

**Built-in cover page**

# 092216-1.2.B-0:Non-Structural Metal Framing - Product Data



<b>Status</b>	<b>Open</b> Submitted
<b>Spec section</b>	092216 NON-STRUCTURAL METAL FRAMING
<b>Manager</b>	<b>Ryan Schelin</b> (Je Dunn Construction Company (013735))
<b>Responsible contractor</b>	<b>Braden Engelken</b> (E & K Of Kansas City Inc (019435))
<b>Reviewers step 01</b>	<b>Ryan Schelin</b> (Je Dunn Construction Company (013735))

515 E. Locust St, Suite 301  
Des Moines, IA 50309  
tel 515.698.4400  
fax 515.288.3049

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Reviewed by JE Dunn: Ryan Schelin

Date: 11/20/2025 9:04:41 AM

Job: LSMC ED Expansion

Submittal ID: 092216

Bid Package: 100% CD's

Comments: Reviewed - Submitted for Approval



- Reviewed
- Revise and Resubmit
- Submit Specified Item
- Not Reviewed by General Contractor
- Review Not Required by the Contract Documents
- Furnish as Corrected
- Rejected

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work in a safe and satisfactory manner

Signed jvelazquez

Date 12/3/2025

**INCLUDE AS PART OF YOUR DEFERRED SUBMITTAL TO AHJ FOR LIGHT GAGE METAL STUD FRAMING DESIGN AND ENGINEERING.**

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**092216 Non-Structural Metal Framing**

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November 17, 2025

Ryan Schelin  
JE Dunn Construction  
1001 Locust Street  
Kansas City, MO 64106

SUBMITTED UNDER 092216  
NON STRUCTURAL METAL  
FRAMING - RS JE DUNN

RE: HCA Lee's Summit Medical Center ED Renovations  
**05 40 00 – Cold Formed Metal Framing**

Mr. Schelin,

This letter is regarding the Submittals pertaining to our scopes of work for the above noted project. Listed below is everything included in this submittal package:

➤ **Submittals**

❖ **Shop Drawings**

- We are submitting shop drawings and calculations by **Excel Engineering**.

➤ **Product Data**

❖ **Studs and Track**

- **362S162 - 43** manufactured by **ClarkDietrich & MarinoWare**
- **600S162 - 43** manufactured by **ClarkDietrich & MarinoWare**
- **800S162 - 43** manufactured by **ClarkDietrich & MarinoWare**
- **362T125 - 43** manufactured by **ClarkDietrich & MarinoWare**
- **600T125 - 43** manufactured by **ClarkDietrich & MarinoWare**
- **800T125 - 43** manufactured by **ClarkDietrich & MarinoWare**
- **600S162 - 54** manufactured by **ClarkDietrich & MarinoWare**
- **600T200 - 54** manufactured by **ClarkDietrich & MarinoWare**

❖ **Accessories**

- **12 Ga Angle** manufactured by **ClarkDietrich**
- **14 Ga Angle** manufactured by **ClarkDietrich**
- **SUBH 3.25 CRC Clip** manufactured by **Simpson**
- **SCB45.5 Deflection Clip** manufactured by **Simpson**
- **1-1/2" CRC Bridging** manufactured by **ClarkDietrich & MarinoWare**



**BUILDING EXCELLENCE**

**E & K OF KANSAS CITY, INC.  
SINCE 1956**

The products in this submittal package should meet or exceed specified requirements. If you have any questions or comments, do not hesitate to call.

Respectfully Submitted,

*Braden Engelken*

Braden Engelken  
Project Manager

# HCA LEE'S SUMMIT MEDICAL CENTER ED EXPANSION

2100 SOUTHEAST BLUE PARKWAY

LEE'S SUMMIT, MISSOURI

## GENERAL NOTES

- EXCEL ENGINEERING IS ACTING AS A SPECIALTY STRUCTURAL COMPONENT ENGINEER, DESIGNING THE COLD-FORMED STEEL FRAMING OF THE PROJECT ONLY. EXCEL ENGINEERING TAKES FULL RESPONSIBILITY FOR THE DESIGN OF THE STRUCTURAL COLD-FORMED STEEL FRAMING AND THEIR ATTACHMENT TO THE SUPPORTING STRUCTURAL ELEMENTS OF THE BUILDING. EXCEL ENGINEERING TAKES NO RESPONSIBILITY FOR THE DESIGN OF ANY SUPPORTING STRUCTURAL ELEMENTS. IT IS ASSUMED THAT ALL SUPPORTING STRUCTURAL ELEMENTS HAVE BEEN DESIGNED BY THE PROJECT ENGINEER OF RECORD (EOR) AND/OR ARCHITECT OF RECORD (AOR) TO WITHSTAND THE FORCES IMPOSED BY THE STRUCTURAL COLD-FORMED STEEL FRAMING. EXCEL ENGINEERING EXPECTS THAT THIS COMPONENT SUBMITTAL WILL BE REVIEWED BY THE EOR AND/OR AOR FOR CONFORMANCE WITH THE OVERALL PROJECT REQUIREMENTS.
- SECTION PROPERTIES ARE ASSUMED TO BE IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" 2016 EDITION WITH SUPPLEMENTS. THE CONTRACTOR IS TO VERIFY THAT THE MATERIALS INSTALLED MEET OR EXCEED THESE DESIGN VALUES.
- ALL COLD-FORMED STEEL FRAMING HAS BEEN DESIGNED FOR UNIFORM LATERAL LOADS AND WALL CONSTRUCTION DEAD LOADS ONLY. THE WEIGHT OF ANY MASONRY VENEER IS ASSUMED TO BE SUPPORTED INDEPENDENT OF THE COLD-FORMED STEEL FRAMING, U.N.O. THE COLD-FORMED STEEL FRAMING HAS BEEN DESIGNED TO Laterally support any masonry veneer.
- ALLOWABLE STRESS HAS NOT BEEN INCREASED DUE TO WIND. HOWEVER, THE STRENGTH LEVEL WIND LOAD HAS BEEN REDUCED TO 42% (70% FOR SERVICE LEVEL) FOR THE PURPOSE OF DETERMINING DEFLECTION PER IBC 2018, TABLE 1604.3, NOTE F.
- THE CONTENTS OF THIS SUBMITTAL SHOW THE APPLICATION OF COLD-FORMED STEEL FRAMING COMPONENTS. THE FRAMING CONTRACTOR IS TO REFER TO THE PROJECT CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
- DIMENSIONS SHOWN HEREIN ARE FOR ENGINEERING PURPOSES **ONLY** AND MUST BE REVIEWED FOR THE PURPOSE OF APPROVAL. ALL CONDITIONS ARE SUBJECT TO SUCH APPROVAL, AND TO FIELD VERIFICATION PRIOR TO FABRICATION OR ERECTION.
- MECHANICAL BRIDGING SHALL BE USED IN ALL CASES WHERE INDICATED. INSTALLATION OF BRIDGING MUST BE COMPLETED BEFORE ANY LOADS ARE APPLIED TO THE SYSTEM. ALL BRIDGING SHALL BE TERMINATED AT JAMBS, CORNER STUDS OR COLUMNS. BRIDGING ENDS SHALL **NOT** HANG LOOSE. STUDS SHALL BE BRACED AGAINST ROTATION.
- FOR SPECIFIC REQUIREMENTS AND WARRANTY INFORMATION ON SYSTEMS OR MATERIALS CONNECTED AND APPURTENANT TO THE COLD-FORMED STEEL FRAMING INCLUDING CLADDING, SHEATHING, ROOFING, WINDOWS, DOORS, CAULKING AND FLASHING, REFER TO THE MANUFACTURERS' DATA. THIS SUBMITTAL ASSUMES NO RESPONSIBILITY FOR THE PROPER CONSTRUCTION OR FUNCTION OF THE TOTAL ARCHITECTURAL ASSEMBLY. THE COORDINATION OF ARCHITECTURAL AND/OR STRUCTURAL BUILDING COMPONENTS IS NOT UNDER THE SCOPE OF THIS SUBMITTAL OR CONTRACT.
- ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS. STUD ENDS MUST SEAT TIGHTLY INTO TRACKS IN ALL BEARING APPLICATIONS.
- NO SPLICES IN STUDS, JOISTS, HEADERS, OR OTHER LOAD CARRYING MEMBERS MAY BE MADE WITHOUT PRIOR ENGINEERING REVIEW AND SPECIFIC DETAILS FOR ANY SUCH REVISION TO THE ORIGINAL DESIGN.
- THIS SUBMITTAL DOES **NOT** TAKE PRECEDENCE OVER THE CONTRACT DOCUMENTS WITH REGARD TO MINIMUM KSI, THICKNESS, DEPTH, FLANGE WIDTH, OR SPACING, UNLESS APPROVED BY THE EOR AND/OR AOR.
- THE CONNECTOR VALUES USED IN THIS SUBMITTAL ARE FROM PUBLISHED MANUFACTURER SPECIFICATIONS (VALUES ENCLOSED). ALL SCREW AND WELD VALUES ARE BASED ON THE 2016 AISI NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS WITH SUPPLEMENTS. WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D1.3-08. THE CONTRACTOR SHALL CONFIRM WITH THE MANUFACTURER THAT THE CONNECTORS THEY INTEND TO USE MEET OR EXCEED THE DESIGN VALUES REQUIRED.
- THE CONTRACTOR IS RESPONSIBLE TO NOT OVERLOAD MEMBERS DURING CONSTRUCTION OR ERECTION AND TO SUPPLY ADEQUATE TEMPORARY BRACING UNTIL PERMANENT BRIDGING PROVIDING STABILITY TO BOTH FLANGES IS IN PLACE.
- TOUCH-UP ALL WELDS WITH ZINC-RICH PAINT (ASTM A-780). APPLY TO BOTH SIDES OF STUD.
- FUTURE EXPANSION HAS **NOT** BEEN CONSIDERED AS PART OF THE DESIGN OF THIS PROJECT.
- THE CONTRACTOR IS CAUTIONED AS TO NOT STORE ANY CONSTRUCTION MATERIALS OR UNDERTAKE ANY CONSTRUCTION OPERATION WHICH WILL EXCEED THE DESIGN LIVE LOAD CAPACITIES NOTED.

## DESIGN CRITERIA

### GOVERNING CODES

2018 "INTERNATIONAL BUILDING CODE"	IBC 2018
2016 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"	ASCE 7-16
2016 "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS"	AISI S100-16
2015 "CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING"	AISI S202-15
2008 "STRUCTURAL WELDING CODE - SHEET STEEL"	AWS D1.3-08
2014 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"	ACI 318-14

### DESIGN STRESSES

CONCRETE	4000 PSI	= COMPRESSIVE STRENGTH (F'c)
STRUCTURAL STEEL	36 KSI (MIN)	= YIELD STRESS (Fy) - ASTM A-36: ALL SHAPES U.N.O.
COLD-FORMED STEEL FRAMING	33 KSI (MIN)	= YIELD STRESS (Fy) - A1003 U.N.O.
WELD ELECTRODES	60 KSI (MIN)	= TENSILE STRENGTH (Fxx) @ THICKNESS < 1/8" (CFS FRAMING)
	70 KSI (MIN)	= TENSILE STRENGTH (Fxx) @ ALL OTHER THICKNESS

### DESIGN LOADING

<b>WIND:</b>	122 MPH	= STRENGTH LEVEL WIND SPEED
	95 MPH	= EQUIVALENT SERVICE LEVEL WIND SPEED
	IV	= RISK CATEGORY
	"C"	= EXPOSURE CATEGORY
	0.18	= INTERNAL PRESSURE COEFFICIENT

STRENGTH LEVEL C&C PRESSURE/SUCTION (MINIMUM = 16 PSF)								
ZONE	EFFECTIVE AREA (FT <sup>2</sup> )							
	10.0		50.0		100.0		200.0	
WALL 4	31.50	-34.13	28.26	-30.88	26.86	-29.49	25.47	-28.09
WALL 5	31.50	-42.00	28.26	-35.52	26.86	-32.73	25.47	-29.94

STRENGTH LEVEL LOADS MAY BE REDUCED TO 42% FOR THE PURPOSE OF DETERMINING DEFLECTION PER IBC 2018, TABLE 1604.3, NOTE F.

SERVICE LEVEL (D+.6W) C&C PRESSURE/SUCTION (MINIMUM = 9.6 PSF)								
ZONE	EFFECTIVE AREA (FT <sup>2</sup> )							
	10.0		50.0		100.0		200.0	
WALL 4	18.90	-20.48	16.96	-18.53	16.12	-17.69	15.28	-16.86
WALL 5	18.90	-25.20	16.96	-21.31	16.12	-19.64	15.28	-17.96

SERVICE LEVEL LOADS MAY BE REDUCED TO 70% FOR THE PURPOSE OF DETERMINING DEFLECTION PER IBC 2018, TABLE 1604.3, NOTE F.

<b>SEISMIC:</b>	IV	= RISK CATEGORY	S <sub>s</sub> = 0.101	S <sub>1</sub> = 0.069	I <sub>e</sub> = 1.50
	"D"	= SITE CLASS	S <sub>D5</sub> = 0.108	S <sub>D1</sub> = 0.110	
	"C"	= SEISMIC DESIGN CATEGORY			

<b>DEAD:</b>	50 PSF	= WALL DEAD LOAD BRICK VENEER	(46 PSF ACTUAL)
	10 PSF	= WALL DEAD LOAD EVERYWHERE ELSE	(6 PSF ACTUAL)
	10 PSF	= SOFFIT DEAD LOAD	(4 PSF ACTUAL)

### DEFLECTION LIMITS (BASED ON STUD PROPERTIES ALONE):

L / 600	WL	@ BRICK VENEER	(ASSUMED)
L / 360	WL	EVERYWHERE ELSE	(ASSUMED)
0.75 in.		SLIP GAP	(ASSUMED)

## SHEET INDEX

SHEET	SHEET TITLE	CONSTRUCTION SET
	CFS FRAMING DRAWING SUBMITTAL DATE:	NOV. 12, 2025
	ARCHITECTURAL CONTRACT DOCUMENTS DATED:	JUL. 30, 2025
	STRUCTURAL CONTRACT DOCUMENTS DATED:	JUN. 05, 2025
C1	COVER SHEET	●
C2	GENERAL INFORMATION	●
C3	FIELD REPAIR & FABRICATION INFORMATION	●
E1	ELEVATIONS	●
S1	WALL SECTIONS	●
S2	WALL SECTIONS	●
D1	CONNECTION DETAILS	●
D2	CONNECTION DETAILS	●

### PROJECT INFORMATION

PROJECT CONTRACTOR  
E & K OF KANSAS CITY, INC.  
4001 E 143RD STREET  
GRANDVIEW, MO 64030

COLD-FORMED STEEL SUBMITTAL FOR  
HCA LEES SUMMIT MEDICAL  
CENTER ED EXPANSION  
2100 SE BLUE PKWY • LEE'S SUMMIT, MO 64063

### PROJECT ENGINEER

OWEN SELLE  
owen.selle@excelengineer.com  
(920) 926-3282  
DRAWN BY: OLS

PROFESSIONAL SEAL



### SUBMITTAL DATES

ISSUE DATE NOV. 12, 2025

REVISIONS


### PROJECT NUMBER

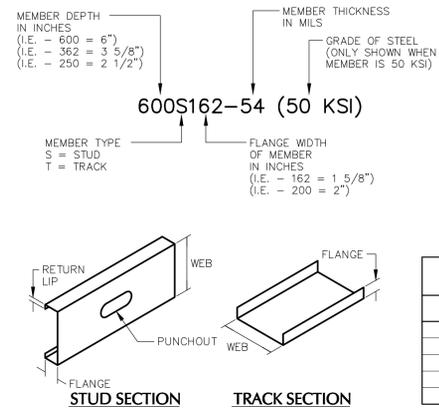
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### SHEET INFORMATION

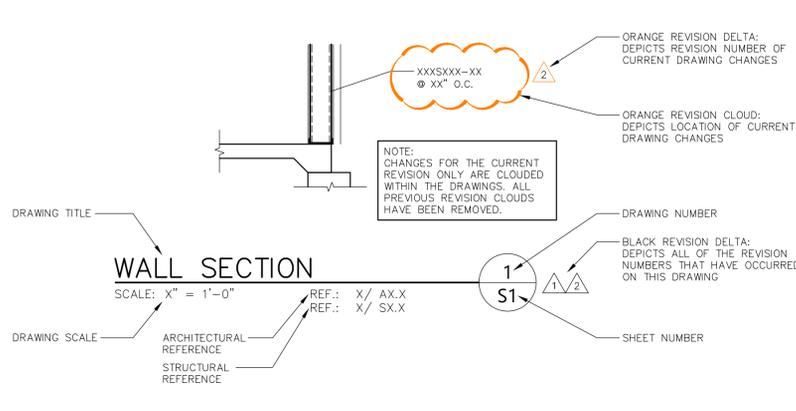
SHEET NUMBER

C1

# MEMBER DESIGNATION



# DRAWING INFORMATION



# ABBREVIATIONS

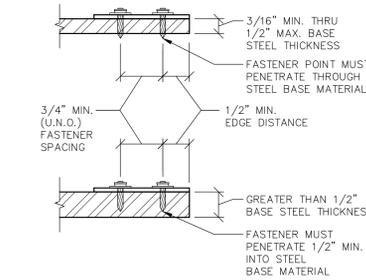
ABV ABOVE ARCHITECT/ ENGINEER	CONC. CONST. CONT. CONTRACTOR	CONCRETE CONTINUOUS CONTRACTOR CONNECTION	EQ. EXT. F.F. F.T. F.LR. FT. GA. G.C. G.P. HDR. H.P. HVAC	EQUAL EXTERIOR FINISH FLOOR FIRE TREATED FLOOR FOOT/FEET GAUGE GENERAL CONTRACTOR GYPSUM CYP. H.P. HIGH POINT HEATING, VENTILATING & AIR CONDITIONING INSULATED INTERIOR	MAX. MIN. MECH. MFR. MISCELLANEOUS MEZZ. N.I.C. NO. / # N.T.S. NOT IN CONTRACT ON CENTER ON CENTER OVERHEAD PLYWOOD PL. / PLYWOOD P.T. PLATE POST-TENSIONED ROUGH OPENING R.O. REQUIRED REQ'D. REV. RENF. REF.	S.D.S. SCHED. SEC. SHEET SIM. SPEC. STD. STRUC. SYS. TAB. T.O. TYP. U.N.O. VERT. V.S.C. VEST. W/ WITH W/O WITHOUT WD. WOOD WINDOW	SELF-DRILLING SCREW SCHEDULE SECTION SHEET SIMILAR SPECIFICATION STANDARD SYSTEM TOP & BOTTOM TOP OF TYPICAL TYPICAL VERTICAL VERTICAL SLIDE CLIP VESTIBULE WITH WITHOUT WOOD WINDOW
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# APPROVED FASTENERS

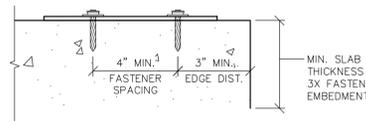
## POWER DRIVEN FASTENERS

- POWER DRIVEN FASTENER NOTES:**
- MUST BE INSTALLED PERPENDICULAR
  - MUST BE INSTALLED FULLY SEATED

- P.D.F. TO STEEL**  
(POINT OF P.D.F. TO PENETRATE STRUC. STEEL)
- 'HILTI' X-U (ICC ESR-2289)
  - 'RAMSEY' TE (ICC ESR-1799)
  - 'DEWALT' SPIRAL CSI (ICC ESR-2024)



- P.D.F. TO CONCRETE**  
(REFER TO DETAIL FOR REQUIRED LENGTH)
- 'HILTI' X-U OR X-P (ICC ESR-2289)
  - 'RAMSEY' TE (ICC ESR-1799)
  - 'DEWALT' SPIRAL CSI (ICC ESR-2024)
  - 'SIMPSON' PDPA (ICC ESR-2138)

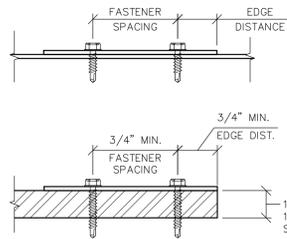


## SCREWS

- SCREW FASTENER NOTES:**
- MUST BE INSTALLED PERPENDICULAR
  - MUST BE INSTALLED FULLY SEATED
  - MIN. (3) SCREW THREADS EXPOSED BACKSIDE OF CONN. (U.N.O.)

SCREW	MIN. SHANK Ø ("D")	MIN. HEAD Ø	FASTENER SPACING	EDGE DISTANCE
#8	.164"	.335"	1/2"	1/4"
#10	.190"	.400"	5/8"	3/8"
#12	.216"	.415"	3/4"	3/8"
#14	.250"	.500"	3/4"	3/8"

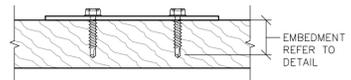
- SCREWS TO COLD FORMED STEEL**
- 'ITW BUILDEX' TEKS (ICC ESR-1976)
  - 'HILTI' SDS (ICC ESR-2196)
  - 'GRABBER' DRIVAL (ICC ESR-1271)
  - 'PRO-TWIST' DARTS (ICC ESR-1408)
  - 'INTERCORP' STRONG-POINT (ICC ESR-3028)
  - 'ELCO' DRILL-FLEX (ICC ESR-3332)



- SCREWS TO STRUCTURAL STEEL**
- 'ITW BUILDEX' TEKS (ICC ESR-1976)
  - 'HILTI' SDS (ICC ESR-2196)

DRILL POINT	#10 SCREW	#12 SCREW	#14 SCREW
#1	-	.024"-.095"	-
#2	.090"-.110"	.050"-.140"	.060"-.120"
#3	.110"-.175"	.090"-.210"	.110"-.250"
#4	-	.125"-.250"	.125"-.250"
#4.5	-	.145"-.375"	-
#5	-	.250"-.500"	.250"-.500"

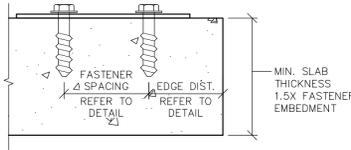
- METAL TO WOOD SCREWS**
- 'BUILDEX' TRUGRIP GT



## CONCRETE SCREW ANCHORS (MAY BE INDICATED AT CONCRETE OR CMU)

- CONCRETE SCREW ANCHOR FASTENER NOTES:**
- MUST BE INSTALLED PERPENDICULAR
  - MUST BE INSTALLED FLUSH
  - MUST FOLLOW MANUFACTURER INSTALLATION INSTRUCTIONS
  - SEE SPECIAL ANCHORAGE FOR TOP CONNECTION TO CONCRETE OVER METAL DECK AND CONNECTION TO CMU

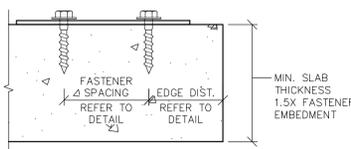
- CONCRETE SCREW ANCHORS**  
(REFER TO DETAIL FOR REQUIRED LENGTH)
- |                     | TO CONCRETE    | TO CMU         |
|---------------------|----------------|----------------|
| 'HILTI' KWIK HUS-EZ | (ICC ESR-3027) | (ICC ESR-3056) |
| 'SIMPSON' TITEN HD  | (ICC ESR-2713) | (ICC ESR-1056) |
| 'ITW' TAPCON+       | (ICC ESR-3699) | (ICC ESR-1671) |



## MASONRY SCREW ANCHORS (MAY BE INDICATED AT CONCRETE OR CMU)

- MASONRY SCREW ANCHOR FASTENER NOTES:**
- MUST BE INSTALLED PERPENDICULAR
  - MUST BE INSTALLED FLUSH
  - MUST FOLLOW MANUFACTURER INSTALLATION INSTRUCTIONS
  - SEE SPECIAL ANCHORAGE FOR TOP CONNECTION TO CONCRETE OVER METAL DECK AND CONNECTION TO CMU

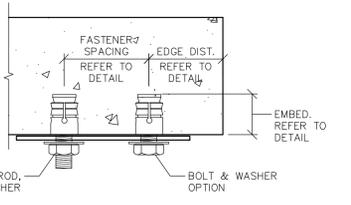
- MASONRY SCREW ANCHORS**  
(REFER TO DETAIL FOR REQUIRED LENGTH)
- |                       | TO CONCRETE    | TO CMU         |
|-----------------------|----------------|----------------|
| 'HILTI' KWIK-CON+     | (ICC ESR-2202) | (ICC ESR-1671) |
| 'ITW' TAPCON          | (ICC ESR-3068) | (ICC ESR-3196) |
| 'SIMPSON' TITEN TURBO | (UES ER-712)   | (UES ER-716)   |



## UNDERCUT ANCHORS

- UNDERCUT ANCHOR NOTES:**
- MUST BE INSTALLED PERPENDICULAR
  - MUST BE INSTALLED FLUSH
  - MUST FOLLOW MANUFACTURER INSTALLATION INSTR.
  - THREADED ROD OR BOLT: F1554 GR. 36 OR A36
  - NUT: ASTM A194 / A563 GRADE A (NOT REQ'D W/ BOLT)
  - WASHER: ASTM F436

- UNDERCUT ANCHORS TO CONCRETE**  
(REFER TO DETAIL FOR SIZE)
- 'DEWALT' MINI-UNDERCUT+ (ICC ESR-3912)

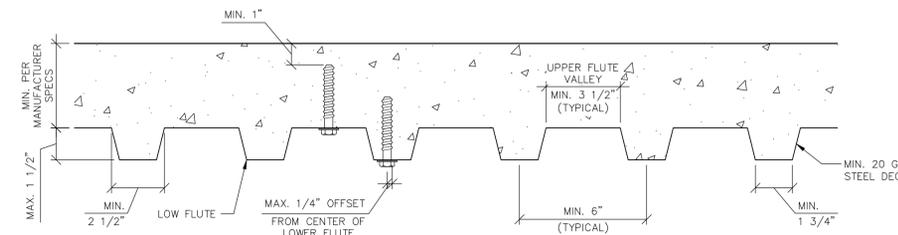
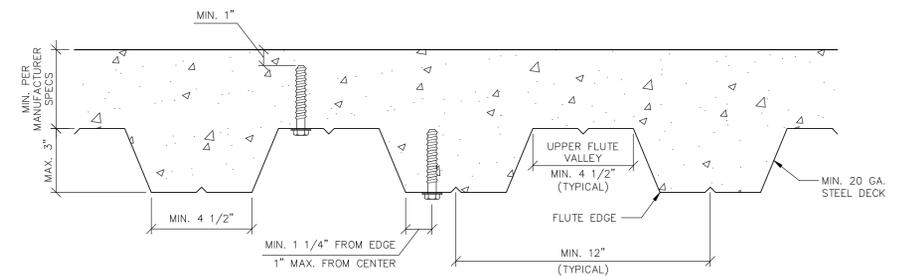


