 16d sinker	25"	4585	
CS14	100'	14	26 - 10d	15"	30 - 10d	16"	2490	
			30 - 8d	16"	36 - 8d	19"	2490	I4, L3, F2
CS16	150'	16	20-10d	11"	22 - 10d	12"	1705	
			22 - 8d	13"	26 - 8d	14"	1705	
CS18	200'	18	16 - 10d	9"	18 - 10d	10"	1370	
			18 - 8d	11"	22 - 8d	12"	1370	
CS20	250'	20	12 - 10d	6"	14 - 10d	8"	1030	
			14 - 8d	9"	16 - 8d	9"	1030	
CS22	300'	22	10 - 10d	7"	12 - 10d	7"	845	
			12 - 8d	6"	14 - 8d	8"	845	

STATE OF MISSOURI
CLAYTON J. MESS
NUMBER
PE-2003000003
2018.10.11
PROFESSIONAL ENGINEER