## WELD

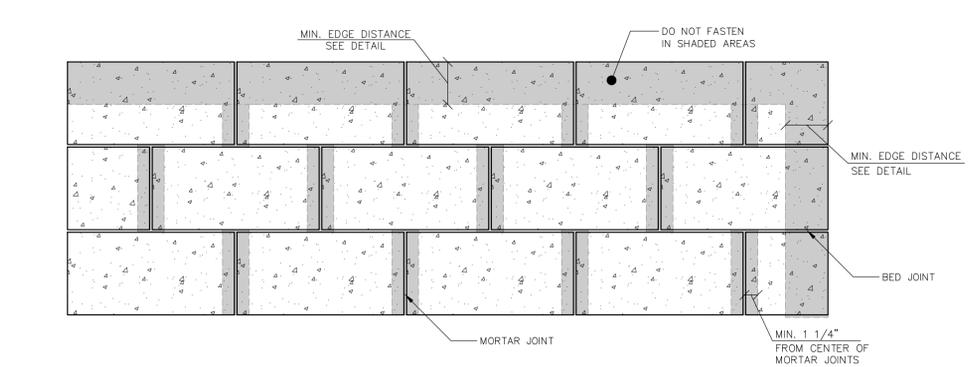
- WELD FASTENING NOTES:**
- TOUCH-UP ALL WELDS WITH ZINC-RICH PAINT (ASTM A-780)
  - BURN THRU IS NOT ALLOWED
  - WELD THICKNESS TO BE BASED ON THINNEST MATERIAL BEING WELDED
  - WELDING PERSONNEL SHALL BE CERTIFIED PER AWS D1.3 STANDARDS
  - WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D1.3

STEEL STUD THICKNESS	WELD THICKNESS (1)
33 MILS	NO WELDING
43 MILS	1/8"
54 MILS	1/8"
68 MILS	1/8"
97 MILS	5/32"

## SPECIAL ANCHORAGE - CONCRETE OVER METAL DECK



## SPECIAL ANCHORAGE - CONCRETE MASONRY UNITS (CMU)



**PROJECT INFORMATION**

PROJECT CONTRACTOR  
E & K OF KANSAS CITY, INC.  
4001 E 143RD STREET  
GRANDVIEW, MO 64030

COLD-FORMED STEEL SUBMITTAL FOR  
HCA LEES SUMMIT MEDICAL  
CENTER ED EXPANSION  
2100 SE BLUE PKWY • LEE'S SUMMIT, MO 64063



**SUBMITTAL DATES**

ISSUE DATE: NOV. 12, 2025

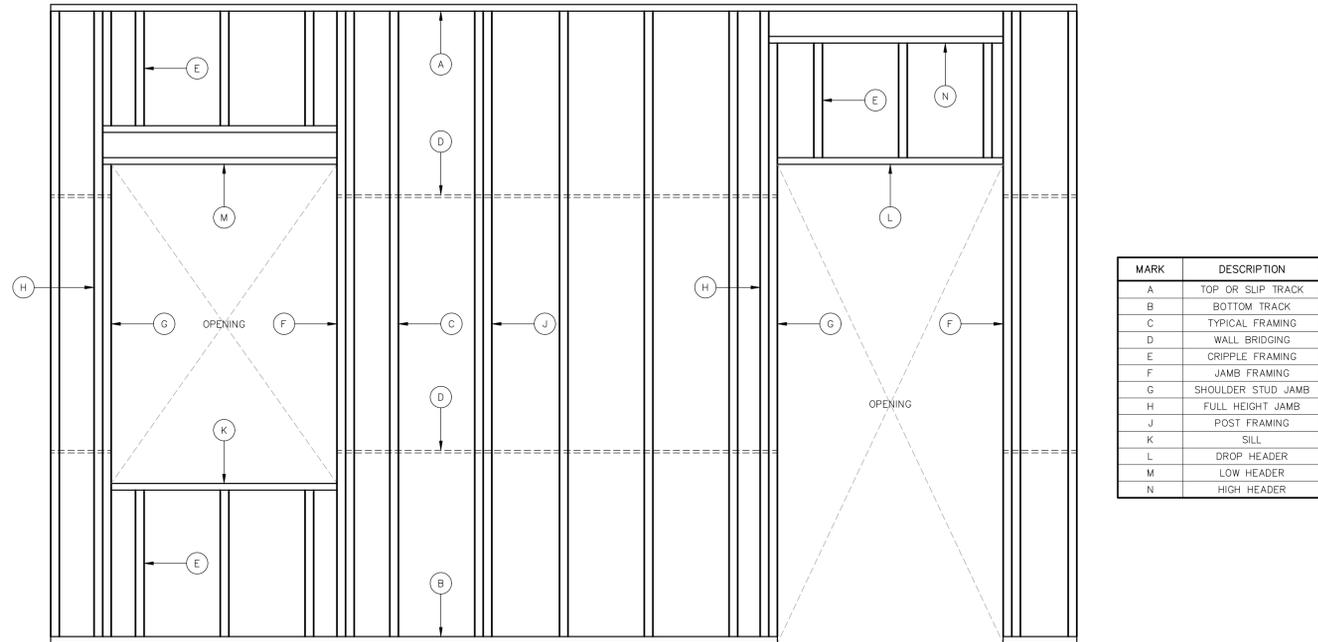
REVISIONS:

NO.	DESCRIPTION

**PROJECT NUMBER**  
250361200

**SHEET INFORMATION**  
SHEET NUMBER  
C2

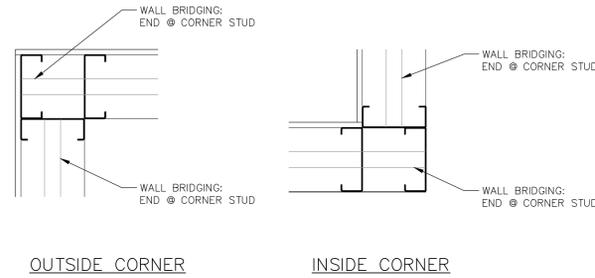
# TYPICAL FRAMING NOMENCLATURE



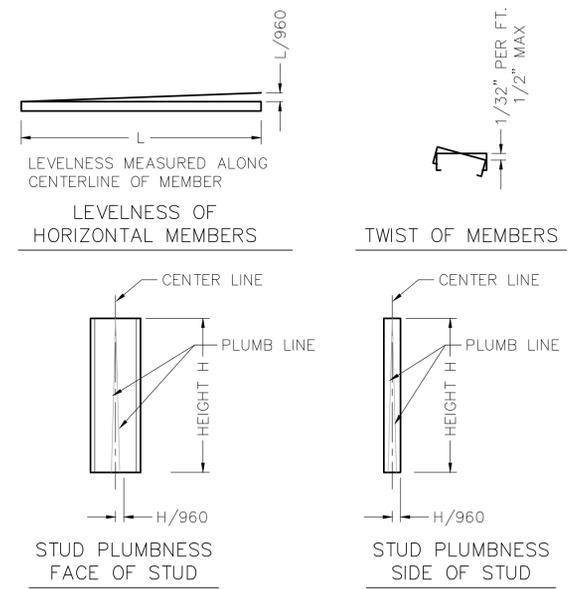
# GENERAL STUD INSTALLATION

## CORNER FRAMING

**CORNER CONSTRUCTION NOTES:**  
1.) PROVIDE (3) STUD CORNERS, TYP.



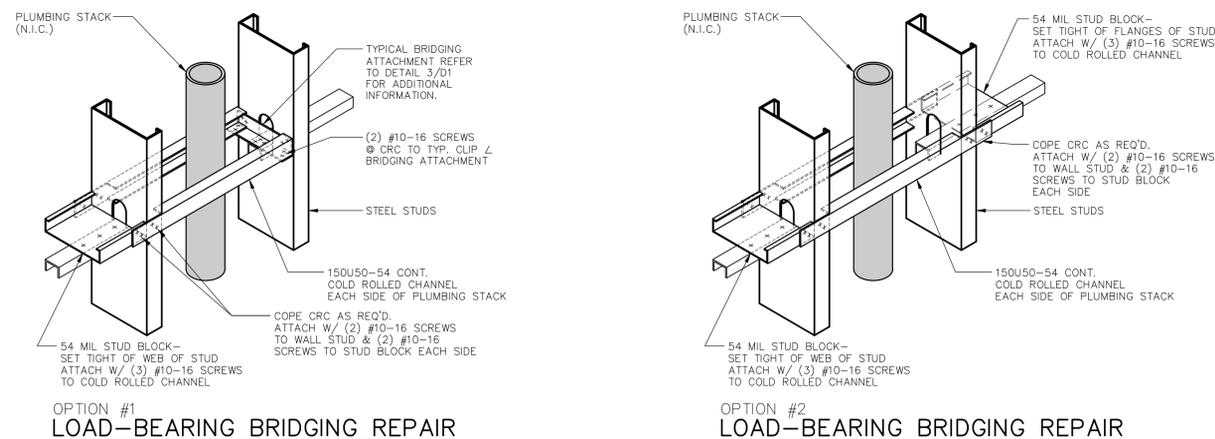
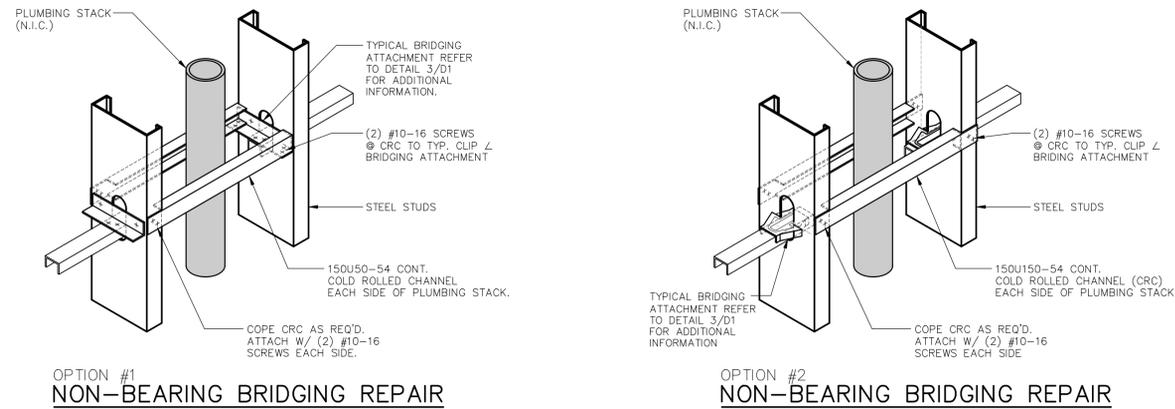
## BEARING, LEVELNESS, TWIST AND PLUMBNESS OF CFS FRAMING



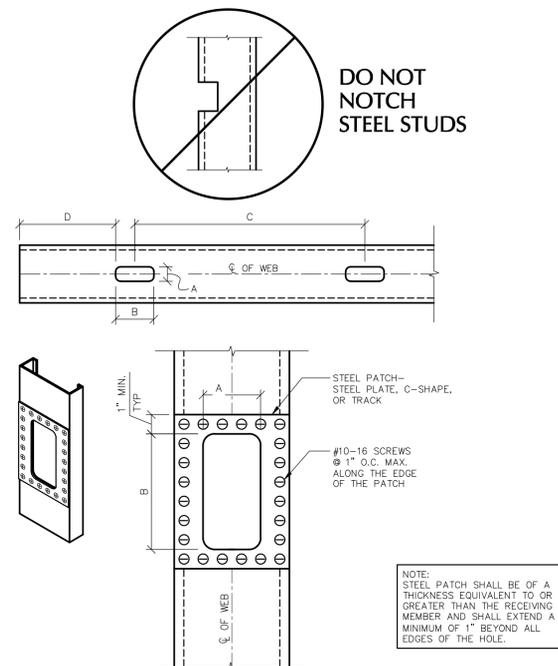
# FIELD REPAIRS

**G.C. NOTE:**  
C.F.S. FRAMING MEMBERS ARE STRUCTURAL AND SHOULD NOT BE DAMAGED. IF OTHER TRADES OR CONSTRUCTION ACTIVITIES RESULT IN DAMAGE TO C.F.S. FRAMING, THEN FIELD REPAIRS ARE NOT THE RESPONSIBILITY OF THE FRAMING CONTRACTOR. FIXES SHOWN ARE STRUCTURALLY REQUIRED AND ARE THE RESPONSIBILITY OF THE G.C. TO COORDINATE. FIELD FIXES THAT REQUIRE DETAILING AND/OR ANALYSIS WILL RESULT IN ADDITIONAL COSTS.

## CRC INTERRUPTION REPAIR



## HOLE REINFORCING



BEARING WALL FRAMING MAXIMUM HOLE SIZE W/O REINFORCING				
STUD SIZE	MAXIMUM HOLE DEPTH (A)	MAXIMUM HOLE LENGTH (B)	MINIMUM HOLE SPACING (C)	MINIMUM HOLE CLEAR EDGE DISTANCE (D)
3 5/8" STUD	1 1/2"	4 1/2"	24"	10"
6" STUD	1 1/2"	4 1/2"	24"	10"
8" STUD	1 1/2"	4 1/2"	24"	10"
10" STUD	1 1/2"	4 1/2"	24"	10"
12" STUD	1 1/2"	4 1/2"	24"	10"

\* BEARING WALLS ARE NOT ALLOWED TO HAVE HOLE REINFORCING W/O CONTACTING EXCEL ENGINEERING

ROOF/ FLOOR/ NON-BEARING WALL FRAMING MAXIMUM HOLE SIZE W/O REINFORCING				
STUD/JOIST SIZE	MAXIMUM HOLE DEPTH (A)	MAXIMUM HOLE LENGTH (B)	MINIMUM HOLE SPACING (C)	MINIMUM HOLE CLEAR EDGE DISTANCE (D)
3 5/8" STUD	1 1/2"	4 1/2"	24"	10"
6" STUD	2 1/2"	4 1/2"	24"	10"
8" STUD	2 1/2"	4 1/2"	24"	10"
10" STUD	2 1/2"	4 1/2"	24"	10"
12" STUD	2 1/2"	4 1/2"	24"	10"

ROOF/ FLOOR/ NON-BEARING WALL FRAMING MAXIMUM HOLE SIZE W/ REINFORCING				
STUD/JOIST SIZE	MAXIMUM HOLE DEPTH (A)	MAXIMUM HOLE LENGTH (B)	MINIMUM HOLE SPACING (C)	MINIMUM HOLE CLEAR EDGE DISTANCE (D)
3 5/8" STUD	2 3/8"	4 1/2"	24"	10"
6" STUD	3 7/8"	4 1/2"	24"	10"
8" STUD	5 3/16"	5 3/16"	24"	10"
10" STUD	6 1/2"	6 1/2"	24"	10"
12" STUD	7 3/4"	7 3/4"	24"	10"

\* HOLE REQUIRED TO BE WITHIN THE CENTER 40% OF THE MEMBER SPAN.

### PROJECT INFORMATION

**PROJECT CONTRACTOR**  
E & K OF KANSAS CITY, INC.  
4001 E 143RD STREET  
GRANDVIEW, MO 64030

**COLD-FORMED STEEL SUBMITTAL FOR**  
**HCA LEES SUMMIT MEDICAL**  
**CENTER ED EXPANSION**  
2100 SE BLUE PKWY • LEE'S SUMMIT, MO 64063

### PROJECT ENGINEER

**OWEN SELLE**  
owen.selle@excelengineer.com  
(920) 926-3282  
DRAWN BY: OLS

PROFESSIONAL SEAL



### SUBMITTAL DATES

ISSUE DATE **NOV. 12, 2025**

REVISIONS

NO.	DATE	DESCRIPTION

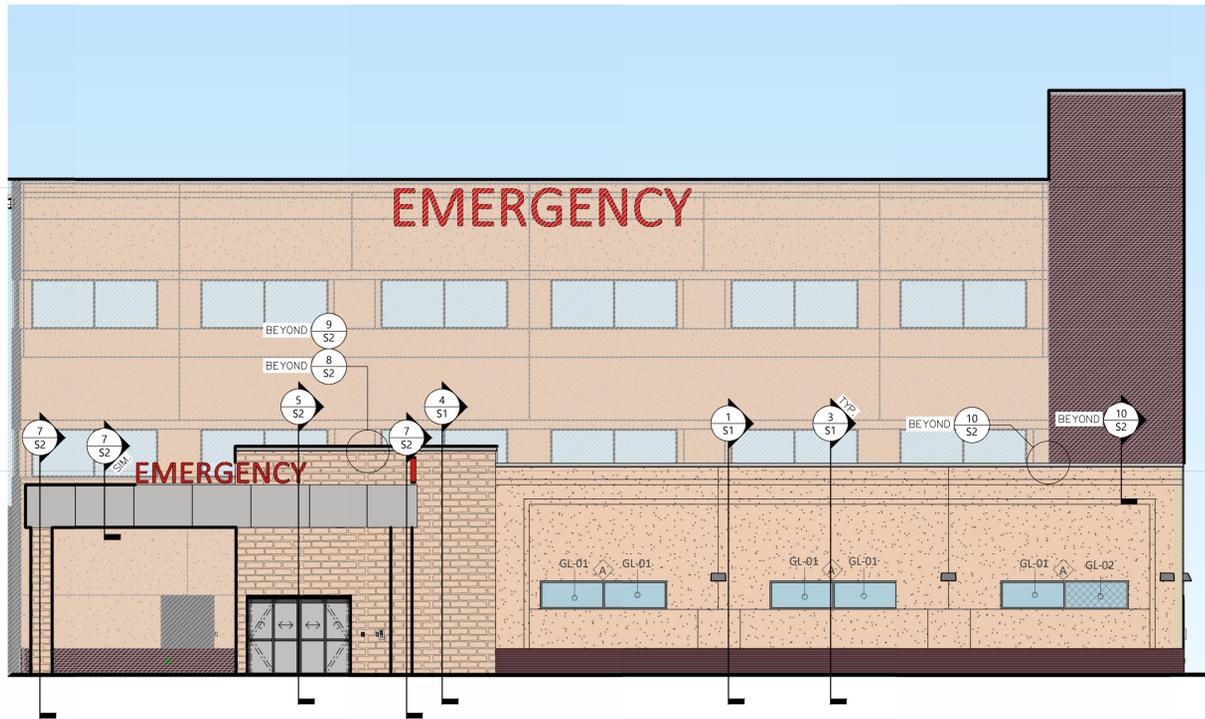
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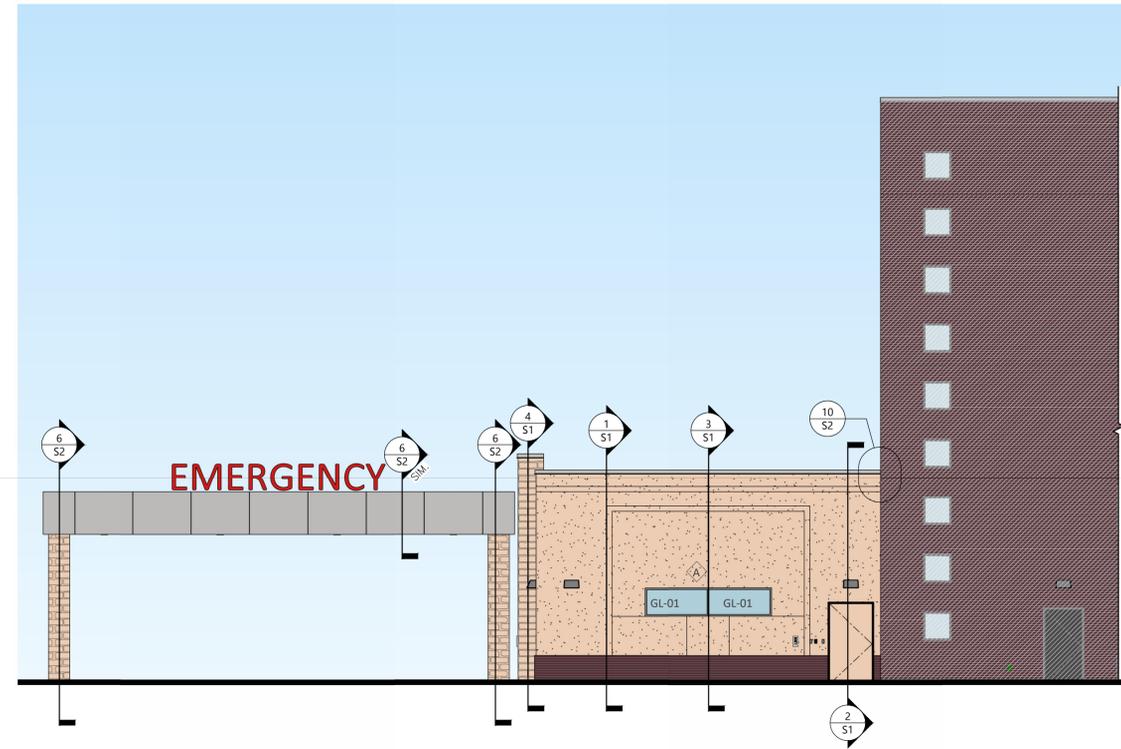
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SHEET NUMBER

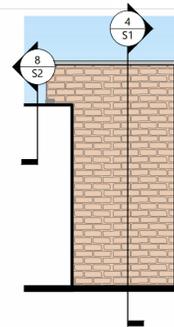
**C3**



**SOUTH ELEVATION** 1  
 SCALE: N.T.S. REF.: 1/ AE201 E1

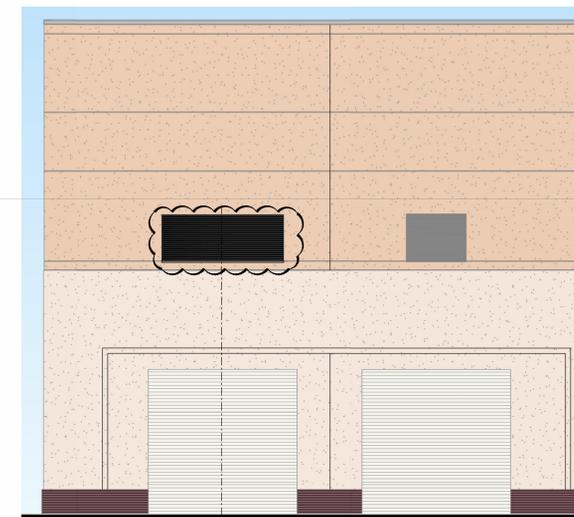


**EAST ELEVATION** 2  
 SCALE: N.T.S. REF.: 2/ AE201 E1



**WEST ELEVATION** 4  
 SCALE: N.T.S. REF.: 3/ AE201 E1

ARCH. / ENGINEER:  
 PLEASE PROVIDE INFORMATION ON  
 EXISTING WALL FRAMING AROUND  
 NEW LOUVER IN ORDER FOR NEW  
 FRAMING TO BE DESIGNED.



**AMBULANCE GARAGE  
 NORTH ELEVATION** 3  
 SCALE: N.T.S. REF.: 4/ AE201 E1

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**SUBMITTAL DATES**

ISSUE DATE NOV. 12, 2025

REVISIONS

**PROJECT NUMBER**

250361200

**SHEET INFORMATION**

SHEET NUMBER

E1

**PROJECT INFORMATION**

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E & K OF KANSAS CITY, INC.  
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GRANDVIEW, MO 64030

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**SUBMITTAL DATES**

ISSUE DATE **NOV. 12, 2025**

REVISIONS

NO.	DESCRIPTION

**PROJECT NUMBER**

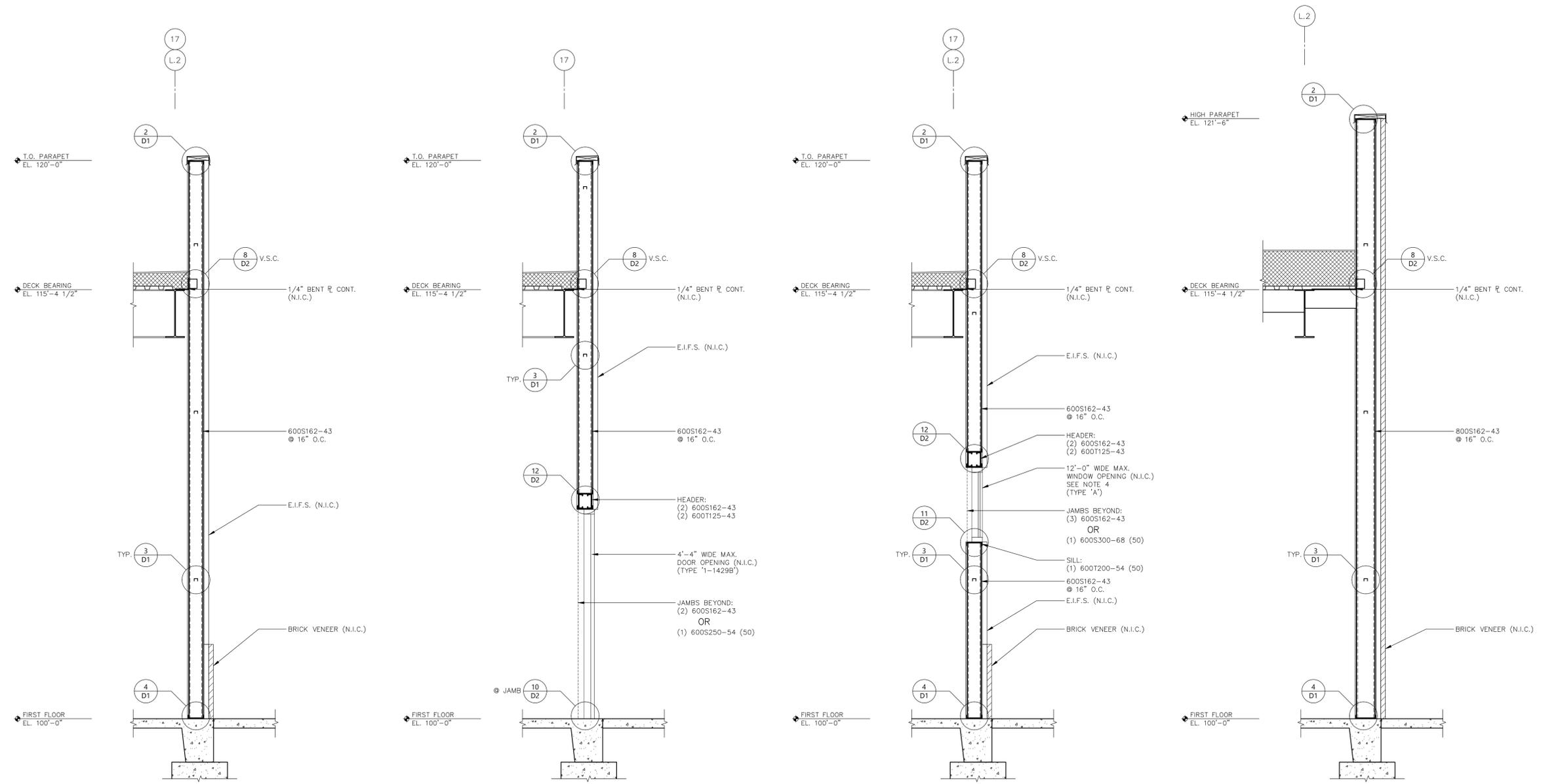
250361200

**SHEET INFORMATION**

SHEET NUMBER

**S1**

- SECTION NOTES:**
- ALL TRACK TO BE 1 1/4" FLANGE x 43 MIL, U.N.O.
  - REFER TO SHEET C2 FOR APPROVED FASTENERS (P.D.F.'s, SCREWS, CONCRETE ANCHORS, ETC.)
  - DIMENSIONS & ELEVATIONS ON EXCEL SHOP DRAWINGS ARE FOR REFERENCE ONLY. REFERENCE ARCHITECTURAL & STRUCTURAL.
  - GLAZING SYSTEM:**
    - CURTAINWALLS ARE ASSUMED TO SPAN VERTICALLY WITH LOAD TRANSFER THROUGH THE VERTICAL MULLIONS. STUD FRAMING HAS BEEN DESIGNED UTILIZING CALCULATED MULLION LOADS PER PROJECT DESIGN CRITERIA. PROVIDE JAMB STUDS IN ACCORDANCE WITH STANDARD CONSTRUCTION PRACTICE.
    - STOREFRONTS ARE ASSUMED TO SPAN VERTICALLY WITH LOAD TRANSFER THROUGH ANY INTERNAL VERTICAL MULLIONS. STOREFRONTS ARE ALSO ASSUMED TO BE ATTACHED ALONG THE LENGTH OF OUTSIDE VERTICAL MULLIONS.
    - WINDOWS HAVE BEEN DESIGNED ASSUMING TRIBUTARY LOAD DISTRIBUTION TO HEADER, SILL & JAMB ELEMENTS.
  - BRICK/MASONRY/STONE (B.M.S.):**
    - B.M.S. VENEER IS ASSUMED TO CONNECT UNIFORMLY TO ALL STUDS FOR LATERAL SUPPORT.
    - B.M.S. VENEER WEIGHT IS ASSUMED TO BE SUPPORTED INDEPENDENT OF THE COLD FORMED STEEL FRAMING (U.N.O.)
    - "\*" INDICATES CONNECTION DESIGNED TO SUPPORT B.M.S. VENEER WEIGHT.
    - ALL COLD FORMED STEEL FRAMING HAS BEEN DESIGNED FOR WALL CONSTRUCTION DEAD LOADS INCLUDING THE WEIGHT OF ANY ADHERED B.M.S. VENEER (U.N.O.)
  - METAL PANEL:**
    - METAL PANEL IS ASSUMED TO CONNECT UNIFORMLY TO ALL STUDS.
    - METAL PANEL IS ASSUMED TO ISOLATE STUDS FROM ANY THERMAL MOVEMENT OF THE METAL PANEL.
    - GC TO CONFIRM AND COORDINATE METAL PANEL ITEMS INCLUDING MINIMUM STUD THICKNESS REQUIREMENTS WITH METAL PANEL MANUFACTURER.
    - STUDS HAVE BEEN VALUE ENGINEERED PER PROJECT DESIGN CRITERIA.
  - TO PROVIDE FOR VERTICAL MOVEMENT (PER PROJECT SPECIFICATIONS) A DEFLECTION HEAD BY WINDOW MANUFACTURER WILL BE REQUIRED WHERE NOTED.
  - PROJECT ENGINEER TO VERIFY ALL CONNECTION LOCATIONS TO STRUCTURE. (SPECIFICALLY BEAM BOTTOM FLANGE SUPPORTS, IF DETAILED)
  - ALL HEADER & SILL MEMBERS MUST SPAN ENTIRE LENGTH OF OPENING W/O SPLICES.
  - SECTION SPECIES USED IN THIS SUBMITTAL ARE THOSE PUBLISHED BY SSMA/ SFA/ CSEA.

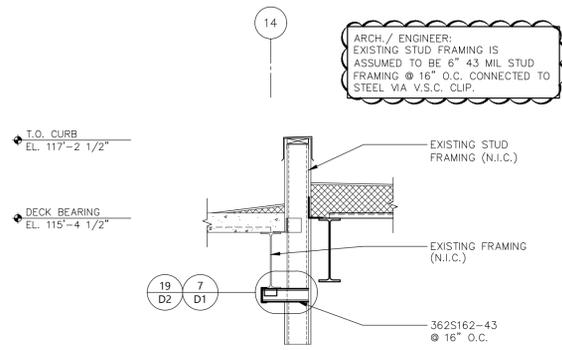


**WALL SECTION**  
SCALE: 1/2" = 1'-0"  
REF.: 2/ AE311 (ARCH)  
REF.: 3/ S201 (FDN)  
REF.: 10/ S301 (STR)

**DOOR SECTION**  
SCALE: 1/2" = 1'-0"  
SIM.: 2/ AE311 (ARCH)  
REF.: 3/ S201 (FDN)  
REF.: 10/ S301 (STR)

**WINDOW SECTION**  
SCALE: 1/2" = 1'-0"  
REF.: 1/ AE311 (ARCH)  
REF.: 3/ S201 (FDN)  
REF.: 10/ S301 (STR)

**WALL SECTION**  
SCALE: 1/2" = 1'-0"  
SIM.: 3/ AE311 (ARCH)  
REF.: 3/ S201 (FDN)  
REF.: 10/ S301 (STR)

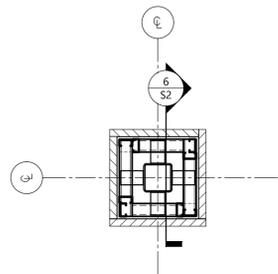


**EXISTING STUDS CURB SECTION**

SCALE: 1/2" = 1'-0"

REF.: 5/ AE532 (ARCH)  
REF.: 12/ S301 (STR)

**8**  
S2

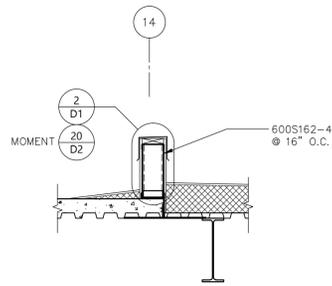


**COLUMN WRAP SECTION**

SCALE: 1/2" = 1'-0"

REF.: 9/ AE450 (ARCH)

**A**  
S2

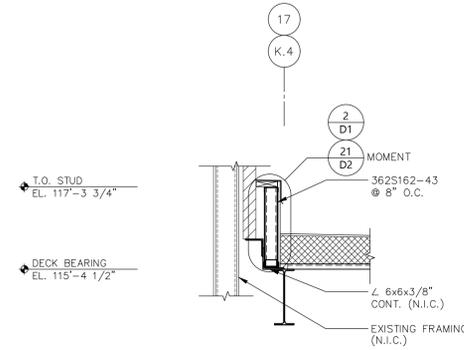


**CURB SECTION**

SCALE: 1/2" = 1'-0"

REF.: 5/ AE532 (ARCH)  
REF.: 12/ S301 (STR)

**9**  
S2

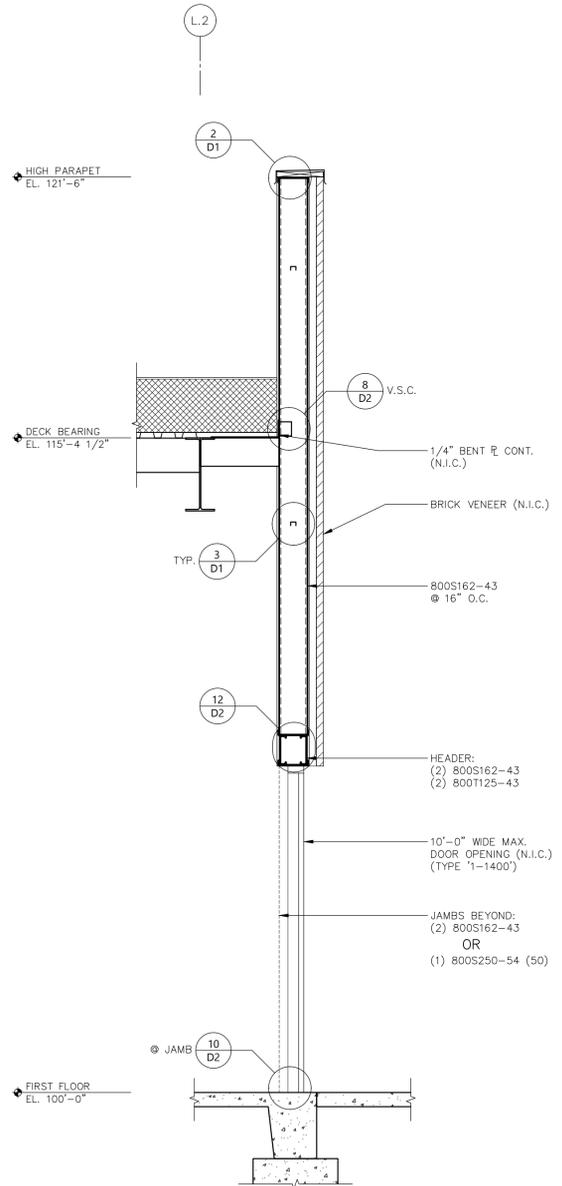


**ROOF SECTION**

SCALE: 1/2" = 1'-0"

REF.: 6/ AE531 (ARCH)  
REF.: 17/ S301 (STR)

**10**  
S2

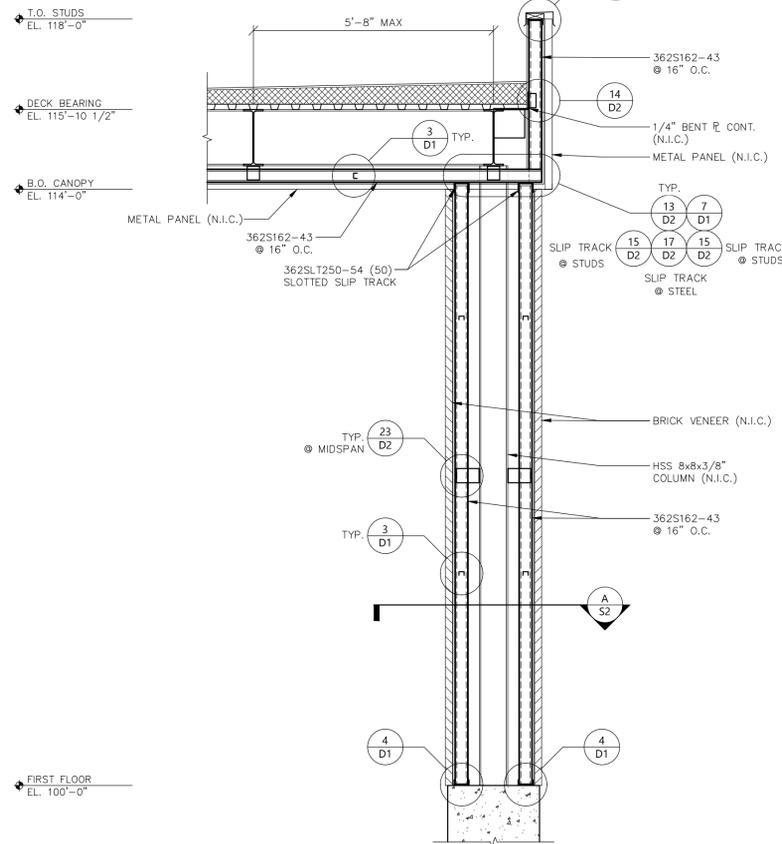


**WALL SECTION**

SCALE: 1/2" = 1'-0"

REF.: 3/ AE311 (ARCH)  
REF.: 3/ S201 (FDN)  
REF.: 10/ S301 (STR)

**5**  
S2

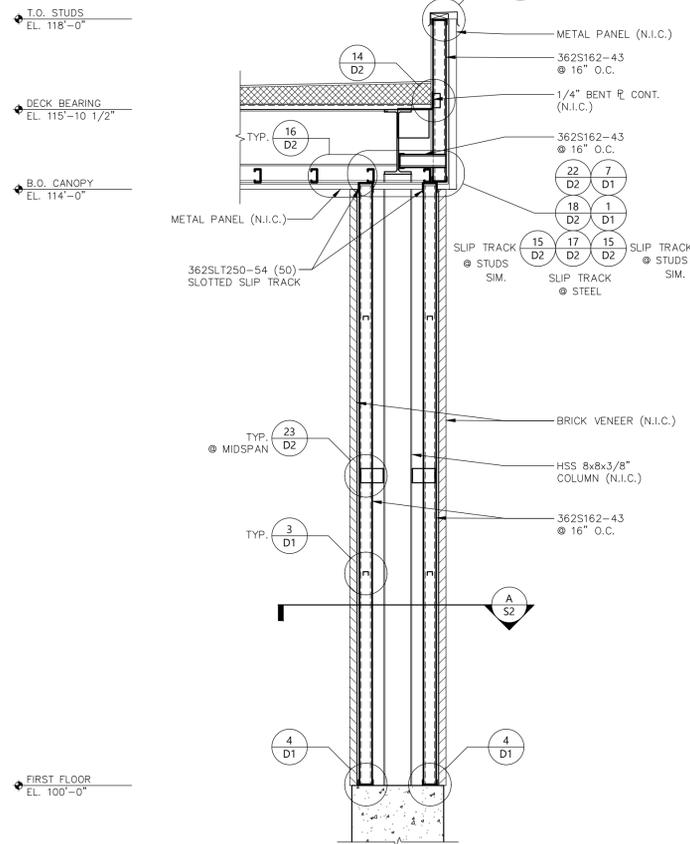


**CANOPY SECTION**

SCALE: 1/2" = 1'-0"

REF.: 6/ AE450 (ARCH)  
REF.: 12/ S201 (FDN)  
REF.: 10/ S301 (STR)

**6**  
S2



**CANOPY SECTION**

SCALE: 1/2" = 1'-0"

REF.: 6/ AE450 (ARCH)  
REF.: 12/ S201 (FDN)  
REF.: 10/ S301 (STR)

**7**  
S2

- SECTION NOTES:**
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  - 3) DIMENSIONS & ELEVATIONS ON EXCEL SHOP DRAWINGS ARE FOR REFERENCE ONLY. REFERENCE ARCHITECTURAL & STRUCTURAL.
  - 4) **GLAZING SYSTEM:**
    - A. CURTAINWALLS ARE ASSUMED TO SPAN VERTICALLY WITH LOAD TRANSFER THROUGH THE VERTICAL MULLIONS. STUD FRAMING HAS BEEN DESIGNED UTILIZING CALCULATED MULLION LOADS PER PROJECT DESIGN CRITERIA. PROVIDE JAMB STUDS IN ACCORDANCE WITH STANDARD CONSTRUCTION PRACTICE.
    - B. STOREFRONTS ARE ASSUMED TO SPAN VERTICALLY WITH LOAD TRANSFER THROUGH ANY INTERNAL VERTICAL MULLIONS. STOREFRONTS ARE ALSO ASSUMED TO BE ATTACHED ALONG THE LENGTH OF OUTSIDE VERTICAL MULLIONS.
    - C. WINDOWS HAVE BEEN DESIGNED ASSUMING TRIBUTARY LOAD DISTRIBUTION TO HEADER, SILL & JAMB ELEMENTS.
  - 5) **BRICK/MASONRY/STONE (B.M.S.):**
    - A. B.M.S. VENEER IS ASSUMED TO BE SUPPORTED UNIFORMLY TO ALL STUDS FOR LATERAL SUPPORT.
    - B. B.M.S. VENEER WEIGHT IS ASSUMED TO BE SUPPORTED INDEPENDENT OF THE COLD FORMED STEEL FRAMING (U.N.O.)
    - C. "\*" INDICATES CONNECTION DESIGNED TO SUPPORT B.M.S. VENEER WEIGHT.
    - D. ALL COLD FORMED STEEL FRAMING HAS BEEN DESIGNED FOR WALL CONSTRUCTION DEAD LOADS INCLUDING THE WEIGHT OF ANY ADHERED B.M.S. VENEER (U.N.O.)
  - 6) **METAL PANEL:**
    - A. METAL PANEL IS ASSUMED TO CONNECT UNIFORMLY TO ALL STUDS.
    - B. METAL PANEL IS ASSUMED TO ISOLATE STUDS FROM ANY THERMAL MOVEMENT OF THE METAL PANEL.
    - C. GC TO CONFIRM AND COORDINATE METAL PANEL ITEMS INCLUDING MINIMUM STUD THICKNESS REQUIREMENTS WITH METAL PANEL MANUFACTURER.
    - D. STUDS HAVE BEEN VALUE ENGINEERED PER PROJECT DESIGN CRITERIA.
  - 7) TO PROVIDE FOR VERTICAL MOVEMENT (PER PROJECT SPECIFICATIONS) A DEFLECTION HEAD BY WINDOW MANUFACTURER WILL BE REQUIRED WHERE NOTED.
  - 8) PROJECT ENGINEER TO VERIFY ALL CONNECTION LOCATIONS TO STRUCTURE. (SPECIFICALLY BEAM BOTTOM FLANGE SUPPORTS, IF DETAILED)
  - 9) ALL HEADER & SILL MEMBERS MUST SPAN ENTIRE LENGTH OF OPENING W/O SPLICES.
  - 10) SECTION PROPERTIES USED IN THIS SUBMITTAL ARE THOSE PUBLISHED BY SSMA/ SFA/ CSSA.

**EXCEL**  
ARCHITECTS • ENGINEERS • SURVEYORS  
Always a Better Plan  
100 CAMELOT DRIVE  
FOND DU LAC, WI 54935  
PHONE: (920) 926-9800  
WWW.EXCELENGINEER.COM

**PROJECT INFORMATION**

PROJECT CONTRACTOR  
E & K OF KANSAS CITY, INC.  
4001 E 143RD STREET  
GRANDVIEW, MO 64030

COLD-FORMED STEEL SUBMITTAL FOR  
**HCA LEES SUMMIT MEDICAL CENTER ED EXPANSION**  
2100 SE BLUE PKWY • LEE'S SUMMIT, MO 64063

**PROJECT ENGINEER**

OWEN SELLE  
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(920) 926-3282  
DRAWN BY: OLS

PROFESSIONAL SEAL

**SUBMITTAL DATES**

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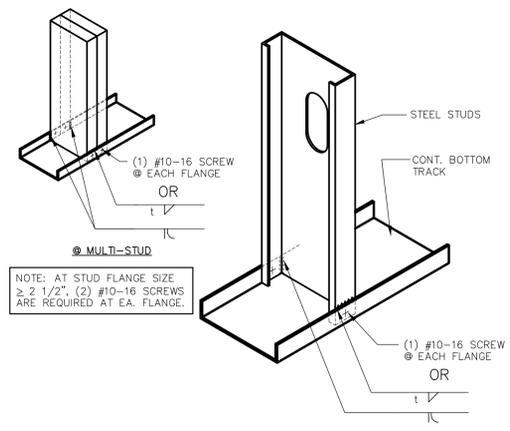
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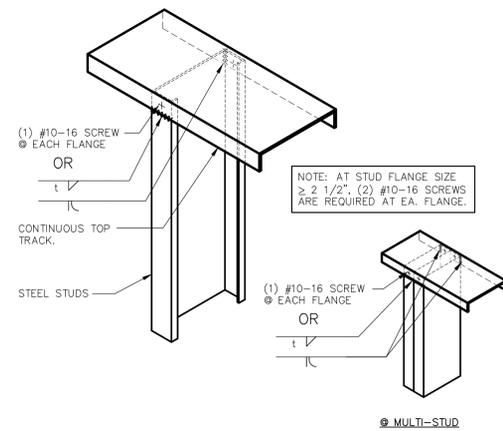
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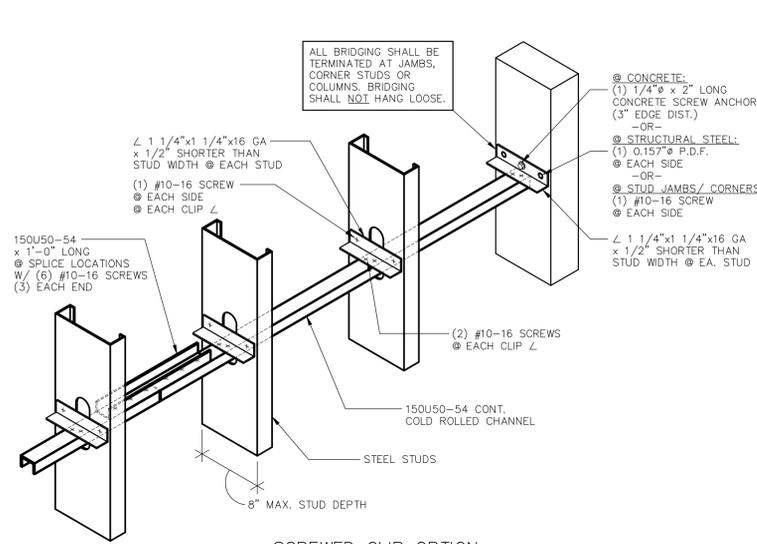
**S2**



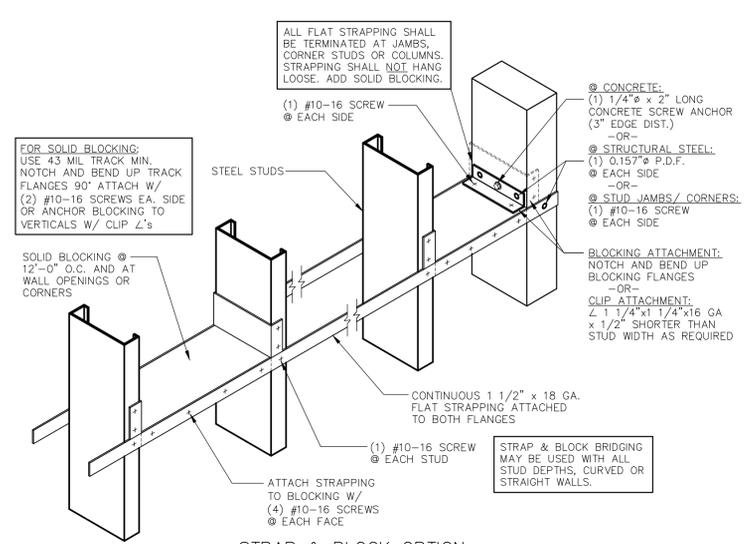
STUD TO TRACK CONNECTION 1 D1



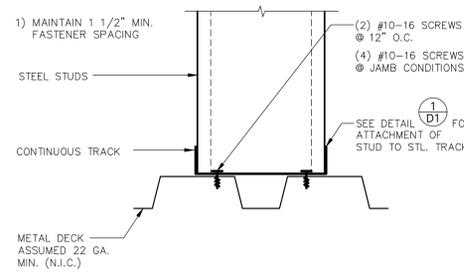
STUD TO TRACK CONNECTION 2 D1



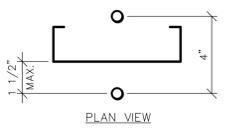
SCREWED CLIP OPTION



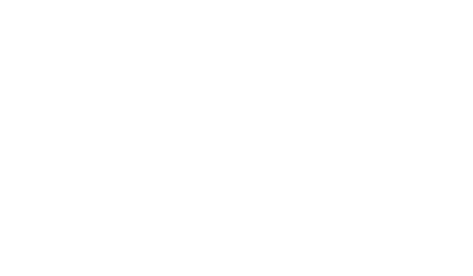
STRAP & BLOCK OPTION



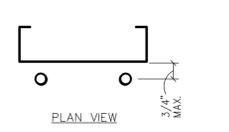
BASE DETAIL @ METAL DECK



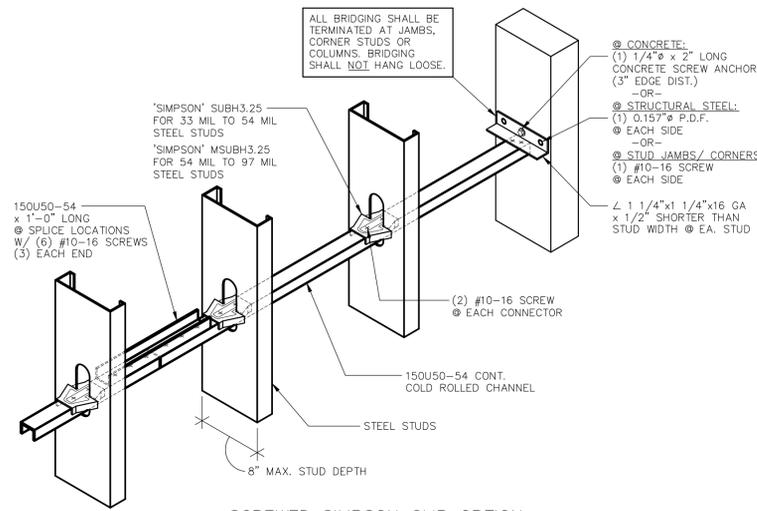
PLAN VIEW



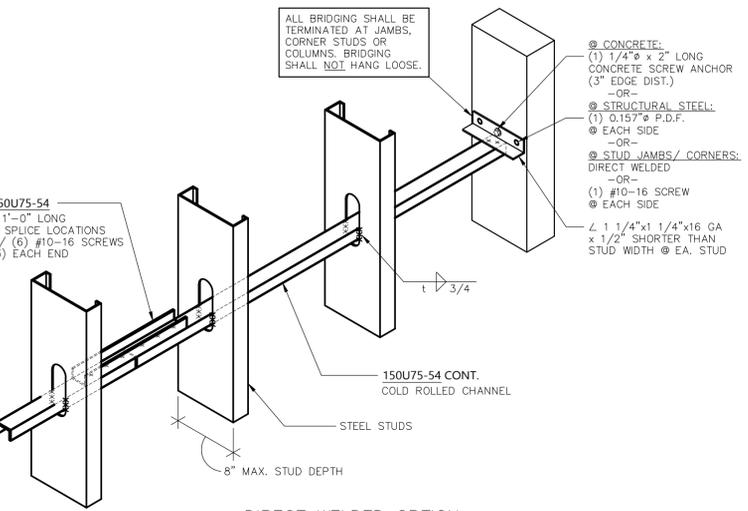
BASE DETAIL @ STRUCTURAL STEEL



PLAN VIEW



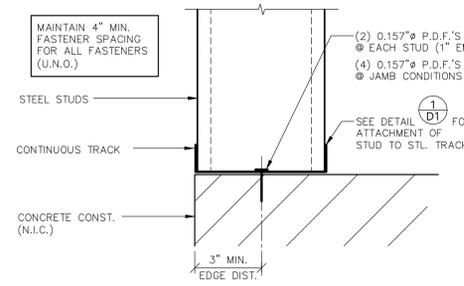
SCREWED SIMPSON CLIP OPTION



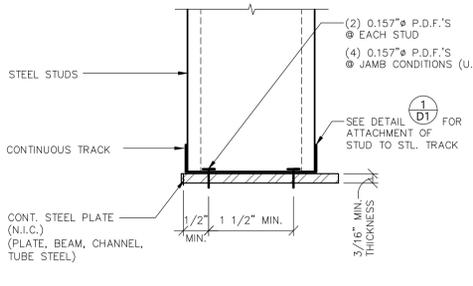
DIRECT WELDED OPTION

ALL BRIDGING VERTICAL SPACING @ 72" O.C. MAX. (U.N.O.)

BRIDGING ATTACHMENT OPTIONS 3 D1

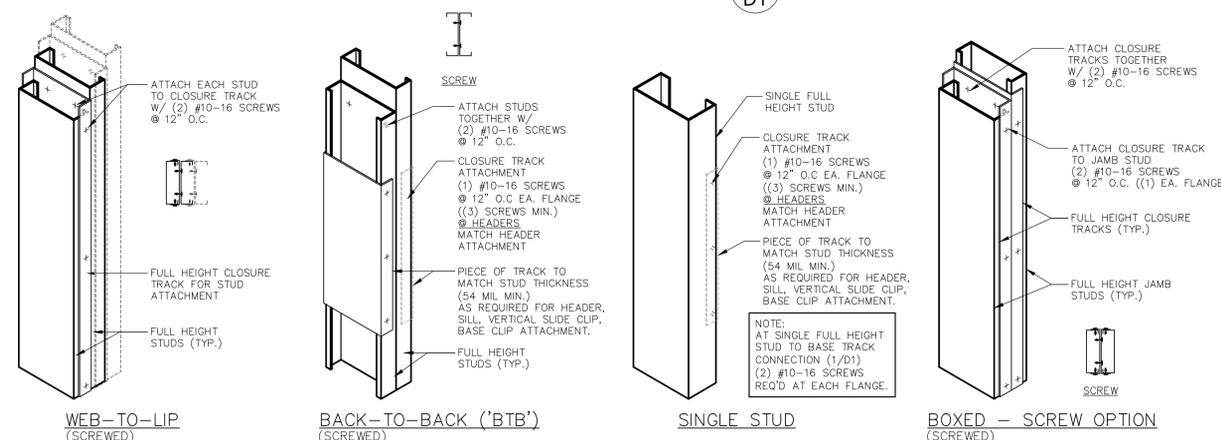


BASE DETAIL @ CONCRETE

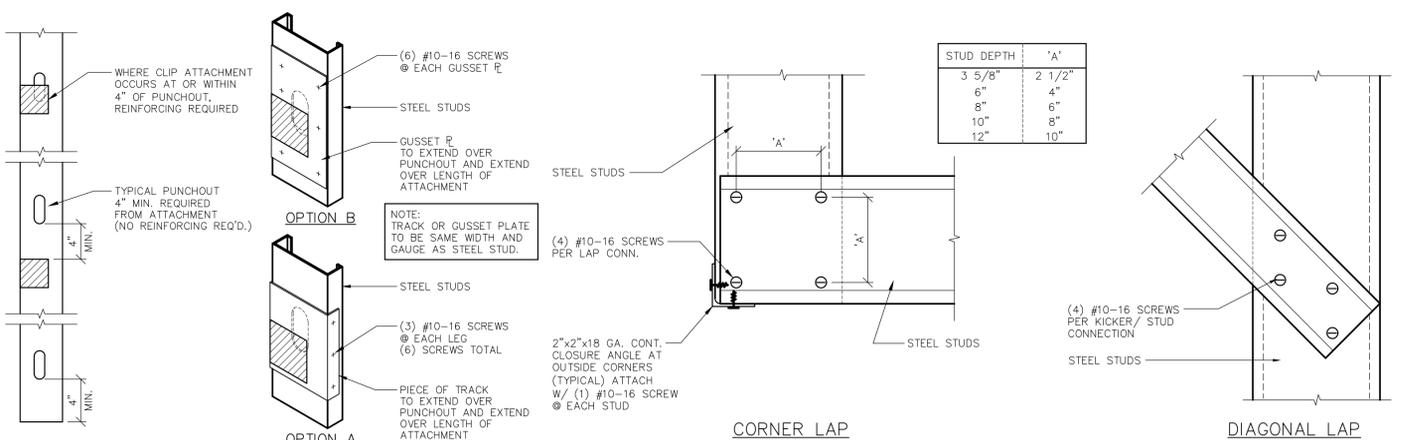


BASE DETAIL @ STRUCTURAL STEEL

TYPICAL BASE DETAILS 4 D1



STUD CONFIGURATION 5 D1



PUNCHOUT REINFORCING 6 D1

LAP CONNECTIONS 7 D1

PROJECT INFORMATION

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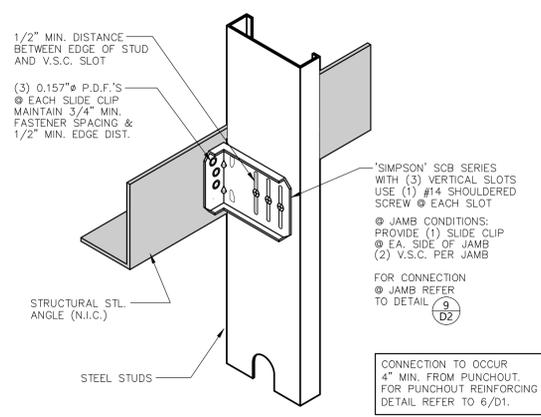
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250361200

SHEET INFORMATION

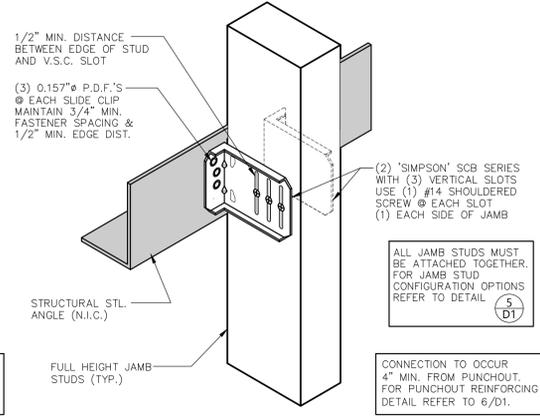
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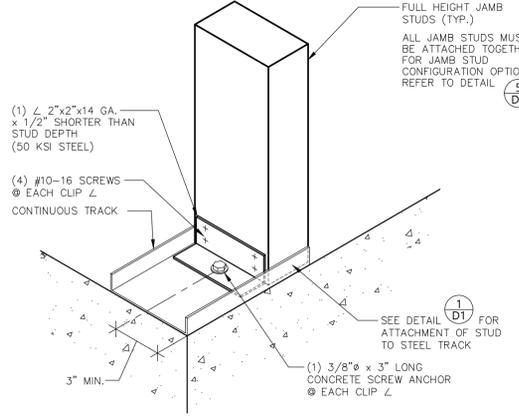
**V.S.C. DETAIL**  
V.S.C. = VERTICAL SLIDE CLIP  
INSTALL PER MFG. SPECIFICATIONS

8  
D2



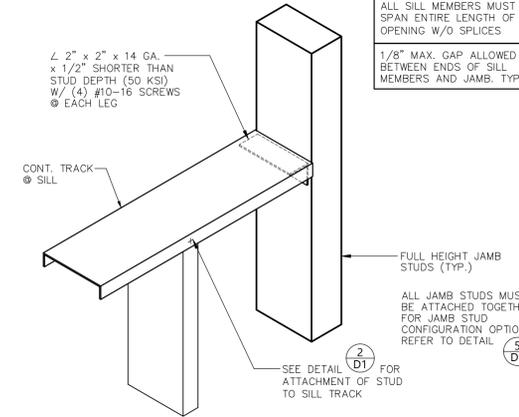
**V.S.C. DETAIL @ JAMB**  
V.S.C. = VERTICAL SLIDE CLIP  
INSTALL PER MFG. SPECIFICATIONS

9  
D2



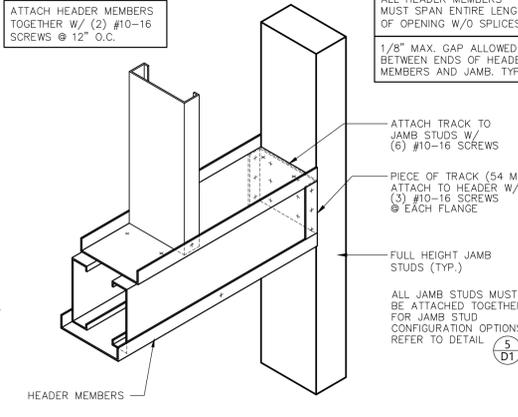
**JAMB BASE DETAIL**

10  
D2



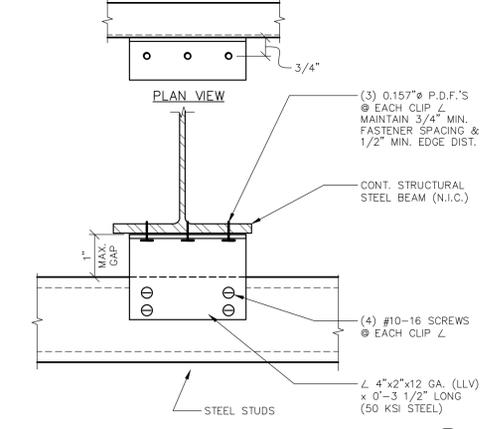
**SILL - JAMB DETAIL**

11  
D2



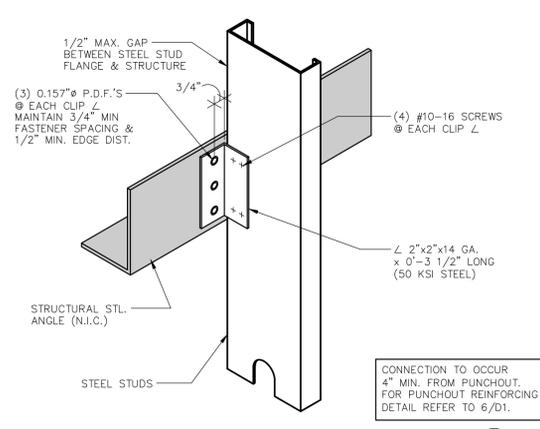
**HEADER - JAMB DETAIL**

12  
D2



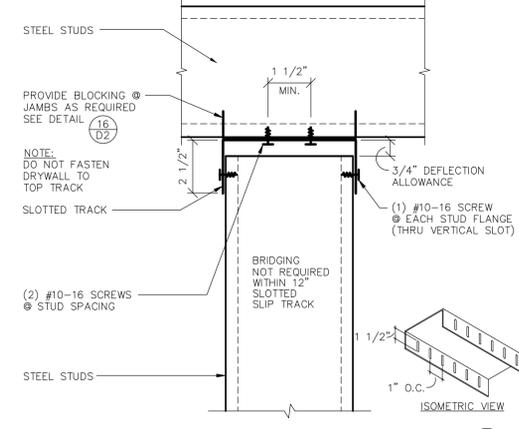
**CONNECTION DETAIL**

13  
D2



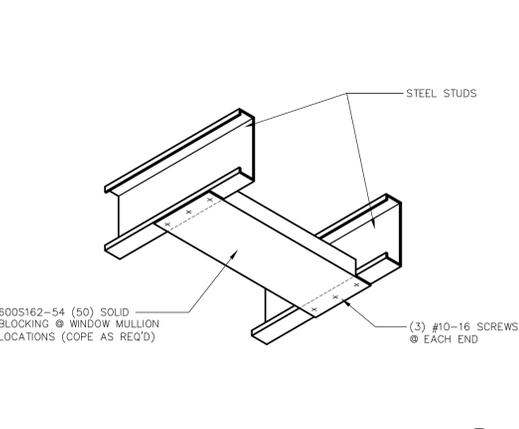
**CONNECTION DETAIL**

14  
D2



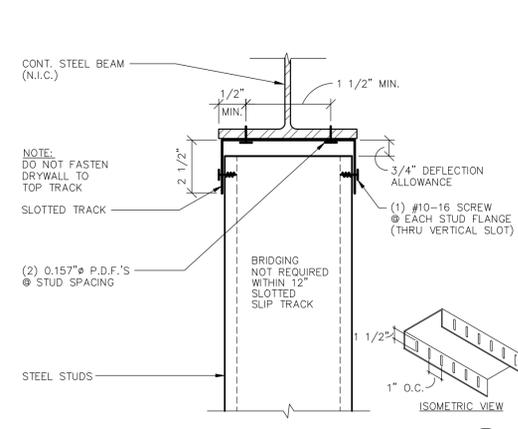
**SLOTTED TRACK TO METAL STUD**

15  
D2



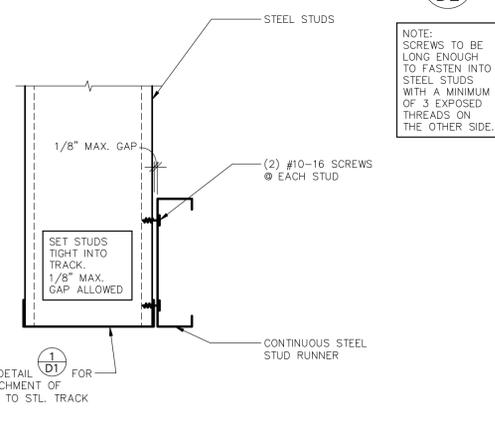
**BLOCKING DETAIL**

16  
D2



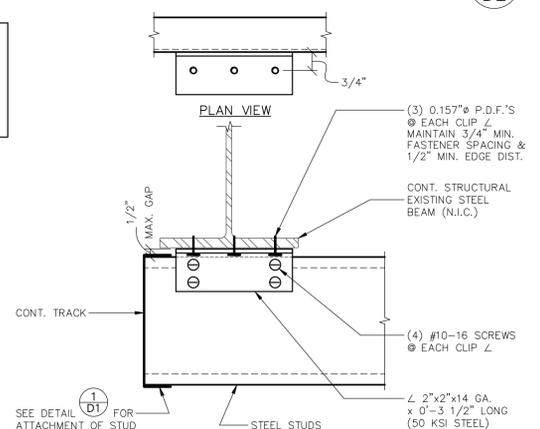
**SLOTTED TRACK TO STEEL BEAM**

17  
D2



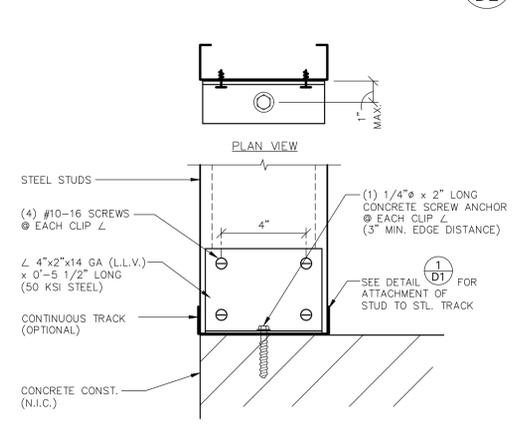
**STUD TO STUD DETAIL**

18  
D2



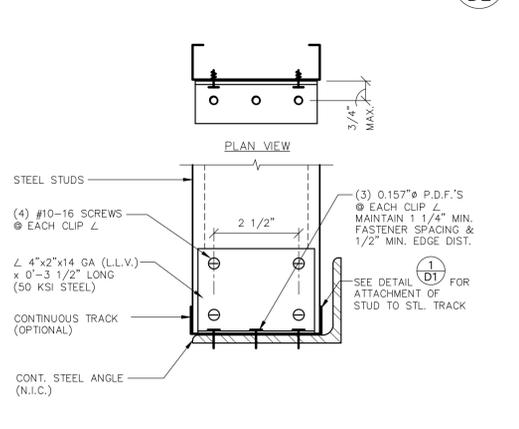
**CONNECTION DETAIL**

19  
D2



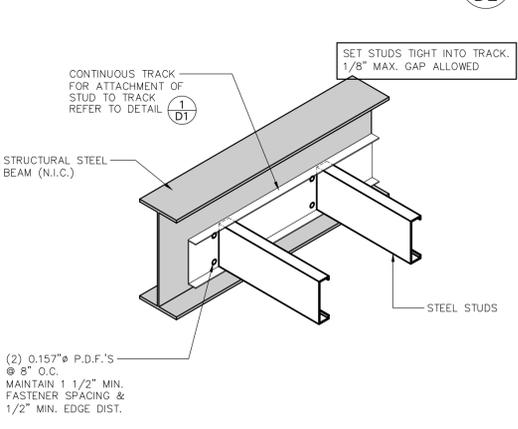
**BASE DETAIL @ CONCRETE**  
MOMENT BASE CONNECTION

20  
D2



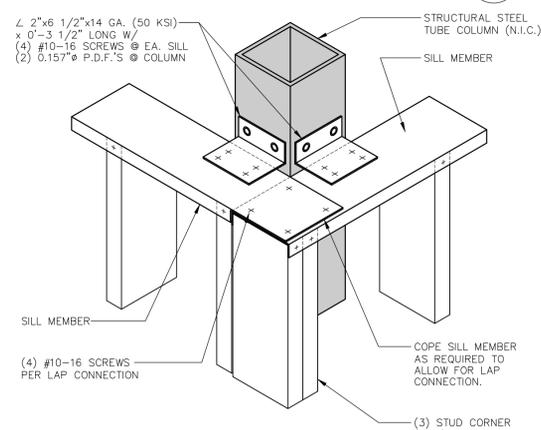
**BASE DETAIL @ STEEL ANGLE**  
MOMENT BASE CONNECTION

21  
D2



**CONNECTION DETAIL**

22  
D2



**SILL - COLUMN DETAIL**

23  
D2

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**PROJECT INFORMATION**  
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4001 E 143RD STREET  
GRANDVIEW, MO 64030

COLD-FORMED STEEL SUBMITTAL FOR  
**HCA LEES SUMMIT MEDICAL  
CENTER ED EXPANSION**  
2100 SE BLUE PKWY • LEE'S SUMMIT, MO 64063

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NUMBER  
PS-2000170060  
PROFESSIONAL ENGINEER

**SUBMITTAL DATES**

ISSUE DATE	NOV. 12, 2025
REVISIONS	

**PROJECT NUMBER**  
250361200

**SHEET INFORMATION**  
SHEET NUMBER  
D2

STRUCTURAL CALCULATIONS  
COLD-FORMED STEEL FRAMING  
PROJECT 250361200

# HCA Lees Summit Medical Center Ed Expansion

Lee's Summit, MO

INITIAL SUBMITTAL - NOV 12, 2025

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	P: 920 926 9800 F: 920 926 9801	CLIENT: E&K of Kansas City, Inc.	DATE: 11/11/2025
	www.excelengineer.com	PROJECT #: 250361200	ENGR: OLS

## GENERAL NOTES

1. EXCEL ENGINEERING IS ACTING AS A SPECIALTY STRUCTURAL COMPONENT ENGINEER, DESIGNING THE COLD-FORMED STEEL FRAMING OF THE PROJECT ONLY. EXCEL ENGINEERING TAKES FULL RESPONSIBILITY FOR THE DESIGN OF THE STRUCTURAL COLD-FORMED STEEL FRAMING AND THEIR ATTACHMENT TO THE SUPPORTING STRUCTURAL ELEMENTS OF THE BUILDING. EXCEL ENGINEERING TAKES NO RESPONSIBILITY FOR THE DESIGN OF ANY SUPPORTING STRUCTURAL ELEMENTS. IT IS ASSUMED THAT ALL SUPPORTING STRUCTURAL ELEMENTS HAVE BEEN DESIGNED BY THE PROJECT ENGINEER OF RECORD (EOR) AND/OR ARCHITECT OF RECORD (AOR) TO WITHSTAND THE FORCES IMPOSED BY THE STRUCTURAL COLD-FORMED STEEL FRAMING. EXCEL ENGINEERING EXPECTS THAT THIS COMPONENT SUBMITTAL WILL BE REVIEWED BY THE EOR AND/OR AOR FOR CONFORMANCE WITH THE OVERALL PROJECT REQUIREMENTS.
2. SECTION PROPERTIES ARE ASSUMED TO BE IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" 2016 EDITION WITH SUPPLEMENTS. THE CONTRACTOR IS TO VERIFY THAT THE MATERIALS INSTALLED MEET OR EXCEED THESE DESIGN VALUES.
3. ALL COLD-FORMED STEEL FRAMING HAS BEEN DESIGNED FOR UNIFORM LATERAL LOADS AND WALL CONSTRUCTION DEAD LOADS ONLY. THE WEIGHT OF ANY MASONRY VENEER IS ASSUMED TO BE SUPPORTED INDEPENDENT OF THE COLD-FORMED STEEL FRAMING, U.N.O. THE COLD-FORMED STEEL FRAMING HAS BEEN DESIGNED TO Laterally support any masonry veneer.
4. ALLOWABLE STRESS HAS NOT BEEN INCREASED DUE TO WIND. HOWEVER, THE STRENGTH LEVEL WIND LOAD HAS BEEN REDUCED TO 42% (70% FOR SERVICE LEVEL) FOR THE PURPOSE OF DETERMINING DEFLECTION PER IBC 2018, TABLE 1604.3, NOTE F.
5. THE CONTENTS OF THIS SUBMITTAL SHOW THE APPLICATION OF COLD-FORMED STEEL FRAMING COMPONENTS. THE FRAMING CONTRACTOR IS TO REFER TO THE PROJECT CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
6. DIMENSIONS SHOWN HEREIN ARE FOR ENGINEERING PURPOSES **ONLY** AND MUST BE REVIEWED FOR THE PURPOSE OF APPROVAL. ALL CONDITIONS ARE SUBJECT TO SUCH APPROVAL, AND TO FIELD VERIFICATION PRIOR TO FABRICATION OR ERECTION.
7. MECHANICAL BRIDGING SHALL BE USED IN ALL CASES WHERE INDICATED. INSTALLATION OF BRIDGING MUST BE COMPLETED BEFORE ANY LOADS ARE APPLIED TO THE SYSTEM. ALL BRIDGING SHALL BE TERMINATED AT JAMBS, CORNER STUDS OR COLUMNS. BRIDGING ENDS SHALL **NOT** HANG LOOSE. STUDS SHALL BE BRACED AGAINST ROTATION.
8. FOR SPECIFIC REQUIREMENTS AND WARRANTY INFORMATION ON SYSTEMS OR MATERIALS CONNECTED AND APPURTENANT TO THE COLD-FORMED STEEL FRAMING INCLUDING CLADDING, SHEATHING, ROOFING, WINDOWS, DOORS, CAULKING AND FLASHING, REFER TO THE MANUFACTURERS' DATA. THIS SUBMITTAL ASSUMES NO RESPONSIBILITY FOR THE PROPER CONSTRUCTION OR FUNCTION OF THE TOTAL ARCHITECTURAL ASSEMBLY. THE COORDINATION OF ARCHITECTURAL AND/OR STRUCTURAL BUILDING COMPONENTS IS NOT UNDER THE SCOPE OF THIS SUBMITTAL OR CONTRACT.
9. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS. STUD ENDS MUST SEAT TIGHTLY INTO TRACKS IN ALL BEARING APPLICATIONS.
10. NO SPLICES IN STUDS, JOISTS, HEADERS, OR OTHER LOAD CARRYING MEMBERS MAY BE MADE WITHOUT PRIOR ENGINEERING REVIEW AND SPECIFIC DETAILS FOR ANY SUCH REVISION TO THE ORIGINAL DESIGN.
11. THIS SUBMITTAL DOES **NOT** TAKE PRECEDENCE OVER THE CONTRACT DOCUMENTS WITH REGARD TO MINIMUM KSI, THICKNESS, DEPTH, FLANGE WIDTH, OR SPACING, UNLESS APPROVED BY THE EOR AND/OR AOR.
12. THE CONNECTOR VALUES USED IN THIS SUBMITTAL ARE FROM PUBLISHED MANUFACTURER SPECIFICATIONS (VALUES ENCLOSED). ALL SCREW AND WELD VALUES ARE BASED ON THE 2016 AISI NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS WITH SUPPLEMENTS. WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D1.3-08. THE CONTRACTOR SHALL CONFIRM WITH THE MANUFACTURER THAT THE CONNECTORS THEY INTEND TO USE MEET OR EXCEED THE DESIGN VALUES REQUIRED.
13. THE CONTRACTOR IS RESPONSIBLE TO NOT OVERLOAD MEMBERS DURING CONSTRUCTION OR ERECTION AND TO SUPPLY ADEQUATE TEMPORARY BRACING UNTIL PERMANENT BRIDGING PROVIDING STABILITY TO BOTH FLANGES IS IN PLACE.
14. TOUCH-UP ALL WELDS WITH ZINC-RICH PAINT (ASTM A-780). APPLY TO BOTH SIDES OF STUD.
15. FUTURE EXPANSION HAS **NOT** BEEN CONSIDERED AS PART OF THE DESIGN OF THIS PROJECT.
16. THE CONTRACTOR IS CAUTIONED AS TO NOT STORE ANY CONSTRUCTION MATERIALS OR UNDERTAKE ANY CONSTRUCTION OPERATION WHICH WILL EXCEED THE DESIGN LIVE LOAD CAPACITIES NOTED.



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 PROJECT #: 250361200

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## DESIGN CRITERIA

### GOVERNING CODES

2018 "INTERNATIONAL BUILDING CODE"	IBC 2018
2016 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"	ASCE 7-16
2016 "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS"	AISI S100-16
2015 "CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING"	AISI S202-15
2008 "STRUCTURAL WELDING CODE - SHEET STEEL"	AWS D1.3-08
2014 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"	ACI 318-14

### DESIGN STRESSES

CONCRETE	4000 PSI = COMPRESSIVE STRENGTH ( $f'_c$ )
STRUCTURAL STEEL	36 KSI (MIN) = YIELD STRESS ( $F_y$ ) - ASTM A-36: ALL SHAPES U.N.O.
COLD-FORMED STEEL FRAMING	33 KSI (MIN) = YIELD STRESS ( $F_y$ ) - A1003 U.N.O.
WELD ELECTRODES	60 KSI (MIN) = TENSILE STRENGTH ( $F_{xx}$ ) @ THICKNESS < 1/8" (CFS FRAMING)
	70 KSI (MIN) = TENSILE STRENGTH ( $F_{xx}$ ) @ ALL OTHER THICKNESS

### DESIGN LOADING

**WIND:**

122 MPH	= STRENGTH LEVEL WIND SPEED
95 MPH	= EQUIVALENT SERVICE LEVEL WIND SPEED
IV	= RISK CATEGORY
"C"	= EXPOSURE CATEGORY
0.18	= INTERNAL PRESSURE COEFFICIENT

STRENGTH LEVEL C&C PRESSURE/SUCTION (MINIMUM = 16 PSF)									
ZONE	EFFECTIVE AREA (FT <sup>2</sup> )								
	10.0		50.0		100.0		200.0		
WALL 4	31.50	-34.13	28.26	-30.88	26.86	-29.49	25.47	-28.09	
WALL 5	31.50	-42.00	28.26	-35.52	26.86	-32.73	25.47	-29.94	

STRENGTH LEVEL LOADS MAY BE REDUCED TO 42% FOR THE PURPOSE OF DETERMINING DEFLECTION PER IBC 2018, TABLE 1604.3, NOTE F.

SERVICE LEVEL (D+.6W) C&C PRESSURE/SUCTION (MINIMUM = 9.6 PSF)									
ZONE	EFFECTIVE AREA (FT <sup>2</sup> )								
	10.0		50.0		100.0		200.0		
WALL 4	18.90	-20.48	16.96	-18.53	16.12	-17.69	15.28	-16.86	
WALL 5	18.90	-25.20	16.96	-21.31	16.12	-19.64	15.28	-17.96	

SERVICE LEVEL LOADS MAY BE REDUCED TO 70% FOR THE PURPOSE OF DETERMINING DEFLECTION PER IBC 2018, TABLE 1604.3, NOTE F.

**SEISMIC:**

IV	= RISK CATEGORY	$S_s = 0.101$	$S_1 = 0.069$	$I_E = 1.50$
"D"	= SITE CLASS	$S_{DS} = 0.108$	$S_{D1} = 0.110$	
"C"	= SEISMIC DESIGN CATEGORY			

**DEAD:**

50 PSF	= WALL DEAD LOAD BRICK VENEER	(46 PSF ACTUAL)
10 PSF	= WALL DEAD LOAD EVERYWHERE ELSE	(6 PSF ACTUAL)
10 PSF	= SOFFIT DEAD LOAD	(4 PSF ACTUAL)

### DEFLECTION LIMITS (BASED ON STUD PROPERTIES ALONE):

L / 600	WL @ BRICK VENEER	(ASSUMED)
L / 360	WL EVERYWHERE ELSE	(ASSUMED)
0.75 in.	SLIP GAP	(ASSUMED)



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**DESIGN WIND LOAD COEFFICIENTS:**

ASCE 7-16

BASIC WIND SPEED (3-SECOND GUST) =	<b>122.0</b>	MPH	V	FIGURE 26.5-1
EXPOSURE CATEGORY =	<b>C</b>			26.7.3
BUILDING DIMENSION (GABLE) =	<b>380.70</b>	FT		
BUILDING DIMENSION (EAVE) =	<b>501.00</b>	FT		
JOIST SUPPORT HEIGHT =	<b>19.86</b>	FT	hj	
JOIST SPACING =	<b>0.00</b>	FT	s	
PARAPET HEIGHT =	<b>0.00</b>	FT	hp	
ROOF PITCH =	<b>0.00</b>	/12	r	
BUILDING STYLE =	<b>ENCLOSED</b>			26.2
TOPOGRAPHIC TYPE =	<b>NONE</b>			26.2
HEIGHT OF TOPOGRAPHIC RELATIVE TO UPWIND TERRAIN =	<b>0.00</b>	FT	H	FIGURE 26.8-1
UPWIND DISTANCE TO DIFFERENCE IN ELEVATION OF 1/2 TOPOGRAPHIC HEIGHT =	<b>0.00</b>	FT	L <sub>h</sub>	FIGURE 26.8-1
DISTANCE FROM CREST TO BUILDING SITE (DOWNWIND POSITIVE) =	<b>0.00</b>	FT	x	FIGURE 26.8-1
BUILDING HEIGHT = (hj+hp) =	19.86		z	
MEAN ROOF HEIGHT =	19.86	FT	h	26.2
MINIMUM HEIGHT EXPOSURE CONSTANT =	15.00	FT	z <sub>min</sub>	TABLE 26.11-1
EQUIVALENT HEIGHT OF STRUCTURE = max(z <sub>min</sub> , (.6)(h)) =	15.00	FT	z <sub>b</sub>	TABLE 26.11-1
HEIGHT OF ATMOSPHERIC BOUNDARY LAYER =	900.00	FT	z <sub>g</sub>	TABLE 26.11-1
3-SECOND GUST SPEED POWER LAW EXPONENT =	9.50		α	TABLE 26.11-1
VELOCITY PRESSURE EXPOSURE COEFFICIENT AT z (MWFRS) =	<b>0.901</b>		K <sub>z2</sub>	TABLE 26.10-1
VELOCITY PRESSURE EXPOSURE COEFFICIENT AT z (C&C) =	<b>0.901</b>		K <sub>z1</sub>	TABLE 26.10-1
VELOCITY PRESSURE EXPOSURE COEFFICIENT AT h (MWFRS) =	<b>0.901</b>		K <sub>h2</sub>	TABLE 26.10-1
VELOCITY PRESSURE EXPOSURE COEFFICIENT AT h (C&C) =	<b>0.901</b>		K <sub>h1</sub>	TABLE 26.10-1
WIND DIRECTIONALITY FACTOR =	<b>0.85</b>		K <sub>d</sub>	TABLE 26.6-1
GROUND ELEVATION FACTOR =	<b>1.000</b>		K <sub>e</sub>	TABLE 26.9-1
RATIO OF TOPOGRAPHIC HEIGHT TO DISTANCE OF 1/2 TOPOGRAPHIC HEIGHT =	0.000		H/L <sub>h</sub>	
RATIO OF DISTANCE FROM CREST TO BUILDING TO DISTANCE OF 1/2 TOPOGRAPHIC HEIGHT =	0.000		x/L <sub>h</sub>	
HORIZONTAL ATTENUATION FACTOR =	1.000		μ	FIGURE 26.8-1
HEIGHT ATTENUATION FACTOR =	1.000		γ	FIGURE 26.8-1
TOPOGRAPHIC SHAPE & MAX. SPEED UP EFFECT FACTOR =	1.050		C <sub>K1</sub>	FIGURE 26.8-1
K <sub>1</sub> = (C <sub>K1</sub> )(H/L <sub>h</sub> ) =	1.000	1.000	K <sub>1</sub>	FIGURE 26.8-1
K <sub>2</sub> = (1 - ( x /L <sub>h</sub> )) / (μ) =	1.000	1.000	K <sub>2</sub>	FIGURE 26.8-1
K <sub>3</sub> = e <sup>(-γ)(z)/(L<sub>h</sub>)</sup> =	1.000	1.000	K <sub>3</sub>	FIGURE 26.8-1
TOPOGRAPHIC FACTOR = (1 + (K <sub>1</sub> )(K <sub>2</sub> )(K <sub>3</sub> )) <sup>2</sup> =	<b>1.00</b>	<b>1.00</b>	K <sub>zt</sub>	EQ. 26.8-1
VELOCITY PRESSURE @ z (C&C) = (.00256)(K <sub>z</sub> )(K <sub>zt</sub> )(K <sub>d</sub> )(K <sub>e</sub> )(V <sup>2</sup> ) =		<b>29.17</b>	PSF	q <sub>z</sub> EQ. 26.10-1
VELOCITY PRESSURE @ z (MWFRS) = (.00256)(K <sub>z</sub> )(K <sub>zt</sub> )(K <sub>d</sub> )(K <sub>e</sub> )(V <sup>2</sup> ) =		<b>29.17</b>	PSF	q <sub>z2</sub> EQ. 26.10-1
VELOCITY PRESSURE @ h (MWFRS) = (.00256)(K <sub>h2</sub> )(K <sub>zt</sub> )(K <sub>d</sub> )(K <sub>e</sub> )(V <sup>2</sup> ) =		<b>29.17</b>	PSF	q <sub>h2</sub> EQ. 26.10-1
VELOCITY PRESSURE @ h (C&C) = (.00256)(K <sub>h1</sub> )(K <sub>zt</sub> )(K <sub>d</sub> )(K <sub>e</sub> )(V <sup>2</sup> ) =		<b>29.17</b>	PSF	q <sub>h</sub> EQ. 26.10-1
	eave	gable		
INTEGRAL LENGTH SCALE FACTOR =	500.00	500.00	ℓ	TABLE 26.11-1
INTEGRAL LENGTH SCALE POWER LAW EXPONENT =	0.20	0.20	ε	TABLE 26.11-1
INTEGRAL LENGTH SCALE OF TURBULENCE = ℓ(z <sub>b</sub> /33) <sup>ε</sup> =	427.06	427.06	L <sub>z</sub>	EQ. 26.11-9
BACKGROUND RESPONSE = (1/(1 + (.63)((B+h)/L <sub>z</sub> ) <sup>-6.3</sup> )) <sup>.5</sup> =	0.76	0.79	Q	EQ. 26.11-8
TURBULENCE INTENSITY FACTOR =	0.20	0.20	c	TABLE 26.11-1
INTENSITY OF TURBULENCE = (c)(33/z <sub>b</sub> ) <sup>(1/6)</sup> =	0.23	0.23	l <sub>z</sub>	EQ. 26.11-7
GUST EFFECT FACTOR = (.925)((1+1.7(3.4)(l <sub>z</sub> )(Q))/(1+(1.7)(3.4)(l <sub>z</sub> ))) =	<b>0.80</b>	<b>0.81</b>	G	EQ. 26.11-6
INTERNAL PRESSURE COEFFICIENT =	<b>0.18</b>	<b>0.18</b>	GC <sub>pi</sub>	TABLE 26.13-1



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**COMPONENT WIND LOAD DETERMINATION**

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BASIC WIND SPEED (3-SECOND GUST) = .....	122.00	MPH	V	FIGURE 26.5-1
EXPOSURE CATEGORY = .....	C			26.7.3
ROOF PITCH = .....	0.00	DEG	θ	
ROOF PITCH REDUCTION = .....	ON			
MEAN ROOF HEIGHT = .....	19.86	FT	h	26.2
PARAPET HEIGHT = .....	0.00	FT	hp	
PARAPET LIMITING HEIGHT & CONTINUITY = .....	NO			
VELOCITY PRESSURE @ Z (C&C) = .....	29.17	PSF	q <sub>z</sub>	EQ. 26.10-1
VELOCITY PRESSURE @ h (C&C) = .....	29.17	PSF	q <sub>h</sub>	EQ. 26.10-1
INTERNAL PRESSURE COEFFICIENT = .....	0.18		GC <sub>pi</sub>	TABLE 26.13-1
ROOF EDGE ZONE DIMENSION = .....	11.92	FT	a <sub>r</sub>	FIGURE 30.3-1
WALL EDGE ZONE DIMENSION = .....	15.23	FT	a <sub>w</sub>	FIGURE 30.3-1

**EXTERNAL PRESSURE COEFFICIENTS**

ZONE	EFFECTIVE AREA (FT <sup>2</sup> )							
	10.0		50.0		100.0		200.0	
ROOF 1'	0.30	-0.90	0.23	-0.90	0.20	-0.90	0.20	-0.75
ROOF 1	0.30	-1.70	0.23	-1.41	0.20	-1.29	0.20	-1.16
ROOF 2	0.30	-2.30	0.23	-1.93	0.20	-1.64	0.20	-1.61
ROOF 3	0.30	-3.20	0.23	-2.46	0.20	-2.14	0.20	-1.82
OH 1	0.30	-1.70	0.23	-1.63	0.20	-1.60	0.20	-1.34
OH 1'	0.30	-1.70	0.23	-1.63	0.20	-1.60	0.20	-1.34
OH 2	0.30	-2.30	0.23	-1.81	0.20	-1.59	0.20	-1.38
OH 3	0.30	-3.20	0.23	-2.34	0.20	-1.96	0.20	-1.59
WALL 4	0.90	-0.99	0.79	-0.88	0.74	-0.83	0.69	-0.78
WALL 5	0.90	-1.26	0.79	-1.04	0.74	-0.94	0.69	-0.85

A  
 GC<sub>p</sub> FIGURE 30.3-2A  
 GC<sub>p</sub> FIGURE 30.3-1  
 GC<sub>p</sub> FIGURE 30.3-1  
 FIGURE 30.3-1

- PER NOTE 5: VALUES OF GC<sub>p</sub> FOR WALLS MAY BE REDUCED BY 10% WHEN ROOF PITCH <=10 DEGREES

COMPONENT PRESSURE = (qh)[(GC<sub>p</sub>)-(-GC<sub>pi</sub>)] - NOTE: FOR OH, GC<sub>pi</sub> = 0 PSF p EQ. 30.3-1  
 COMPONENT SUCTION = (qh)[(GC<sub>p</sub>)-(+GC<sub>pi</sub>)] - NOTE: FOR OH, GC<sub>pi</sub> = 0 PSF p EQ. 30.3-1

**STRENGTH LEVEL C&C PRESSURE/SUCTION (MINIMUM = 16 PSF)**

ZONE	EFFECTIVE AREA (FT <sup>2</sup> )							
	10.0		50.0		100.0		200.0	
ROOF 1'	16.00	-31.50	16.00	-31.50	16.00	-31.50	16.00	-27.11
ROOF 1	16.00	-54.83	16.00	-46.43	16.00	-42.82	16.00	-39.20
ROOF 2	16.00	-72.33	16.00	-61.53	16.00	-53.21	16.00	-52.23
ROOF 3	16.00	-98.58	16.00	-76.98	16.00	-67.68	16.00	-58.38
OH 1	16.00	-54.83	16.00	-52.79	16.00	-51.92	16.00	-44.38
OH 1'	16.00	-54.83	16.00	-52.79	16.00	-51.92	16.00	-44.38
OH 2	16.00	-72.33	16.00	-57.93	16.00	-51.73	16.00	-45.53
OH 3	16.00	-98.58	16.00	-73.39	16.00	-62.53	16.00	-51.68
WALL 4	31.50	-34.13	28.26	-30.88	26.86	-29.49	25.47	-28.09
WALL 5	31.50	-42.00	28.26	-35.52	26.86	-32.73	25.47	-29.94

A



100 CAMELOT DRIVE FOND DU LAC, WI 54935 P: 920 926 9800 F: 920 926 9801 www.excelengineer.com	PROJECT: HCA Lees Summit Medical Center Ed Expansion	PAGE: <b>6</b>
	LOCATION: Lee's Summit, MO	
	CLIENT: E&K of Kansas City, Inc.	DATE: 11/11/2025
	PROJECT #: 250361200	ENGR: OLS

**NON-STRUCTURAL COMPONENT SEISMIC LOAD DETERMINATION: EXTERIOR ELEMENTS** ASCE 7-16

**MAPPED SPECTRAL ACCELERATION**

SHORT PERIOD= .....	0.101	g	$S_s$	FIGURE 22-1
1-SECOND PERIOD = .....	0.069	g	$S_1$	FIGURE 22-2
SITE CLASS = .....	<b>D</b>			11.4.3
SITE COEFFICIENT = .....	1.6		$F_a$	TABLE 11.4-1
SITE COEFFICIENT = .....	2.4		$F_v$	TABLE 11.4-2
MEAN ROOF HEIGHT = .....	19.86	ft	h	26.2

**SPECTRAL RESPONSE ACCELERATIONS**

MAXIMUM SPECTRAL RESPONSE ACCELERATION - SHORT PERIOD = $(F_a)(S_s)$ = .....	0.162	g	$S_{MS}$	EQ. 11.4-1
MAXIMUM SPECTRAL RESPONSE ACCELERATION - 1-SECOND PERIOD = $(F_v)(S_1)$ = .....	0.166	g	$S_{M1}$	EQ. 11.4-2
DESIGN SPECTRAL RESPONSE ACCELERATION - SHORT PERIOD = $(2/3)(S_{MS})$ = .....	0.108	g	$S_{DS}$	EQ. 11.4-3
DESIGN SPECTRAL RESPONSE ACCELERATION - 1-SECOND PERIOD = $(2/3)(S_{M1})$ = .....	0.110	g	$S_{D1}$	EQ. 11.4-4
RISK CATEGORY = .....	<b>IV</b>			TABLE 1.5-1
IMPORTANCE FACTOR = .....	1.50		$I_E$	TABLE 1.5-2
SEISMIC DESIGN CATEGORY (SHORT PERIOD) = .....	<b>A</b>			TABLE 11.6-1
SEISMIC DESIGN CATEGORY (1-SECOND PERIOD) = .....	<b>C</b>	<=		TABLE 11.6-2

**SEISMIC NONSTRUCTURAL COMPONENT LOADING**

	STONE VENEER	BRICK VENEER	TERRA COTTA	STUCCO	EVERYWHERE ELSE		
COMPONENT HORIZONTAL WEIGHT = .....	<b>60</b>	<b>50</b>	<b>25</b>	<b>15</b>	<b>10</b>	PSF	$W_H$
COMPONENT VERTICAL WEIGHT = .....	<b>60</b>	<b>50</b>	<b>25</b>	<b>15</b>	<b>10</b>	PSF	$W_V$
COMPONENT IMPORTANCE FACTOR = .....	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>		$I_p$ 13.1.3
COMPONENT HEIGHT = .....	<b>19.86</b>	<b>19.86</b>	<b>19.86</b>	<b>19.86</b>	<b>19.86</b>	ft	z
UPPER LIMIT: $F_p = 1.6S_{DS}I_pW_H$ = .....	15.51	12.93	6.46	3.88	2.59	PSF	EQ. 13.3.2
LOWER LIMIT: $F_p = .3S_{DS}I_pW_H$ = .....	2.91	2.42	1.21	0.73	0.48	PSF	EQ. 13.3-3

EXTERIOR WALL ELEMENTS & BODY OF WALL PANEL CONNECTIONS (STUDS/CLIPS /TRACKS):

COMPONENT AMPLIFICATION FACTOR = .....	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>		$a_p$ TABLE 13.5-1
COMPONENT RESPONSE FACTOR = .....	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>		$R_p$ TABLE 13.5-1
REDUNDANCY COEFFICIENT = .....	1.0	1.0	1.0	1.0	1.0		$\rho$ 12.3.4.1
$F_p = .4a_pS_{DS}W_H(1+2(z/h))/(R_p/I_p)$ = .....	4.65	3.88	1.94	1.16	0.78	PSF	$F_p$ EQ. 13.3-1
$(.7E = \rho F_p)$ = .....	<b>3.26</b>	<b>2.71</b>	<b>1.36</b>	<b>0.81</b>	<b>0.54</b>	PSF	EQ. 12.4-3

EXTERIOR CANTILEVERED PARAPETS:

COMPONENT AMPLIFICATION FACTOR = .....	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>		$a_p$ TABLE 13.5-1
COMPONENT RESPONSE FACTOR = .....	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>		$R_p$ TABLE 13.5-1
REDUNDANCY COEFFICIENT = .....	1.0	1.0	1.0	1.0	1.0		$\rho$ 12.3.4.1
$F_p = .4a_pS_{DS}W_H(1+2(z/h))/(R_p/I_p)$ = .....	11.64	9.70	4.85	2.91	1.94	PSF	$F_p$ EQ. 13.3-1
$(.7E = \rho F_p)$ = .....	<b>8.14</b>	<b>6.79</b>	<b>3.39</b>	<b>2.04</b>	<b>1.36</b>	PSF	EQ. 12.4-3

EXTERIOR FASTENERS OF CONNECTING SYSTEM (SCREWS/PINS/BOLTS):

COMPONENT AMPLIFICATION FACTOR = .....	<b>1.25</b>	<b>1.25</b>	<b>1.25</b>	<b>1.25</b>	<b>1.25</b>		$a_p$ TABLE 13.5-1
COMPONENT RESPONSE FACTOR = .....	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>		$R_p$ TABLE 13.5-1
REDUNDANCY COEFFICIENT = .....	1.0	1.0	1.0	1.0	1.0		$\rho$ 12.3.4.1
$F_p = .4a_pS_{DS}W_H(1+2(z/h))/(R_p/I_p)$ = .....	14.54	12.12	6.06	3.64	2.42	PSF	$F_p$ EQ. 13.3-1
$(.7E = rF_p)$ = .....	<b>10.18</b>	<b>8.48</b>	<b>4.24</b>	<b>2.55</b>	<b>1.70</b>	PSF	EQ. 12.4-3

VERTICAL COMPONENT:

$(.7E = .2S_{DS}W_V)$ = .....	<b>0.90</b>	<b>0.75</b>	<b>0.38</b>	<b>0.23</b>	<b>0.15</b>	PSF	EQ. 12.4-4a
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100 CAMELOT DRIVE  
 FOND DU LAC, WI 54935  
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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
 LOCATION: Lee's Summit, MO  
 CLIENT: E&K of Kansas City, Inc.  
 PROJECT #: 250361200

PAGE: 7  
 DATE: 11/7/2025  
 ENGR: OLS

**WALL STUD COMPONENT LATERAL LOAD DETERMINATION**

ASCE 7-16

**STUDWALL OVERALL HEIGHT** = ..... **20.00** FT hs  
**PARAPET HEIGHT** = ..... **4.42** FT hp  
**ROOF MEMBER LENGTH** = ..... **20.00** FT hr

**STUD SPACING** = ..... **16.00** **16.00** IN sp  
 EFFECTIVE WIND AREA (MAIN SPAN) = MAX((hs-hp)\*sp,(hs-hp)<sup>2</sup>/3) = ..... 80.91 80.91 FT<sup>2</sup> As 26.2  
 EFFECTIVE WIND AREA (PARAPET) = MAX((hp\*sp),(hs<sup>2</sup>/3)) = ..... 6.51 6.51 FT<sup>2</sup> Ap 26.2  
 EFFECTIVE WIND AREA (ROOF) = MAX((hr\*sp),(hr<sup>2</sup>/3)) = ..... 133.33 133.33 FT<sup>2</sup> Ar 26.2

EXTERNAL PRESSURE COEFFICIENTS:

	ZONE 2	ZONE 3	ZONE 4	ZONE 5	
WIND PRESSURE @ STUD = .....			0.76	0.76	GC <sub>p</sub> FIGURE 30.3-1
WIND SUCTION @ STUD = .....			-0.85	-0.97	GC <sub>p</sub> FIGURE 30.3-1
WIND PRESSURE @ PARAPET = .....			0.90	0.90	GC <sub>p</sub> FIGURE 30.3-2A
WIND SUCTION @ PARAPET = .....	-1.70	-2.01			GC <sub>p</sub> FIGURE 30.3-2A

INTERNAL PRESSURE COEFFICIENT = ..... **0.00** **0.18** GC<sub>pi</sub> TABLE 26.13-1  
 PER NOTE 5: VALUES OF GC<sub>p</sub> FOR WALLS MAY BE REDUCED BY 10% WHEN ROOF PITCH <=10 DEGREES FIGURE 30.3-1

VELOCITY PRESSURE @ TOP OF PARAPET (C&C) (q<sub>p</sub>=q<sub>z</sub>) = ..... 29.17 PSF q<sub>p</sub> EQ. 26.10-1

OVERALL STUD (MINIMUM C&C PRESSURE/SUCTION = 16 PSF) +GC<sub>pi</sub> -GC<sub>pi</sub>

ZONE 4 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	16.79	27.29	PSF	p <sub>4c</sub>	EQ. 30.8-1
ZONE 5 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	16.79	27.29	PSF	p <sub>5c</sub>	EQ. 30.8-1
ZONE 4 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	29.92	19.42	PSF	s <sub>4c</sub>	EQ. 30.8-1
ZONE 5 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	33.58	23.08	PSF	s <sub>5c</sub>	EQ. 30.8-1

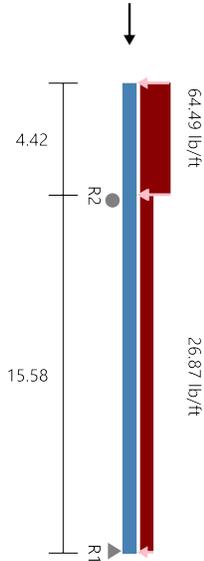
PARAPET (MINIMUM C&C PRESSURE/SUCTION = 16 PSF) +GC<sub>pi</sub> -GC<sub>pi</sub>

ZONE 4 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	26.25	26.25	PSF	p <sub>4c</sub>	EQ. 30.8-1
ZONE 5 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	26.25	26.25	PSF	p <sub>5c</sub>	EQ. 30.8-1
ZONE 2 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	49.70	49.70	PSF	s <sub>2c</sub>	EQ. 30.8-1
ZONE 3 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	58.57	58.57	PSF	s <sub>3c</sub>	EQ. 30.8-1

DESIGN MEMBER LOADINGS	+GC <sub>pi</sub> (D+.6WL)		-GC <sub>pi</sub> (D+.6WL)		
	PARAPET	MAIN	PARAPET	MAIN	
WINDWARD PARAPET (ZONE 4)	57.40	13.43	57.40	21.83	PLF Case A FIGURE 30.6-1
WINDWARD PARAPET (ZONE 5)	64.49 <-	13.43 <-	64.49 <-	21.83 <-	PLF Case A FIGURE 30.6-1
LEEWARD PARAPET (ZONE 4)	40.73	23.93	40.73	15.53	PLF Case B FIGURE 30.6-1
LEEWARD PARAPET (ZONE 5)	43.67	26.87	43.67	18.47	PLF Case B FIGURE 30.6-1
SEISMIC LOAD (D+.7E)	3.62	3.62	3.62	3.62	PLF <b>BRICK VENEER</b>

DESIGN MEMBER REACTIONS	R <sub>1</sub> (BASE)		R <sub>2</sub> (PARAPET)		
WINDWARD PARAPET (ZONE 4)	68.65	394.31	134.09	459.75	LB
WINDWARD PARAPET (ZONE 5)	64.21	430.11	129.64	495.55 MAX	LB
LEEWARD PARAPET (ZONE 4)	160.90	392.01	95.46	326.57	LB
LEEWARD PARAPET (ZONE 5)	181.90 MAX	429.66	116.47	364.22	LB
SEISMIC LOAD (D+.7E)	25.93	46.47	25.93	46.47	LB

DESIGN MEMBER MOMENTS	M <sub>1</sub> (SPAN)		M <sub>2</sub> (REACTION)		
WINDWARD PARAPET (ZONE 4)	175.45	560.65	411.78	560.65	FT-LB
WINDWARD PARAPET (ZONE 5)	153.45	629.94 MAX	384.91	629.94 MAX	FT-LB
LEEWARD PARAPET (ZONE 4)	540.85	397.88	293.34	397.88	FT-LB
LEEWARD PARAPET (ZONE 5)	615.83	426.53	367.30	426.53	FT-LB
SEISMIC LOAD (D+.7E)	9.51	35.36	9.51	35.36	FT-LB



**Section :** 600S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo =** 1271.1 ft-lb      **Va =** 1415.7 lb      **I =** 2.32 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/360

**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexural, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 53.0"	N/A	-
Span	72.0", 72.0"	72.0", 187.0"	LSUBH3.25 (Min)	0.67

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R2	534.55	1.00	553.3	629.0	0.83	YES
R1	168.97	1.00	259.1	0.0	0.34	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	13.33plf (Top Cantilever), 13.33plf (Span)

	Code Check	Required	Allowed	Interaction	Notes
Top Cant.	Max. Axial, lbs	58.9(c)	2989.9(c)	2%	$K\Phi=0.00$ lb-in/in Max KL/r = 92
	Max. Shear, lbs	284.8	1240.3	23%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	629.0	1087.9	58%	Ma-dist (control), $K\Phi=0.00$ lb-in/in
	Moment Stability, ft-lbs	401.6	1271.1	32%	
	Shear/Moment	0.55	1.00	55%	Shear 284.8, Moment 629.0
	Axial/Moment	0.60	1.00	60%	Axial 58.9(c), Moment 629.0
	Deflection Cant.	L/1415	L/360	25%	2 x (Cant. + span inflection), $\Delta=0.0214"$
Span	Max. Axial, lbs	266.7(c)	2471.9(c)	11%	$K\Phi=0.00$ lb-in/in Max KL/r = 125
	Max. Shear, lbs	249.7	1240.3	20%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	629.0	1087.9	58%	Ma-dist (control), $K\Phi=0.00$ lb-in/in
	Moment Stability, ft-lbs	531.3	994.4	53%	
	Shear/Moment	0.53	1.00	53%	Shear 249.7, Moment 629.0
	Axial/Moment	0.66	1.00	66%	Axial 58.9(c), Moment 629.0
	Deflection Span	L/939	L/360	38%	$\Delta= 0.1991"$

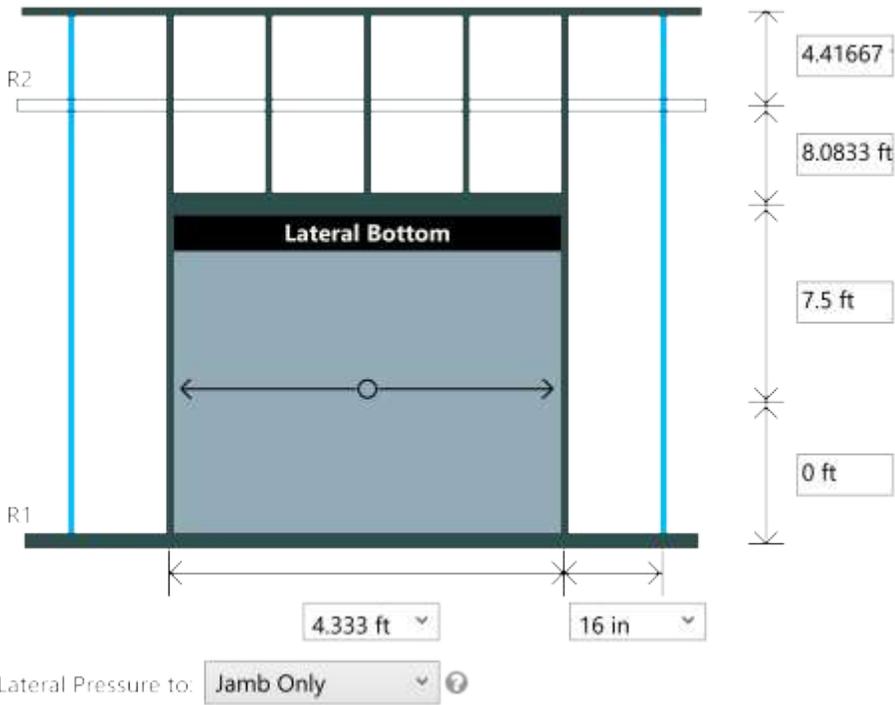
Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	534.6	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	169.0	266.7	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

Project Name: 250361200-CFS  
 Model: 02/S1 DOOR OPENING - ZONE 5  
 Code: IBC 2018(AISI S100 - 16)

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 Date: 11/11/2025

Simpson Strong-Tie® CFS Designer™ 6.0.3.0



**Design Loads**

Wall Lateral Pressure :	<b>20.15 psf</b>
Parapet Lateral Pressure :	<b>48.37 psf</b>
RO Lateral Pressure :	<b>Jamb Only</b>
Lateral element force multiplier	
Strength :	<b>1.0</b>
Deflection :	<b>0.7</b>
Header:	<b>Box (lateral top, bottom)</b>
Gravity Load at Header:	<b>10 psf</b>
Cant. Deflection:	<b>2(Cant. + Span Inlect.)</b>
Lateral Deflection Limit:	<b>360</b>
Gravity Deflection Limit:	<b>360</b>

**Brace Settings**

Component(s)	Members(s)	Flexural Bracing	Axial KyLy	Axial KtLt	Distortional K-Phi(lb-in/in)	Distortional Lm	Interconnection Spacing
Jamb Studs	600S162-43(33), (2) Non-Composite	72 in	72 in	72 in	0	None	N/A
Vertical Header	600S162-43(33), Boxed	Full	N/A	N/A	0	None	N/A
Lat. Top Head	600T125-43(33), Single	Full	N/A	N/A	0	None	N/A
Lat. Bottom Head	600T125-43(33), Single	Full	N/A	N/A	0	None	N/A

**Analysis Results**

Component(s)	Members(s)	Axial Load (lb)	Max KL/r	Max. Moment (ft-lb)	Max. Shear (lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Jamb Studs	600S162-43(33), (2) Non-Composite	270.8	125	1129.0	359.0	359.0	370.1
Vertical Header	600S162-43(33), Boxed	N/A	N/A	293.4	270.8	N/A	270.8
Lat. Top Head	600T125-43(33), Single	N/A	N/A	54.2	50.0	N/A	50.0
Lat. Bottom Head	600T125-43(33), Single	N/A	N/A	0.0	0.0	N/A	0.0

**Design Results**

Component(s)	Members(s)	Deflection			Interaction		Web Stiffeners	Design OK
		Span	Parapet	Defl.	A + M	V + M		
Jamb Studs	600S162-43(33), (2) Non-Composite	L/830	L/829	0.43	0.63	0.44	No	Yes
Vertical Header	600S162-43(33), Boxed	L/7166	NA	0.05	0.12	0.12	No	Yes
Lat. Top Head	600T125-43(33), Single	L/21169	NA	0.02	0.07	0.07	No	Yes
Lat. Bottom Head	600T125-43(33), Single	L/0	NA	0.00	0.00	0.00	No	Yes

**Simpson Strong-Tie® Connectors @ Jambs**

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie® Connector	Connector Interaction	Anchor Interaction

Project Name: 250361200-CFS  
 Model: 02/S1 DOOR OPENING - ZONE 5  
 Code: IBC 2018(AISI S100 - 16)

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R2	370.12	0.00	By Others & Anchorage Designed by Engineer	NA	NA
R1	359.04	454.14	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

**Simpson Strong-Tie® Wall Stud Bridging Connectors @ Jambs**

Span/Parapet	Bracing Length(in.)	Design Number of Braces	Pn(lb.)	LSUBH (Min) <sup>1</sup>	LSUBH (Max) <sup>1</sup>	SUBH (Min) <sup>1</sup>	SUBH (Max) <sup>1</sup>	MSUBH (Min) <sup>1</sup>	MSUBH (Max) <sup>1</sup>
Top Parapet	Span	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Span	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Notes:**

- 1) Values in parentheses are stress ratios.
- 2) Bridging connectors are not designed for back-back, box, or built-up sections.
- 3) Reference [www.strongtie.com](http://www.strongtie.com) for latest load data, important information, and general notes.
- 4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
- 5) If the bracing length is larger than the span length, bridging connectors are not designed.

**Section :** 600S250-54 (50 ksi) Single C Stud (punched)  
**Maxo =** 2666.7 ft-lb      **Va =** 2822.9 lb      **I =** 3.77 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/360

**Bridging Connectors - Design Method =AISI S100**

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 53.0"	N/A	-
Span	72.0", 72.0"	72.0", 187.0"	LSUBH3.25 (Max)	0.98

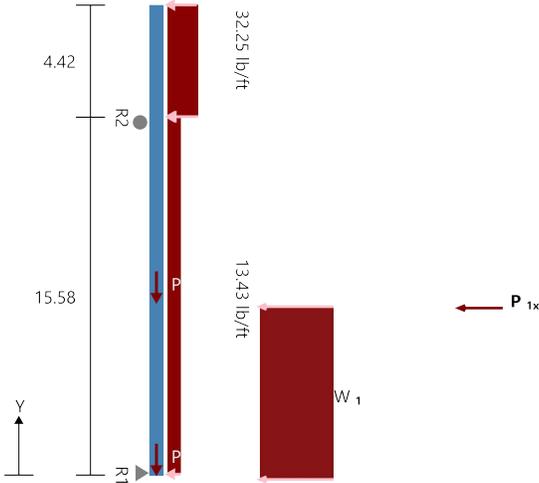
**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
P1x	49.99	1.50	1386.0	1087.5	0.26	NO
R2	370.12	1.00	1295.2	313.0	0.23	NO
R1	359.04	1.00	482.2	0.0	0.39	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	
P1y	270.81lb @ 7.50ft
P2y	183.33lb @ 0.00ft



**Point Loads P1x**  
 Load(lb) 49.99  
 Y-Dist.(ft) 7.50

**Sloped/Partial Loads**

	Y-Start (ft)	W-Start (lb/ft)	Y-End(ft)	W-End (lb/ft)	
	W1 0.00	43.65	7.50	43.65	
	<b>Code Check</b>	<b>Required</b>	<b>Allowed</b>	<b>Interaction</b>	<b>Notes</b>
Top Cant.	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	142.6	1947.4	7%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	313.0	2312.0	14%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	199.1	2666.7	7%	
	Shear/Moment	0.14	1.00	14%	Shear 142.6, Moment 313.0
	Axial/Moment	0.12	1.00	14%	Axial 0.0(c), Moment 313.0
	Deflection Cant.	L/593	L/360	61%	2 x Cant.,Δ=0.1786"
Span	Max. Axial, lbs	454.1(c)	5804.1(c)	8%	KΦ=0.00 lb-in/in Max KL/r = 79
	Max. Shear, lbs	359.0	1947.4	18%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	1129.0	2312.0	49%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	1129.0	2437.2	46%	
	Shear/Moment	0.42	1.00	42%	Shear 0.4, Moment 1129.0
	Axial/Moment	0.54	1.00	54%	Axial 270.8(c), Moment 1129.0
	Deflection Span	L/675	L/360	53%	Δ= 0.2770"

Project Name: 250361200-CFS

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Model: 02/S1 DOOR OPENING - ZONE 5\_jamb

Date: 11/11/2025

Code: IBC 2018(AISI S100 - 16)

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

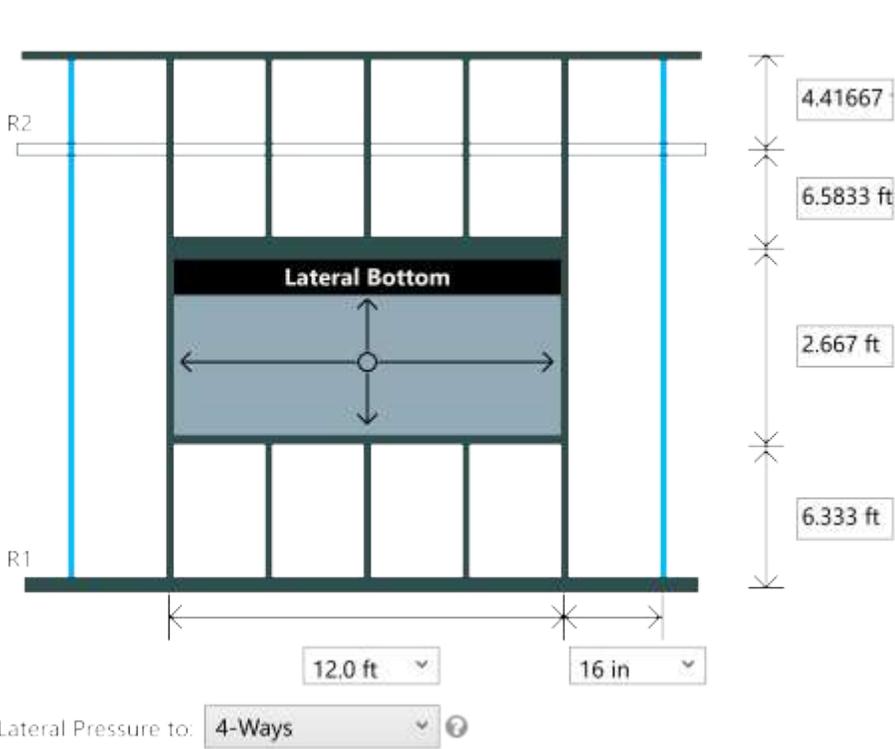
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<b>Support</b>	<b>Rx(lb)</b>	<b>Ry(lb)</b>	<b>Simpson Strong-Tie Connector</b>	<b>Connector Interaction</b>	<b>Anchor Interaction</b>
R2	370.1	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	359.0	454.1	By Others & Anchorage Designed by Engineer	NA	NA

---

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

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**Design Loads**

Wall Lateral Pressure :	<b>20.15 psf</b>
Parapet Lateral Pressure :	<b>48.37 psf</b>
RO Lateral Pressure :	<b>4-Ways</b>
Lateral element force multiplier	
Strength :	<b>1.0</b>
Deflection :	<b>0.7</b>
Header:	<b>Box (lateral top, bottom)</b>
Gravity Load at Header:	<b>10 psf</b>
Cant. Deflection:	<b>2(Cant. + Span Inlect.)</b>
Lateral Deflection Limit:	<b>360</b>
Gravity Deflection Limit:	<b>360</b>

**Brace Settings**

Component(s)	Members(s)	Flexural Bracing	Axial KyLy	Axial KtLt	Distortional K-Phi(lb-in/in)	Distortional Lm	Interconnection Spacing
Jamb Studs	600S162-43(33), (3) Non-Composite	72 in	72 in	72 in	0	None	N/A
Vertical Header	600S162-43(33), Boxed	Full	N/A	N/A	0	None	N/A
Lat. Top Head	600T125-43(33), Single	Full	N/A	N/A	0	None	N/A
Lat. Bottom Head	600T125-43(33), Single	Full	N/A	N/A	0	None	N/A
Sill	600T250-54(50), Single	Full	N/A	N/A	0	None	N/A

**Analysis Results**

Component(s)	Members(s)	Axial Load (lb)	Max KL/r	Max. Moment (ft-lb)	Max. Shear (lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Jamb Studs	600S162-43(33), (3) Non-Composite	660.0	125	2656.6	462.0	462.0	563.0
Vertical Header	600S162-43(33), Boxed	N/A	N/A	1980.0	660.0	N/A	660.0
Lat. Top Head	600T125-43(33), Single	N/A	N/A	96.0	32.0	N/A	32.0
Lat. Bottom Head	600T125-43(33), Single	N/A	N/A	475.7	143.3	N/A	143.3
Sill	600T250-54(50), Single	N/A	N/A	1624.2	526.1	N/A	526.1

**Design Results**

Component(s)	Members(s)	Deflection		Interaction			Web Stiffeners	Design OK
		Span	Parapet	Defl.	A + M	V + M		
Jamb Studs	600S162-43(33), (3) Non-Composite	L/562	L/515	0.70	0.98	0.70	No	Yes
Vertical Header	600S162-43(33), Boxed	L/383	NA	0.94	0.78	0.78	R1, R2	Yes
Lat. Top Head	600T125-43(33), Single	L/4310	NA	0.08	0.13	0.13	No	Yes
Lat. Bottom Head	600T125-43(33), Single	L/873	NA	0.41	0.63	0.10	No	Yes
Sill	600T250-54(50), Single	L/416	NA	0.87	0.89	0.89	R1, R2	Yes

**Simpson Strong-Tie® Connectors @ Jambs**

Project Name: 250361200-CFS

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Model: 03/S1 WINDOW OPENING - ZONE 5

Date: 11/11/2025

Code: IBC 2018(AISI S100 - 16)

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie® Connector	Connector Interaction	Anchor Interaction
R2	563.00	0.00	By Others & Anchorage Designed by Engineer	NA	NA
R1	462.02	853.33	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

### **Simpson Strong-Tie® Wall Stud Bridging Connectors @ Jamb**

Span/Parapet	Bracing Length(in.)	Design Number of Braces	Pn(lb.)	LSUBH (Min) <sup>1</sup>	LSUBH (Max) <sup>1</sup>	SUBH (Min) <sup>1</sup>	SUBH (Max) <sup>1</sup>	MSUBH (Min) <sup>1</sup>	MSUBH (Max) <sup>1</sup>
Top Parapet	Span	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Span	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

#### **Notes:**

- 1) Values in parentheses are stress ratios.
- 2) Bridging connectors are not designed for back-back, box, or built-up sections.
- 3) Reference [www.strongtie.com](http://www.strongtie.com) for latest load data, important information, and general notes.
- 4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
- 5) If the bracing length is larger than the span length, bridging connectors are not designed.

**Section :** 600S300-68 (50 ksi) Single C Stud (punched)  
**Maxo =** 3608.0 ft-lb      **Va =** 5350.3 lb      **I =** 5.22 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/360

**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 53.0"	N/A	-
Span	72.0", 72.0"	72.0", 187.0"	MSUBH3.25 (Max)	0.76

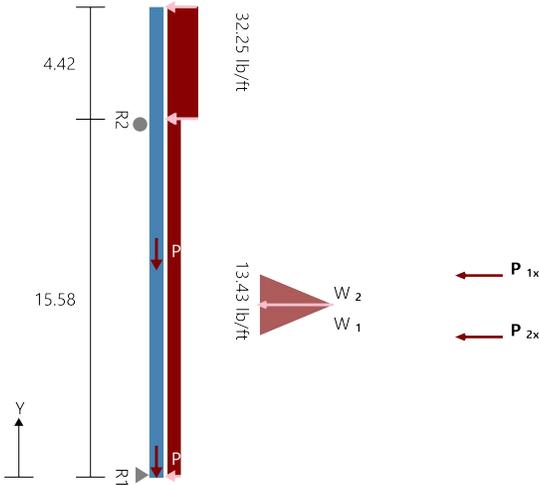
**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
P2x	526.13	1.50	1910.0	2654.2	0.59	NO
P1x	111.29	1.50	1910.0	2160.8	0.39	NO
R2	563.00	1.00	1997.7	314.5	0.21	NO
R1	462.02	1.00	914.4	0.0	0.26	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	
P1y	660.00lb @ 9.00ft
P2y	193.33lb @ 0.00ft



Point Loads	P1x	P2x
Load(lb)	111.29	526.13
Y-Dist.(ft)	9.00	6.33

**Sloped/Partial Loads**

	Y-Start (ft)	W-Start (lb/ft)	Y-End(ft)	W-End (lb/ft)	
	W1 6.33	0.00	7.67	26.87	
	W2 7.67	26.87	9.00	0.00	
	Code Check	Required	Allowed	Interaction	Notes
Top Cant.	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	142.4	2878.9	5%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	314.5	3261.6	10%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	200.8	3608.0	6%	
	Shear/Moment	0.10	1.00	10%	Shear 142.4, Moment 314.5
	Axial/Moment	0.09	1.00	10%	Axial 0.0(c), Moment 314.5
	Deflection Cant.	L/387	L/360	93%	2 x (Cant. + span inflection),Δ=0.3342"
Span	Max. Axial, lbs	853.3(c)	8472.5(c)	10%	KΦ=0.00 lb-in/in Max KL/r = 77
	Max. Shear, lbs	462.0	2878.9	16%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	2656.6	3261.6	81%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	2656.6	3489.4	76%	
	Shear/Moment	0.75	1.00	75%	Shear 377.0, Moment 2654.2
	Axial/Moment	0.91	1.00	91%	Axial 660.0(c), Moment 2655.2
	Deflection Span	L/422	L/360	85%	Δ= 0.4429"

Project Name: 250361200-CFS

Page 2 of 2

Model: 03/S1 WINDOW OPENING - ZONE 5\_jamb

Date: 11/11/2025

Code: IBC 2018(AISI S100 - 16)

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

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<b>Support</b>	<b>Rx(lb)</b>	<b>Ry(lb)</b>	<b>Simpson Strong-Tie Connector</b>	<b>Connector Interaction</b>	<b>Anchor Interaction</b>
R2	563.0	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	462.0	853.3	By Others & Anchorage Designed by Engineer	NA	NA

---

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 17  
DATE: 11/7/2025  
ENGR: OLS

**WALL STUD COMPONENT LATERAL LOAD DETERMINATION**

ASCE 7-16

**STUDWALL OVERALL HEIGHT** = ..... **21.50** FT hs  
**PARAPET HEIGHT** = ..... **4.42** FT hp  
**ROOF MEMBER LENGTH** = ..... **20.00** FT hr

	<b>ZONE 4</b>	<b>ZONE 5</b>		
<b>STUD SPACING</b> = .....	<b>16.00</b>	<b>16.00</b>	IN	sp
EFFECTIVE WIND AREA (MAIN SPAN) = MAX((hs-hp)*sp,(hs-hp) <sup>2</sup> /3) = .....	97.24	97.24	FT <sup>2</sup>	As 26.2
EFFECTIVE WIND AREA (PARAPET) = MAX((hp*sp),(hs <sup>2</sup> /3)) = .....	6.51	6.51	FT <sup>2</sup>	Ap 26.2
EFFECTIVE WIND AREA (ROOF) = MAX((hr*sp),(hr <sup>2</sup> /3)) = .....	133.33	133.33	FT <sup>2</sup>	Ar 26.2

EXTERNAL PRESSURE COEFFICIENTS:	<b>ZONE 2</b>	<b>ZONE 3</b>	<b>ZONE 4</b>	<b>ZONE 5</b>	
WIND PRESSURE @ STUD = .....			0.74	0.74	GC <sub>p</sub> FIGURE 30.3-1
WIND SUCTION @ STUD = .....			-0.83	-0.95	GC <sub>p</sub> FIGURE 30.3-1
WIND PRESSURE @ PARAPET = .....			0.90	0.90	GC <sub>p</sub> FIGURE 30.3-2A
WIND SUCTION @ PARAPET = .....	-1.70	-2.01			GC <sub>p</sub> FIGURE 30.3-2A

		PARAPET	STUD	
INTERNAL PRESSURE COEFFICIENT = .....		<b>0.00</b>	0.18	GC <sub>pi</sub> TABLE 26.13-1 FIGURE 30.3-1

PER NOTE 5: VALUES OF GC<sub>p</sub> FOR WALLS MAY BE REDUCED BY 10% WHEN ROOF PITCH <=10 DEGREES

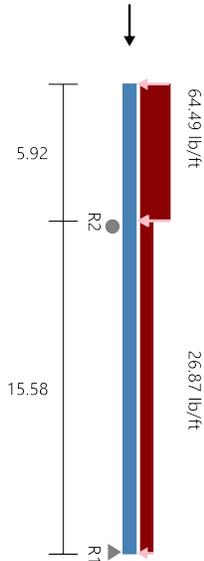
VELOCITY PRESSURE @ TOP OF PARAPET (C&C) (q<sub>p</sub>=q<sub>z</sub>) = ..... 29.17 PSF q<sub>p</sub> EQ. 26.10-1

OVERALL STUD (MINIMUM C&C PRESSURE/SUCTION = 16 PSF)	+GC <sub>pi</sub>	-GC <sub>pi</sub>	
ZONE 4 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	16.42	26.92	PSF p <sub>4c</sub> EQ. 30.8-1
ZONE 5 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	16.42	26.92	PSF p <sub>5c</sub> EQ. 30.8-1
ZONE 4 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	29.55	19.05	PSF s <sub>4c</sub> EQ. 30.8-1
ZONE 5 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	32.84	22.34	PSF s <sub>5c</sub> EQ. 30.8-1
PARAPET (MINIMUM C&C PRESSURE/SUCTION = 16 PSF)	+GC <sub>pi</sub>	-GC <sub>pi</sub>	
ZONE 4 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	26.25	26.25	PSF p <sub>4c</sub> EQ. 30.8-1
ZONE 5 PRESSURE (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	26.25	26.25	PSF p <sub>5c</sub> EQ. 30.8-1
ZONE 2 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	49.70	49.70	PSF s <sub>2c</sub> EQ. 30.8-1
ZONE 3 SUCTION (STRENGTH LEVEL) = q <sub>p</sub> [(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	58.57	58.57	PSF s <sub>3c</sub> EQ. 30.8-1

DESIGN MEMBER LOADINGS	+GC <sub>pi</sub> (D+.6WL)		-GC <sub>pi</sub> (D+.6WL)		
	PARAPET	MAIN	PARAPET	MAIN	
WINDWARD PARAPET (ZONE 4)	57.10	13.14	57.10	21.54	PLF Case A FIGURE 30.6-1
WINDWARD PARAPET (ZONE 5)	64.19	13.14	64.19	21.54	PLF Case A FIGURE 30.6-1
LEEWARD PARAPET (ZONE 4)	40.44	23.64	40.44	15.24	PLF Case B FIGURE 30.6-1
LEEWARD PARAPET (ZONE 5)	43.07	<- 26.27 <-	43.07	17.87	PLF Case B FIGURE 30.6-1
SEISMIC LOAD (D+.7E)	3.62	3.62	3.62	3.62	PLF <b>BRICK VENEER</b>

DESIGN MEMBER REACTIONS	R <sub>1</sub> (BASE)		R <sub>2</sub> (PARAPET)		
	R <sub>1</sub> (BASE)	R <sub>2</sub> (PARAPET)	R <sub>1</sub> (BASE)	R <sub>2</sub> (PARAPET)	
WINDWARD PARAPET (ZONE 4)	79.53	397.22	151.27	468.96	LB
WINDWARD PARAPET (ZONE 5)	75.47	432.63	147.21	504.37	LB
LEEWARD PARAPET (ZONE 4)	178.73	403.71	106.99	331.97	LB
LEEWARD PARAPET (ZONE 5)	199.74	MAX 439.39	128.00	367.65	LB
SEISMIC LOAD (D+.7E)	28.84	48.98	28.84	48.98	LB

DESIGN MEMBER MOMENTS	M <sub>1</sub> (SPAN)		M <sub>2</sub> (REACTION)		
	M <sub>1</sub> (SPAN)	M <sub>2</sub> (REACTION)	M <sub>1</sub> (SPAN)	M <sub>2</sub> (REACTION)	
WINDWARD PARAPET (ZONE 4)	240.74	557.76	531.22	557.76	FT-LB
WINDWARD PARAPET (ZONE 5)	216.81	627.05	503.11	627.05	FT-LB
LEEWARD PARAPET (ZONE 4)	675.74	394.99	375.66	394.99	FT-LB
LEEWARD PARAPET (ZONE 5)	759.24	MAX 420.74	458.35	420.74	FT-LB
SEISMIC LOAD (D+.7E)	11.77	35.36	11.77	35.36	FT-LB



**Section :** 800S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo =** 1678.4 ft-lb      **Va =** 1051.2 lb      **I =** 4.50 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/600

**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexural, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 71.0"	N/A	-
Span	72.0", 72.0"	72.0", 187.0"	LSUBH3.25 (Min)	0.64

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R2	663.66	1.00	542.0	1130.1	1.08	YES
R1	136.81	1.00	246.9	0.0	0.29	NO

\*\*\* after support means punched near support

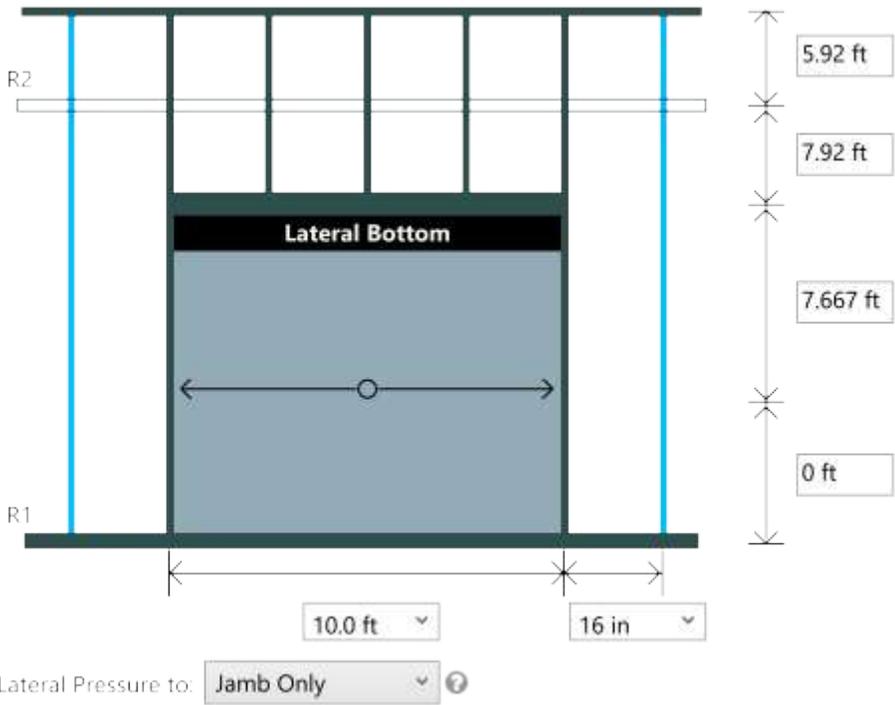
**Gravity Load**

Type	Load (lb)
Uniform	13.33plf (Top Cantilever), 13.33plf (Span)

	Code Check	Required	Allowed	Interaction	Notes
Top Cant.	Max. Axial, lbs	78.9(c)	2379.6(c)	3%	$K\Phi=0.00$ lb-in/in Max KL/r = 130
	Max. Shear, lbs	381.8	1051.2	36%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	1130.1	1475.6	77%	Ma-dist (control), $K\Phi=0.00$ lb-in/in
	Moment Stability, ft-lbs	721.5	1552.7	46%	
	Shear/Moment	0.77	1.00	77%	Shear 381.8, Moment 1130.1
	Axial/Moment	0.80	1.00	80%	Axial 78.9(c), Moment 1130.1
	Deflection Cant.	L/975	L/600	62%	2 x (Cant. + span inflection), $\Delta=0.1784"$
Span	Max. Axial, lbs	286.7(c)	2336.4(c)	12%	$K\Phi=0.00$ lb-in/in Max KL/r = 132
	Max. Shear, lbs	281.9	1051.2	27%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	1130.1	1475.6	77%	Ma-dist (control), $K\Phi=0.00$ lb-in/in
	Moment Stability, ft-lbs	379.1	1306.1	29%	
	Shear/Moment	0.72	1.00	72%	Shear 281.9, Moment 1130.1
	Axial/Moment	0.90	1.00	90%	Axial 78.9(c), Moment 1130.1
	Deflection Span	L/4678	L/600	13%	$\Delta=0.0400"$

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	663.7	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	136.8	286.7	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements



**Design Loads**

Wall Lateral Pressure :	<b>20.15 psf</b>
Parapet Lateral Pressure :	<b>48.37 psf</b>
RO Lateral Pressure :	<b>Jamb Only</b>
Lateral element force multiplier	
Strength :	<b>1.0</b>
Deflection :	<b>0.7</b>
Header:	<b>Box (lateral top, bottom)</b>
Gravity Load at Header:	<b>10 psf</b>
Cant. Deflection:	<b>2(Cant. + Span Inlect.)</b>
Lateral Deflection Limit:	<b>600</b>
Gravity Deflection Limit:	<b>360</b>

**Brace Settings**

Component(s)	Members(s)	Flexural Bracing	Axial KyLy	Axial KtLt	Distortional K-Phi(lb-in/in)	Distortional Lm	Interconnection Spacing
Jamb Studs	800S162-43(33), (2) Non-Composite	72 in	72 in	72 in	0	None	N/A
Vertical Header	800S162-43(33), Boxed	Full	N/A	N/A	0	None	N/A
Lat. Top Head	800T125-43(33), Single	Full	N/A	N/A	0	None	N/A
Lat. Bottom Head	800T125-43(33), Single	Full	N/A	N/A	0	None	N/A

**Analysis Results**

Component(s)	Members(s)	Axial Load (lb)	Max KL/r	Max. Moment (ft-lb)	Max. Shear (lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Jamb Studs	800S162-43(33), (2) Non-Composite	692.0	132	1481.9	581.7	581.7	454.9
Vertical Header	800S162-43(33), Boxed	N/A	N/A	1730.0	692.0	N/A	692.0
Lat. Top Head	800T125-43(33), Single	N/A	N/A	340.3	136.1	N/A	136.1
Lat. Bottom Head	800T125-43(33), Single	N/A	N/A	0.0	0.0	N/A	0.0

**Design Results**

Component(s)	Members(s)	Deflection		Interaction			Web Stiffeners	Design OK
		Span	Parapet	Defl.	A + M	V + M		
Jamb Studs	800S162-43(33), (2) Non-Composite	L/1393	L/1644	0.43	0.71	0.44	No	Yes
Vertical Header	800S162-43(33), Boxed	L/1023	NA	0.35	0.52	0.52	R1, R2	Yes
Lat. Top Head	800T125-43(33), Single	L/2876	NA	0.21	0.32	0.32	No	Yes
Lat. Bottom Head	800T125-43(33), Single	L/0	NA	0.00	0.00	0.00	No	Yes

**Simpson Strong-Tie® Connectors @ Jambs**

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie® Connector	Connector Interaction	Anchor Interaction

Project Name: 250361200-CFS  
 Model: 05/S2 DOOR OPENING - ZONE 5  
 Code: IBC 2018(AISI S100 - 16)

Page 2 of 2  
 Date: 11/11/2025

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

R2	454.86	0.00	By Others & Anchorage Designed by Engineer	NA	NA
R1	581.74	886.49	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

**Simpson Strong-Tie® Wall Stud Bridging Connectors @ Jambs**

Span/Parapet	Bracing Length(in.)	Design Number of Braces	Pn(lb.)	LSUBH (Min) <sup>1</sup>	LSUBH (Max) <sup>1</sup>	SUBH (Min) <sup>1</sup>	SUBH (Max) <sup>1</sup>	MSUBH (Min) <sup>1</sup>	MSUBH (Max) <sup>1</sup>
Top Parapet	Span	N/A	0.00	N/A	N/A	N/A	N/A	N/A	N/A
Span	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Notes:**

- 1) Values in parentheses are stress ratios.
- 2) Bridging connectors are not designed for back-back, box, or built-up sections.
- 3) Reference [www.strongtie.com](http://www.strongtie.com) for latest load data, important information, and general notes.
- 4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
- 5) If the bracing length is larger than the span length, bridging connectors are not designed.

Project Name: 250361200-CFS  
 Model: 05/S2 DOOR OPENING - ZONE 5\_jamb  
 Code: IBC 2018(AISI S100 - 16)

Page 1 of 2  
 Date: 11/11/2025

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

**Section :** 800S250-54 (50 ksi) Single C Stud (punched)  
**Maxo =** 3804.9 ft-lb      **Va =** 2091.3 lb      **I =** 7.38 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/600

**Bridging Connectors - Design Method =AISI S100**

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 71.0"	N/A	-
Span	72.0", 72.0"	72.0", 187.0"	SUBH3.25 (Max)	0.87

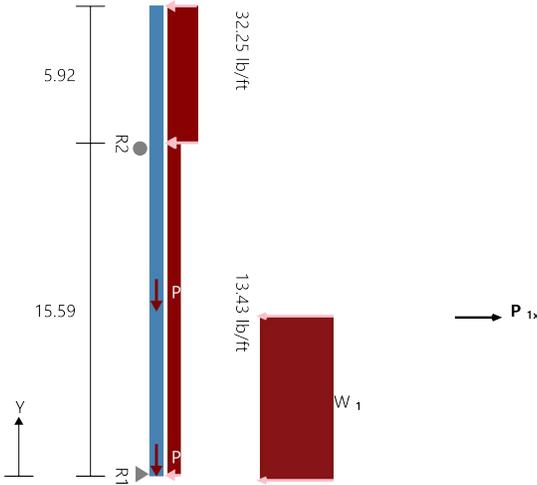
**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
P1x	-136.13	1.50	1289.1	1103.9	0.23	NO
R2	454.86	1.00	1271.8	566.5	0.29	NO
R1	581.74	1.00	409.4	0.0	0.74	YES

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	
P1y	692.00lb @ 7.67ft
P2y	194.49lb @ 0.00ft



**Point Loads P1x**  
 Load(lb) -136.13  
 Y-Dist.(ft) 7.67

**Sloped/Partial Loads**

	Code Check	Y-Start (ft)	W-Start (lb/ft)	Y-End(ft)	W-End (lb/ft)	Interaction	Notes
		W1 0.00	100.75	7.67	100.75		
Top Cant.	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A		
	Max. Shear, lbs	190.7	2091.3	9%	Shear (Punched)		
	Max. Moment (MaFy, Ma-dist), ft-lbs	566.5	3159.5	18%	Ma-dist (control),KΦ=0.00 lb-in/in		
	Moment Stability, ft-lbs	362.4	3774.0	10%			
	Shear/Moment	0.17	1.00	17%	Shear 190.7, Moment 566.5		
	Axial/Moment	0.15	1.00	18%	Axial 0.0(c), Moment 566.5		
	Deflection Cant.	L/1347	L/600	45%	2 x (Cant. + span inflection),Δ=0.1002"		
Span	Max. Axial, lbs	886.5(c)	6808.4(c)	13%	KΦ=0.00 lb-in/in Max KL/r = 81		
	Max. Shear, lbs	581.7	2091.3	28%	Shear (Punched)		
	Max. Moment (MaFy, Ma-dist), ft-lbs	1481.9	3159.5	47%	Ma-dist (control),KΦ=0.00 lb-in/in		
	Moment Stability, ft-lbs	1481.9	3583.0	41%			
	Shear/Moment	0.39	1.00	39%	Shear 0.2, Moment 1481.9		
	Axial/Moment	0.58	1.00	58%	Axial 692.0(c), Moment 1481.9		
	Deflection Span	L/1142	L/600	53%	Δ= 0.1638"		

Project Name: 250361200-CFS

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Model: 05/S2 DOOR OPENING - ZONE 5\_jamb

Date: 11/11/2025

Code: IBC 2018(AISI S100 - 16)

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	454.9	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	581.7	886.5	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements



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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
 LOCATION: Lee's Summit, MO  
 CLIENT: E&K of Kansas City, Inc.  
 PROJECT #: 250361200

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 DATE: 11/11/2025  
 ENGR: OLS

**SOFFIT COMPONENT LATERAL LOAD DETERMINATION**

ASCE 7-16

THE EXTERNAL PRESSURE COEFFICIENT FOR THE COVERING ON THE UNDERSIDE OF THE ROOF OVERHANG IS THE SAME AS THE EXTERNAL PRESSURE COEFFICIENT ON THE ADJACENT WALL SURFACE.

30.9

	<b>ZONE 4</b>	<b>ZONE 5</b>			
<b>DESIGN SOFFIT DEAD LOAD</b> = .....	<b>10.00</b>	<b>10.00</b>	PSF	dl	
<b>ACTUAL SOFFIT DEAD LOAD</b> = .....	<b>4.00</b>	<b>4.00</b>	PSF	adl	
<b>COMPONENT SPAN</b> = .....	<b>44.00</b>	<b>44.00</b>	FT	hs	
<b>COMPONENT SPACING</b> = .....	<b>16.00</b>	<b>16.00</b>	IN	sp	
EFFECTIVE WIND AREA = MAX((hs)*(sp),(hs*(hs/3))) = .....	645.33	645.33	FT <sup>2</sup>	A	26.2
EXTERNAL PRESSURE COEFFICIENTS:					
WIND PRESSURE = .....	0.63	0.63	GC <sub>p</sub>	FIGURE 30.3-1	
WIND SUCTION = .....	-0.72	-0.72	GC <sub>p</sub>	FIGURE 30.3-1	
INTERNAL PRESSURE COEFFICIENT = .....	0.18	0.18	GC <sub>pi</sub>	TABLE 26.13-1	
PER NOTE 5: VALUES OF GC <sub>p</sub> FOR WALLS MAY BE REDUCED BY 10% WHEN ROOF PITCH <=10 DEGREES				FIGURE 30.3-1	

VELOCITY PRESSURE @ h (C&C) = .....	29.17	PSF	q <sub>h</sub>	EQ. 26.10-1
VELOCITY PRESSURE @ Z (C&C) = .....	29.17	PSF	q <sub>z</sub>	EQ. 26.10-1
EDGE ZONE DIMENSION = .....	15.23		a <sub>w</sub>	FIGURE 30.3-1
MINIMUM C&C PRESSURE/SUCTION = 16 PSF	+GC <sub>pi</sub>		-GC <sub>pi</sub>	
ZONE 4 PRESSURE (STRENGTH LEVEL) = (q <sub>h</sub> )[(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	13.13	<b>23.63</b>	PSF	EQ. 30.3-1
ZONE 5 PRESSURE (STRENGTH LEVEL) = (q <sub>h</sub> )[(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	13.13	<b>23.63</b>	PSF	EQ. 30.3-1
ZONE 4 SUCTION (STRENGTH LEVEL) = (q <sub>h</sub> )[(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	<b>26.25</b>	15.75	PSF	EQ. 30.3-1
ZONE 5 SUCTION (STRENGTH LEVEL) = (q <sub>h</sub> )[(GC <sub>p</sub> )-(GC <sub>pi</sub> )] = .....	<b>26.25</b>	15.75	PSF	EQ. 30.3-1

MEMBER DESIGN PRESSURES (SERVICE LEVEL)		GROSS .6W		2.4.1
ZONE 1 (ZONE 4) PRESSURE = .....	14.18	PSF	p <sub>4c</sub>	
ZONE 2 (ZONE 5) PRESSURE = .....	14.18	PSF	p <sub>5c</sub>	
ZONE 1 (ZONE 4) SUCTION = .....	15.75	PSF	s <sub>4c</sub>	
ZONE 2 (ZONE 5) SUCTION = .....	15.75	PSF	s <sub>5c</sub>	
MEMBER DESIGN LOADINGS (SERVICE LEVEL)	NET D+.6W	GROSS .6W		
ZONE 1 (ZONE 4) PRESSURE = .....	14.10	18.90	PLF	w <sub>4p</sub>
ZONE 2 (ZONE 5) PRESSURE = .....	14.10	18.90	PLF	w <sub>5p</sub>
ZONE 1 (ZONE 4) SUCTION = .....	34.33	21.00	PLF	w <sub>4s</sub>
ZONE 2 (ZONE 5) SUCTION = .....	34.33	21.00	PLF	w <sub>5s</sub>
SEISMIC LOADING = .....	14.06	0.72	PLF	w <sub>e</sub>

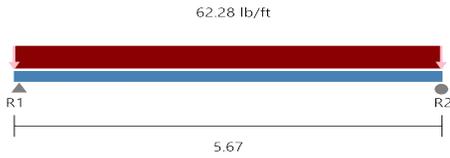
Project Name: 250361200-CFS  
 Model: 06/S2 CANOPY SECTION  
 Code: IBC 2018(AISI S100 - 16)

Page 1 of 1  
 Date: 11/11/2025

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

**Section:** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo** = 612.0 ft-lb      **Va** = 1739.1 lb      **I** = 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have not been modified for deflection calculations



Deflection Ratio = L/360

**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Span	NA	None, 68.0"	N/A	-

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R1*	176.56	1.00	239.7	0.0	0.38	NO
R2*	176.56	1.00	239.7	0.0	0.38	NO

\*\*\* after support means punched near support

	Code Check	Required	Allowed	Interaction	Notes
Span	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	176.6	675.7	26%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	250.3	609.6	41%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	250.3	534.7	47%	
	Shear/Moment	0.41	1.00	41%	Shear 0.0, Moment 250.3
	Axial/Moment	0.47	1.00	47%	Axial 0.0(c), Moment 250.3
	Deflection Span	L/984	L/360	37%	Δ= 0.0692"

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	0.0	176.6	By Others & Anchorage Designed by Engineer	NA	NA
R2	0.0	176.6	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

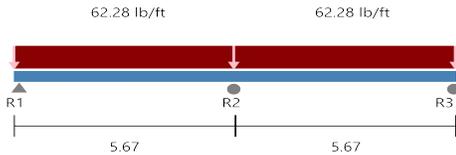
Project Name: 250361200-CFS  
 Model: 06/S2 CANOPY SECTION - 2 SPAN  
 Code: IBC 2018(AISI S100 - 16)

Page 1 of 1  
 Date: 11/11/2025

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

**Section:** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo** = 612.0 ft-lb      **Va** = 1739.1 lb      **I** = 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have not been modified for deflection calculations



Deflection Ratio = L/360

**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexural, Distortional	Connector	Stress Ratio
Left Span	NA	None, 68.0"	N/A	-
Right Span	NA	None, 68.0"	N/A	-

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R1*	132.42	1.00	239.7	0.0	0.29	NO
R2*	441.41	1.00	501.0	250.3	0.73	NO
R3*	132.42	1.00	239.7	0.0	0.29	NO

\*\*\* after support means punched near support

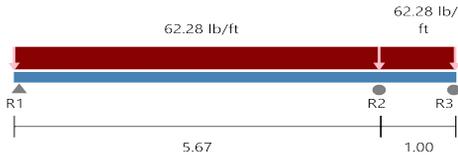
	Code Check	Required	Allowed	Interaction	Notes
Left Span	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	220.7	675.7	33%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	250.3	609.6	41%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	140.8	564.3	25%	
	Shear/Moment	0.52	1.00	52%	Shear 220.7, Moment 250.3
	Axial/Moment	0.41	1.00	41%	Axial 0.0(c), Moment 250.3
	Deflection Span	L/2365	L/360	15%	Δ= 0.0288"
Right Span	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	220.7	675.7	33%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	250.3	609.6	41%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	140.8	564.3	25%	
	Shear/Moment	0.52	1.00	52%	Shear 220.7, Moment 250.3
	Axial/Moment	0.41	1.00	41%	Axial 0.0(c), Moment 250.3
	Deflection Span	L/2365	L/360	15%	Δ= 0.0288"

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	0.0	132.4	By Others & Anchorage Designed by Engineer	NA	NA
R2	0.0	441.4	By Others & Anchorage Designed by Engineer	NA	NA
R3	0.0	132.4	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

**Section:** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo** = 612.0 ft-lb      **Va** = 1739.1 lb      **I** = 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have not been modified for deflection calculations



Deflection Ratio = L/360

**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexural, Distortional	Connector	Stress Ratio
Left Span	NA	None, 68.0"	N/A	-
Right Span	NA	None, 12.0"	N/A	-

**Web Crippling**

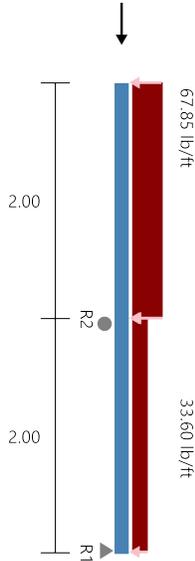
Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R1*	138.83	1.00	239.7	0.0	0.30	NO
R2*	459.36	1.00	501.0	213.9	0.72	NO
R3*	-182.78	1.00	239.7	0.0	0.40	NO

\*\*\* after support means punched near support

	Code Check	Required	Allowed	Interaction	Notes
Left Span	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	214.3	675.7	32%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	213.9	609.6	35%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	154.7	556.4	28%	
	Shear/Moment	0.47	1.00	47%	Shear 214.3, Moment 213.9
	Axial/Moment	0.35	1.00	35%	Axial 0.0(c), Moment 213.9
	Deflection Span	L/1977	L/360	18%	Δ= 0.0344"
Right Span	Max. Axial, lbs	0.0(t)	-	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	245.1	675.7	36%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	213.9	612.0	35%	MaFy (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	165.9	612.0	27%	
	Shear/Moment	0.50	1.00	50%	Shear 245.1, Moment 213.9
	Axial/Moment	0.35	1.00	35%	Axial 0.0(c), Moment 213.9
	Deflection Span	L/11239	L/360	3%	Δ= 0.0011"

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	0.0	138.8	By Others & Anchorage Designed by Engineer	NA	NA
R2	0.0	459.4	By Others & Anchorage Designed by Engineer	NA	NA
R3	0.0	-182.8	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements



**Section :** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo =** 612.0 ft-lb      **Va =** 1739.1 lb      **I =** 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/360

**Bridging Connectors - Design Method =AISI S100**

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 24.0"	N/A	-
Span	None, None	None, 24.0"	N/A	-

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R2	237.16	1.00	569.8	135.7	0.36	NO
R1	-34.25	1.00	276.7	0.0	0.06	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	13.33plf (Top Cantilever), 13.33plf (Span)

	Code Check	Required	Allowed	Interaction	Notes
Top Cant.	Max. Axial, lbs	26.7(c)	3912.3(c)	1%	KΦ=0.00 lb-in/in Max KL/r = 46
	Max. Shear, lbs	135.7	675.7	20%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	135.7	609.6	22%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	86.6	612.0	14%	
	Shear/Moment	0.30	1.00	30%	Shear 135.7, Moment 135.7
	Axial/Moment	0.23	1.00	23%	Axial 26.7(c), Moment 135.7
	Deflection Cant.	L/3614	L/360	10%	2 x (Cant. + span inflection),Δ=0.0170"
Span	Max. Axial, lbs	53.3(c)	4123.8(c)	1%	KΦ=0.00 lb-in/in Max KL/r = 39
	Max. Shear, lbs	101.5	675.7	15%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	135.7	609.6	22%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	97.6	612.0	16%	
	Shear/Moment	0.27	1.00	27%	Shear 101.5, Moment 135.7
	Axial/Moment	0.23	1.00	23%	Axial 26.7(c), Moment 135.7
	Deflection Span	L/14798	L/360	2%	Δ= 0.0016"

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	237.2	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	-34.3	53.3	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements



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 www.excelengineer.com

PROJECT: HCA Lees Summit Medical Center Ed Expansion  
 LOCATION: Lee's Summit, MO  
 CLIENT: E&K of Kansas City, Inc.  
 PROJECT #: 250361200

PAGE: **28**  
 DATE: 11/7/2025  
 ENGR: OLS

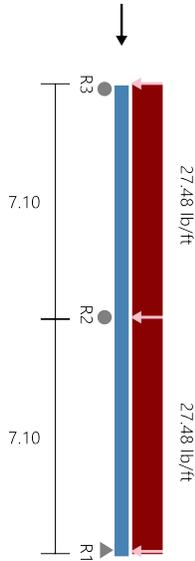
**WALL COMPONENT LATERAL LOAD DETERMINATION**

ASCE 7-16

	<b>ZONE 4</b>	<b>ZONE 5</b>			
<b>COMPONENT SPAN</b> = .....	<b>14.17</b>	<b>14.17</b>	FT	hs	
<b>COMPONENT SPACING</b> = .....	<b>16.00</b>	<b>16.00</b>	IN	sp	
EFFECTIVE WIND AREA = MAX((hs)*(sp),(hs*(hs/3))) = .....	66.90	66.90	FT <sup>2</sup>	A	26.2
EXTERNAL PRESSURE COEFFICIENTS:					
WIND PRESSURE = .....	0.77	0.77		GC <sub>p</sub>	FIGURE 30.3-1
WIND SUCTION = .....	-0.86	-1.00		GC <sub>p</sub>	FIGURE 30.3-1
INTERNAL PRESSURE COEFFICIENT = .....	0.18	0.18		GC <sub>pi</sub>	TABLE 26.13-1
PER NOTE 5: VALUES OF GC <sub>p</sub> FOR WALLS MAY BE REDUCED BY 10% WHEN ROOF PITCH <=10 DEGREES					FIGURE 30.3-1

VELOCITY PRESSURE @ h (C&C) = .....	29.17	PSF	q <sub>h</sub>	EQ. 26.10-1
VELOCITY PRESSURE @ Z (C&C) = .....	29.17	PSF	q <sub>z</sub>	EQ. 26.10-1
WALL EDGE ZONE DIMENSION = .....	15.23	FT	a <sub>w</sub>	FIGURE 30.3-1
MINIMUM C&C PRESSURE/SUCTION = 16 PSF	+GC <sub>pi</sub>		-GC <sub>pi</sub>	
ZONE 4 PRESSURE (STRENGTH LEVEL) = (qh)[(GCp)-(GCpi)] = .....	17.17	<b>27.67</b>	PSF	EQ. 30.3-1
ZONE 5 PRESSURE (STRENGTH LEVEL) = (qh)[(GCp)-(GCpi)] = .....	17.17	<b>27.67</b>	PSF	EQ. 30.3-1
ZONE 4 SUCTION (STRENGTH LEVEL) = (qh)[(GCp)-(GCpi)] = .....	<b>30.30</b>	19.80	PSF	EQ. 30.3-1
ZONE 5 SUCTION (STRENGTH LEVEL) = (qh)[(GCP)-(GCpi)] = .....	<b>34.35</b>	23.85	PSF	EQ. 30.3-1

		D+.7E	D+.7E	D+.6W	D+.6W		
		<b>ZONE 4</b>	<b>ZONE 5</b>	<b>ZONE 4</b>	<b>ZONE 5</b>		2.4.1
WALL FINISH: <b>BRICK VENEER</b>							
MEMBER DESIGN PRESSURES (SERVICE LEVEL)	PRESSURE =	2.71	2.71	16.60	16.60	PSF	
	SUCTION =	2.71	2.71	18.18	20.61	PSF	
MEMBER DESIGN LOADINGS (SERVICE LEVEL)	PRESSURE =	3.62	3.62	22.14	22.14	PLF	
	SUCTION =	3.62	3.62	24.24	27.48	PLF	



**Section :** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo =** 612.0 ft-lb      **Va =** 1739.1 lb      **I =** 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/600

**Bridging Connectors - Design Method =AISI S100**

Span	Axial KyLy, KtLt	Flexural, Distortional	Connector	Stress Ratio
Top	72.0", 72.0"	72.0", 85.2"	LSUBH3.25 (Min)	0.85
Bottom	72.0", 72.0"	72.0", 85.2"	LSUBH3.25 (Min)	0.85

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R3	73.17	1.00	276.7	0.0	0.14	NO
R2	243.89	1.00	569.8	173.2	0.41	NO
R1	73.17	1.00	276.7	0.0	0.14	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	13.33plf (Top Span), 13.33plf (Bottom Span)

	Code Check	Required	Allowed	Interaction	Notes
Top Span	Max. Axial, lbs	94.7(c)	2015.9(c)	5%	KΦ=0.00 lb-in/in Max KL/r = 118
	Max. Shear, lbs	121.9	675.7	18%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	173.2	609.6	28%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	97.4	524.3	19%	
	Shear/Moment	0.34	1.00	34%	Shear 121.9, Moment 173.2
	Axial/Moment	0.38	1.00	38%	Axial 94.7(c), Moment 173.2
	Deflection Span	L/3900	L/600	15%	Δ= 0.0218"
Bottom Span	Max. Axial, lbs	189.3(c)	2015.9(c)	9%	KΦ=0.00 lb-in/in Max KL/r = 118
	Max. Shear, lbs	121.9	675.7	18%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	173.2	609.6	28%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	97.4	524.3	19%	
	Shear/Moment	0.34	1.00	34%	Shear 121.9, Moment 173.2
	Axial/Moment	0.38	1.00	38%	Axial 94.7(c), Moment 173.2
	Deflection Span	L/3900	L/600	15%	Δ= 0.0218"

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R3	73.2	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R2	243.9	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	73.2	189.3	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

Project Name: 250361200-CFS  
 Model: 07/S2 CANOPY VERT SECTION - ZONE 5  
 Code: IBC 2018(AISI S100 - 16)

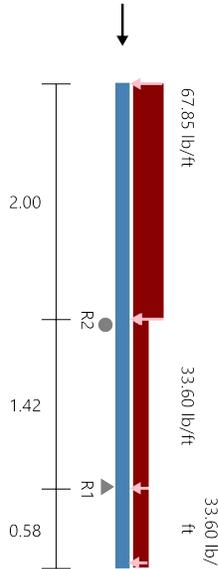
Page 1 of 2  
 Date: 11/11/2025

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

**Section :** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo =** 612.0 ft-lb      **Va =** 1739.1 lb      **I =** 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/360



**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexural, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 24.0"	N/A	-
Span	None, None	None, 17.0"	N/A	-
Bottom Cant.	NA	None, 7.0"	N/A	-

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R2	251.15	1.00	569.8	135.7	0.38	NO
R1	-48.24	1.00	569.8	5.7	0.05	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	13.33plf (Top Cantilever), 13.33plf (Span), 13.33plf (Bottom Cant)

	Code Check	Required	Allowed	Interaction	Notes
Top Cant.	Max. Axial, lbs	26.7(c)	3945.3(c)	1%	KΦ=0.00 lb-in/in Max KL/r = 43
	Max. Shear, lbs	135.7	675.7	20%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	135.7	609.6	22%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	86.6	612.0	14%	
	Shear/Moment	0.30	1.00	30%	Shear 135.7, Moment 135.7
	Axial/Moment	0.23	1.00	23%	Axial 26.7(c), Moment 135.7
	Deflection Cant.	L/3918	L/360	9%	2 x (Cant. + span inflection), Δ=0.0150"
Span	Max. Axial, lbs	45.6(c)	4314.5(c)	1%	KΦ=0.00 lb-in/in Max KL/r = 28
	Max. Shear, lbs	115.4	675.7	17%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	135.7	609.6	22%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	104.1	612.0	17%	
	Shear/Moment	0.28	1.00	28%	Shear 115.4, Moment 135.7
	Axial/Moment	0.23	1.00	23%	Axial 26.7(c), Moment 135.7
Deflection Span	L/17892	L/360	2%	Δ= 0.0010"	
Bottom Cant.	Max. Axial, lbs	7.7(t)	6122.6(t)	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	19.5	675.7	3%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	5.7	612.0	1%	MaFy (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	3.6	612.0	1%	
	Shear/Moment	0.03	1.00	3%	Shear 19.5, Moment 5.7
	Axial/Moment	0.01	1.00	1%	Axial 7.7(t), Moment 5.7
Deflection Cant.	L/16749	L/360	2%	2 x (Cant. + span inflection), Δ=0.0011"	

Project Name: 250361200-CFS

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Model: 07/S2 CANOPY VERT SECTION - ZONE 5

Date: 11/11/2025

Code: IBC 2018(AISI S100 - 16)

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

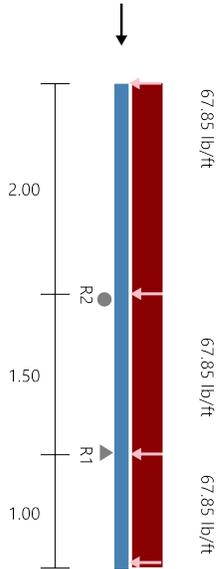
Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	251.2	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	-48.2	53.3	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

**Section :** 362S162-43 (33 ksi) @ 16" o.c. Single C Stud (punched)  
**Maxo =** 612.0 ft-lb      **Va =** 1739.1 lb      **I =** 0.71 in<sup>4</sup>

Loads have not been modified for strength checks  
 Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = L/360



**Bridging Connectors - Design Method = AISI S100**

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Top Cant.	None, 0.0"	None, 24.0"	N/A	-
Span	None, None	None, 18.0"	N/A	-
Bottom Cant.	NA	None, 12.0"	N/A	-

**Web Crippling**

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R2	254.45	1.00	569.8	135.7	0.38	NO
R1	50.89	1.00	569.8	33.9	0.08	NO

\*\*\* after support means punched near support

**Gravity Load**

Type	Load (lb)
Uniform	13.33plf

	Code Check	Required	Allowed	Interaction	Notes
Top Cant.	Max. Axial, lbs	26.7(c)	3940.7(c)	1%	KΦ=0.00 lb-in/in Max KL/r = 44
	Max. Shear, lbs	135.7	675.7	20%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	135.7	609.6	22%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	86.6	612.0	14%	
	Shear/Moment	0.30	1.00	30%	Shear 135.7, Moment 135.7
	Axial/Moment	0.23	1.00	23%	Axial 26.7(c), Moment 135.7
	Deflection Cant.	L/3822	L/360	9%	2 x (Cant. + span inflection), Δ=0.0156"
Span	Max. Axial, lbs	46.7(c)	4300.6(c)	1%	KΦ=0.00 lb-in/in Max KL/r = 29
	Max. Shear, lbs	118.7	675.7	18%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	135.7	609.6	22%	Ma-dist (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	103.0	612.0	17%	
	Shear/Moment	0.28	1.00	28%	Shear 118.7, Moment 135.7
	Axial/Moment	0.23	1.00	23%	Axial 26.7(c), Moment 135.7
	Deflection Span	L/15833	L/360	2%	Δ= 0.0011"
Bottom Cant.	Max. Axial, lbs	13.3(t)	6122.6(t)	0%	KΦ=0.00 lb-in/in Max KL/r = N/A
	Max. Shear, lbs	67.9	675.7	10%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	33.9	612.0	6%	MaFy (control), KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	21.7	612.0	4%	
	Shear/Moment	0.11	1.00	11%	Shear 67.9, Moment 33.9
	Axial/Moment	0.05	1.00	5%	Axial 13.3(t), Moment 33.9
	Deflection Cant.	L/11006	L/360	3%	2 x (Cant. + span inflection), Δ=0.0029"

Project Name: 250361200-CFS

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Model: 08/S2 CURB SECTION - ZONE 5

Date: 11/11/2025

Code: IBC 2018(AISI S100 - 16)

Simpson Strong-Tie® CFS Designer™ 6.0.3.0

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	254.5	0.0	By Others & Anchorage Designed by Engineer	NA	NA
R1	50.9	60.0	By Others & Anchorage Designed by Engineer	NA	NA

\* Reference catalog for connector and anchor requirement notes as well as screw placement requirements



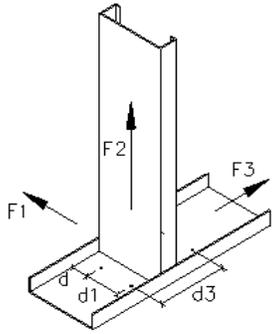
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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 34  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**

DETAIL 4/D1						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
1/S1	0	169	0	0	0	0
4/S1	0	137	0	0	0	0
6/S2	0	97	0	0	0	0



STUD: **VERTICAL**  
TRACK: **BOTTOM**

**EXTERIOR FRAMING**

TRACK DESIGN:	STANDARD			
<b>F1 BENDING: TRACK LEGS</b>				
ALLOWABLE LOAD =		378.76	LB	OK
<b>F2 BENDING: TRACK WEB</b>				
WEB BENDING M2 =		0.00	IN-LB	
THICKNESS OF TRACK WEB REQUIRED =		0.0000	IN	OK
<b>F3 COMPRESSION: EFFECTIVE TRACK LENGTH</b>				
ALLOWABLE LOAD =		3154.41	LB	OK
		0.00		
<b>F1 SHEAR: TRACK WEB</b>				
TRACK WEB ALLOWABLE SHEAR STRENGTH =		1360.79	LB	OK
<b>USE:</b>	<b>TRACK:</b>	<b>600T125-43</b>	<b>33 KSI MIN.</b>	

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>168.97</b>
F2 MAX. (LB) =	<b>0.00</b>
F3 MAX. (LB) =	<b>0.00</b>
TRACK WEB (IN) =	6.00
TRACK LEG (IN) =	1.25
TRACK EFFECTIVE LENGTH (IN) =	11.24
TRACK THICKNESS (IN) =	0.0451
d (IN) =	<b>3.00</b>
d1 (IN) =	<b>0.00</b>
d3 (IN) =	<b>4.00</b>
GAP BETWEEN STUD AND TRACK "e" (IN) =	<b>0.25</b>
CONNECTION TYPE	<b>WALL</b>
MIN ANCHOR TO CONC SHANK DIA. (IN) d <sub>o</sub> =	0.1570
MIN ANCHOR TO CONC HEAD DIA. (IN) d <sub>w</sub> =	0.3000
MIN Tallow ANCHOR @ CONCRETE (LB) =	ANCHOR TRACK 167 913
MIN Vallow ANCHOR @ CONCRETE (LB) =	ANCHOR TRACK 202 860
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000
MIN Tallow SCREW @ STUD (LB) =	SCREW STUD 386 109
MIN Vallow SCREW @ STUD (LB) =	SCREW STUD 405 263
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>

ANCHOR DESIGN TO CONCRETE:	THICKNESS:	6.00	IN	h <sub>a</sub>	OK	3000	PSI	f' <sub>c</sub>	NORMAL WT
2 ANCHORS PER FASTENER ROW	EDGE DISTANCE TOWARDS LOAD =	3.00	IN	c <sub>a1</sub>	OK				
	EDGE DISTANCE OPPOSITE LOAD =	9.00	IN	c <sub>a2</sub>	OK				
	SPACING BETWEEN ANCHORS =	N/A	IN	s <sub>a1</sub>	OK				
	SPACING BETWEEN GROUPS =	4.00	IN	s <sub>a2</sub>	OK				
USE: 2 .157" x 1 1/16" LONG HILTI X-U .157" x 1 1/16" LONG RAMSET TE .157" x 1 1/16" LONG SIMPSON PDPA .157" x 1 1/4" LONG DEWALT SPIRAL CSI PIN <b>MIN PER STUD</b>			INTERACTION SUMMARY		CODE REPORT				
	SHEAR	TENSION	COMBINED						
	0.42	0.00	0.42	HILTI ICC ESR-2269					
	0.39	0.00	0.39	ITW RAMSET ICC ESR-1799					
	0.29	0.00	0.29	SIMPSON ICC ESR-2138					
0.30	0.00	0.30	DEWALT ICC ESR-2024						

SCREW DESIGN TO STUD:	STUD:	1	600S162-43	33 KSI MIN.	@	16 " O.C.
USE: 1 #10-16 BUILDEX "TEKS" SCREW #10-16 HILTI "SDS" SCREW #10-16 GRABBER "DRIVALL" SCREW #10-16 PRO-TWIST "DARTS" SCREW <b>MIN EACH LEG</b>			MIN TOP EDGE DISTANCE =		0.29	IN c <sub>a1</sub> OK
	MIN SIDE EDGE DISTANCE =		0.29	IN c <sub>a2</sub> OK		
	MIN ROW SPACING =		0.57	IN s <sub>a1</sub> OK		
	MIN GROUP SPACING =		0.57	IN s <sub>a2</sub> OK		
INTERACTION SUMMARY		CODE REPORT				
SHEAR	TENSION	COMBINED				
0.00	0.00	0.00	ITW ICC ESR-1976			
0.00	0.00	0.00	HILTI ICC ESR-2196			
0.00	0.00	0.00	GRABBER ICC-ESR 1271			
0.00	0.00	0.00	PBP ICC ESR-1408			

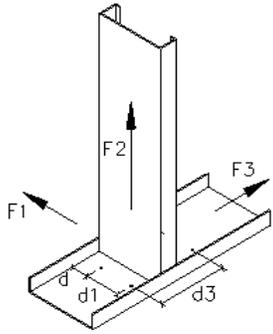


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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 35  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
TRACK: **BOTTOM**

DETAIL 4/D1 (J)						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
3/S1	0	462	0	0	0	0

**EXTERIOR FRAMING**

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>462.00</b>
F2 MAX. (LB) =	<b>0.00</b>
F3 MAX. (LB) =	<b>0.00</b>
TRACK WEB (IN) =	6.00
TRACK LEG (IN) =	1.25
TRACK EFFECTIVE LENGTH (IN) =	13.62
TRACK THICKNESS (IN) =	0.0451
d (IN) =	<b>1.00</b>
d1 (IN) =	<b>4.00</b>
d3 (IN) =	<b>4.00</b>
GAP BETWEEN STUD AND TRACK "e" (IN) =	<b>0.25</b>
CONNECTION TYPE	<b>WALL</b>
MIN ANCHOR TO CONC SHANK DIA. (IN) $d_o$ =	0.1570
MIN ANCHOR TO CONC HEAD DIA. (IN) $d_w$ =	0.3000
MIN Tallow ANCHOR @ CONCRETE (LB) =	ANCHOR 167 TRACK 913
MIN Vallow ANCHOR @ CONCRETE (LB) =	ANCHOR 202 TRACK 860
MIN SCREW TO STUD SHANK DIA. (IN) $d_o$ =	0.1900
MIN SCREW TO STUD HEAD DIA. (IN) $d_w$ =	0.4000
MIN Tallow SCREW @ STUD (LB) =	SCREW 386 STUD 109
MIN Vallow SCREW @ STUD (LB) =	SCREW 405 STUD 263
COMPONENT OVERSTRENGTH FACTOR ( $\Omega_o$ ) =	<b>1.000</b>
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>

TRACK DESIGN:	STANDARD
<b>F1 BENDING: TRACK LEGS</b>	
ALLOWABLE LOAD =	544.95 LB OK
<b>F2 BENDING: TRACK WEB</b>	
WEB BENDING M2 =	0.00 IN-LB
THICKNESS OF TRACK WEB REQUIRED =	0.0000 IN OK
<b>F3 COMPRESSION: EFFECTIVE TRACK LENGTH</b>	
ALLOWABLE LOAD =	3077.70 LB OK
	0.00
<b>F1 SHEAR: TRACK WEB</b>	
TRACK WEB ALLOWABLE SHEAR STRENGTH =	1360.79 LB OK
<b>USE: TRACK: 600T125-43 33 KSI MIN.</b>	

ANCHOR DESIGN TO CONCRETE:	THICKNESS: 6.00 IN $h_a$ OK	3000 PSI $f'_c$ OK	NORMAL WT
2 ANCHORS PER FASTENER ROW			
	EDGE DISTANCE TOWARDS LOAD =	3.00 IN $c_{a1}$ OK	
	EDGE DISTANCE OPPOSITE LOAD =	9.00 IN $c_{a2}$ OK	
	SPACING BETWEEN ANCHORS =	4.00 IN $s_{a1}$ OK	
	SPACING BETWEEN GROUPS =	4.00 IN $s_{a2}$ OK	
<b>USE: 4</b> .157" x 1 1/16" LONG HILTI X-U .157" x 1 1/16" LONG RAMSET TE .157" x 1 1/16" LONG SIMPSON PDPA .157" x 1 1/4" LONG DEWALT SPIRAL CSI PIN <b>MIN PER STUD</b>	INTERACTION SUMMARY		
	SHEAR	TENSION	COMBINED
	0.57	0.00	0.57
	0.53	0.00	0.53
	0.40	0.00	0.40
			CODE REPORT
			HILTI ICC ESR-2269
			ITW RAMSET ICC ESR-1799
			SIMPSON ICC ESR-2138
			DEWALT ICC ESR-2024

SCREW DESIGN TO STUD:	STUD: 3 600S162-43	33 KSI MIN.	@ 16" O.C.
<b>USE: 2</b> #10-16 BUILDDEX "TEKS" SCREW #10-16 HILTI "SDS" SCREW #10-16 GRABBER "DRIVALL" SCREW #10-16 PRO-TWIST "DARTS" SCREW <b>MIN EACH LEG</b>			
	MIN TOP EDGE DISTANCE =	0.29 IN $c_{a1}$ OK	
	MIN SIDE EDGE DISTANCE =	0.29 IN $c_{a2}$ OK	
	MIN ROW SPACING =	0.57 IN $s_{a1}$ OK	
	MIN GROUP SPACING =	0.57 IN $s_{a2}$ OK	
	INTERACTION SUMMARY		
	SHEAR	TENSION	COMBINED
	0.00	0.62	0.46
	0.00	0.62	0.46
	0.00	0.62	0.46
			CODE REPORT
			ITW ICC ESR-1976
			HILTI ICC ESR-2196
			GRABBER ICC-ESR 1271
			PBP ICC ESR-1408



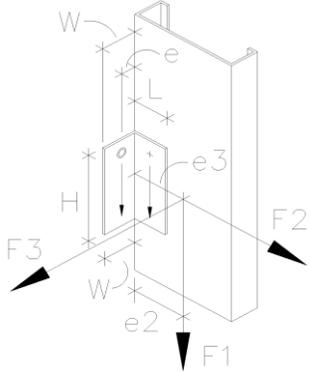


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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 37  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
CLIP: **SIDE**

DETAIL 8/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
1/S1	0	0	0	535	0	0
4/S1	0	0	0	664	0	0

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>0.00</b>	
F2 MAX. (LB) =	<b>663.66</b>	
F3 MAX. (LB) =	<b>0.00</b>	
MINIMUM LEG "W" (IN) =	1.500	
MINIMUM LEG "L" (IN) =	5.500	
MINIMUM LENGTH "H" (IN) =	4.000	
e (IN) =	<b>0.75</b>	
e2 (IN) =	N/A	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>4.00</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>1.00</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	N/A	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	N/A	
MINIMUM VSC Fy (KSI) =	40	
MINIMUM VSC Fu (KSI) =	55	
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570	
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150	
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR	CLIP
	490	490
MIN Vallow ANCHOR @ STEEL (LB) =	669	763
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.2160	
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4150	
MIN Tallow SCREW @ STUD (LB) =	SCREW	STUD
	775	124
MIN Vallow SCREW @ STUD (LB) =	627	280
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>	
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**VERTICAL SLIDE CLIP:**

MAX. APPLIED FORCE, F1	0.00	LB
MAX. APPLIED FORCE, F2 - COMPRESSION	663.66	LB
MAX. APPLIED FORCE, F2 - TENSION	663.66	LB
MAX. APPLIED FORCE, F3	0.00	LB
MIN. ALLOWABLE STRENGTH, F1	0	LB
MIN. ALLOWABLE STRENGTH, F2 - PRESSURE	784	LB
MIN. ALLOWABLE STRENGTH, F2 - SUCTION	784	LB
MIN. ALLOWABLE STRENGTH, F3	0	LB

**CLARKDIETRICH FCSC 5.5(68) - 3 SCREWS**

**USE: 1** **MARINO/WARE WSC600 - 3 SCREWS**  
**SIMPSON SCB45.5 - 3 SCREWS**  
**TSN VertiClip SLB600 - 3 SCREWS**

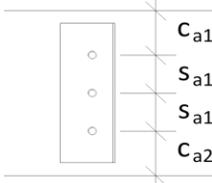
OK  
OK  
OK  
OK

**ANCHOR DESIGN TO STEEL:**

**THICKNESS: 1/4"**

**36 KSI MIN.**

**1 ANCHOR PER  
FASTENER ROW  
N/A ANCHORS RESISTING  
PRYING TENSION**



MIN TOP EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN BOTTOM EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ANCHOR ROW SPACING =	<b>0.75</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN ANCHOR GROUP SPACING =	<b>N/A</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 3** **.157" HILTI X-U**  
**.157" DEWALT SPIRAL CSI PIN**  
**.157" RAMSET TE**

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.00	0.89	0.89	HILTI ICC ESR-2269
0.00	0.90	0.90	DEWALT ICC ESR-2024
0.00	0.89	0.89	ITW RAMSET ICC ESR-1799

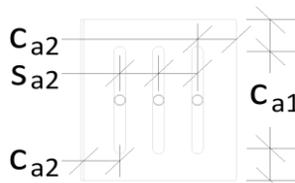
**SCREW DESIGN TO STUD:**

**STUD: 1 600S162-43**

**33 KSI MIN.**

**@ 16" O.C.**

**3 ANCHORS PER  
FASTENER ROW**



MIN END EDGE DISTANCE =	<b>0.32</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN SIDE EDGE DISTANCE =	<b>0.32</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ROW SPACING =	<b>0.65</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN GROUP SPACING =	<b>0.65</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 3** **#12-14 BUILDDEX "TEKS" SCREW**  
**#12-14 HILTI "SDS" SCREW**  
**#12-14 GRABBER "DRIVALL" SCREW**  
**#12-14 PRO-TWIST "DARTS" SCREW**

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.79	0.00	0.58	ITW ICC ESR-1976
0.79	0.00	0.58	HILTI ICC ESR-2196
0.79	0.00	0.58	GRABBER ICC-ESR 1271
0.79	0.00	0.58	PBP ICC ESR-1408

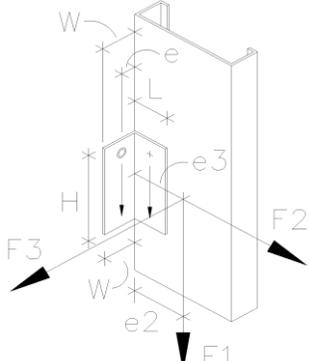


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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 38  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
CLIP: **SIDE**

DETAIL 9/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
2/S1	0	0	0	370	0	0
3/S1	0	0	0	563	0	0
5/S2	0	0	0	455	0	0

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>0.00</b>	
F2 MAX. (LB) =	<b>563.00</b>	
F3 MAX. (LB) =	<b>0.00</b>	
MINIMUM LEG "W" (IN) =	1.500	
MINIMUM LEG "L" (IN) =	5.500	
MINIMUM LENGTH "H" (IN) =	4.000	
e (IN) =	<b>0.75</b>	
e2 (IN) =	N/A	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>4.00</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>1.00</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	N/A	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	N/A	
MINIMUM VSC Fy (KSI) =	40	
MINIMUM VSC Fu (KSI) =	55	
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570	
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150	
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR	CLIP
	490	490
MIN Vallow ANCHOR @ STEEL (LB) =	669	763
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.2160	
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4150	
MIN Tallow SCREW @ STUD (LB) =	SCREW	STUD
	775	124
MIN Vallow SCREW @ STUD (LB) =	627	280
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>	
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**VERTICAL SLIDE CLIP:**

MAX. APPLIED FORCE, F1	0.00	LB
MAX. APPLIED FORCE, F2 - COMPRESSION	563.00	LB
MAX. APPLIED FORCE, F2 - TENSION	563.00	LB
MAX. APPLIED FORCE, F3	0.00	LB
MIN. ALLOWABLE STRENGTH, F1	0	LB
MIN. ALLOWABLE STRENGTH, F2 - PRESSURE	1568	LB
MIN. ALLOWABLE STRENGTH, F2 - SUCTION	1568	LB
MIN. ALLOWABLE STRENGTH, F3	0	LB

**CLARKDIETRICH FCSC 5.5(68) - 3 SCREWS**

**USE: 2 MARINO/WARE WSC600 - 3 SCREWS**  
**SIMPSON SCB45.5 - 3 SCREWS**  
**TSN VertiClip SLB600 - 3 SCREWS**

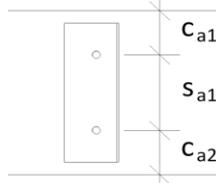
OK  
OK  
OK  
OK

**ANCHOR DESIGN TO STEEL:**

**THICKNESS: 1/4"**

**36 KSI MIN.**

**1 ANCHOR PER  
FASTENER ROW  
N/A ANCHORS RESISTING  
PRying TENSION**



MIN TOP EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN BOTTOM EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ANCHOR ROW SPACING =	<b>1.50</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN ANCHOR GROUP SPACING =	<b>N/A</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 2 .157" HILTI X-U**  
**.157" DEWALT SPIRAL CSI PIN**  
**.157" RAMSET TE**

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.00	0.57	0.57	HILTI ICC ESR-2269
0.00	0.57	0.57	DEWALT ICC ESR-2024
0.00	0.57	0.57	ITW RAMSET ICC ESR-1799

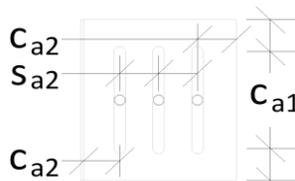
**SCREW DESIGN TO STUD:**

**STUD: 1 600S162-43**

**33 KSI MIN.**

**@ 16" O.C.**

**3 ANCHORS PER  
FASTENER ROW**



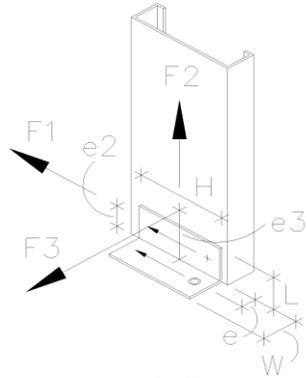
MIN END EDGE DISTANCE =	<b>0.32</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN SIDE EDGE DISTANCE =	<b>0.32</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ROW SPACING =	<b>0.65</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN GROUP SPACING =	<b>0.65</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 3 #12-14 BUILDDEX "TEKS" SCREW**  
**#12-14 HILTI "SDS" SCREW**  
**#12-14 GRABBER "DRIVALL" SCREW**  
**#12-14 PRO-TWIST "DARTS" SCREW**

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.33	0.00	0.25	ITW ICC ESR-1976
0.33	0.00	0.25	HILTI ICC ESR-2196
0.33	0.00	0.25	GRABBER ICC-ESR 1271
0.33	0.00	0.25	PBP ICC ESR-1408

**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
CLIP: **BOTTOM**

**TRACK IS REQUIRED TO RESIST F1\*e ROTATION**

DETAIL 10/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
2/S1	0	359	0	0	0	0
3/S1	0	462	0	0	0	0
5/S2	0	582	0	0	0	0

**LRFD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>969.57</b>	
F2 MAX. (LB) =	<b>0.00</b>	
F3 MAX. (LB) =	<b>0.00</b>	
W (IN) =	<b>2.00</b>	
L (IN) =	<b>2.00</b>	
H (IN) =	<b>5.50</b>	
e (IN) =	<b>1.00</b>	
e2 (IN) =	<b>1.00</b>	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>5.50</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>0.25</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	<b>6.00</b>	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	<b>2.75</b>	
CLIP ANGLE Fy (KSI) =	<b>50</b>	
CLIP ANGLE Fu (KSI) =	65	
MIN ANCHOR TO CONC SHANK DIA. (IN) d <sub>o</sub> =	0.3750	
MIN ANCHOR TO CONC HEAD DIA. (IN) d <sub>w</sub> =	0.5625	
MIN Tdesign ANCHOR @ CONCRETE (LB) =	ANCHOR	CLIP
	1771	1955
MIN Vdesign ANCHOR @ CONCRETE (LB) =	996	2581
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900	
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000	
MIN Tdesign SCREW @ STUD (LB) =	SCREW	STUD
	1390	164
MIN Vdesign SCREW @ STUD (LB) =	1189	395
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>	
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**CLIP ANGLE DESIGN:**

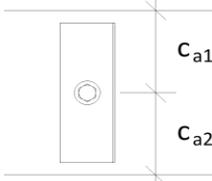
<b>BENDING F1</b>	L-LEG BENDING M1 =	969.57	IN-LB
<b>BENDING F2</b>	W-LEG BENDING M2 =	0.00	IN-LB
<b>BENDING F3</b>	L&W-LEG BENDING M3 =	0.00	IN-LB
<b>COMP. F2</b>	L-LEG COMPRESSION C2 =	0.00	LB
<b>TENSION F2</b>	L-LEG TENSION T2 =	0.00	LB
<b>SHEAR F1</b>	L-LEG SHEAR F1 =	969.57	LB
	THICKNESS OF L-LEG CLIP ANGLE REQ'D. =	0.0043	IN
	THICKNESS OF W-LEG CLIP ANGLE REQ'D. =	0.0000	IN
	CLIP THICKNESS REQUIRED =	20 GA.	
	THICKNESS PROVIDED =	<b>14 GA.</b>	IN
	L-LEG DESIGN COMP. STRENGTH =	10114.9	LB
	L&W-LEG DESIGN SHEAR STRENGTH =	8132.4	LB

OK  
OK  
OK

**USE: 1 2" x 2" x 14 GA. x 5.5" LONG**

**ANCHOR DESIGN TO CONCRETE: THICKNESS: 6.00 IN h<sub>a</sub> OK 3000 PSI f'<sub>c</sub> NORMAL WT**

1 ANCHOR PER FASTENER ROW  
1 ANCHOR RESISTING PRYING TENSION



EDGE DISTANCE TOWARDS LOAD = **3.00** IN C<sub>a1</sub> **OK**  
EDGE DISTANCE OPPOSITE LOAD = **9.00** IN C<sub>a2</sub> **OK**  
ANCHOR ROW SPACING = **N/A** IN S<sub>a1</sub> **OK**  
ANCHOR GROUP SPACING = **16.00** IN S<sub>a2</sub> **OK**

INTERACTION SUMMARY							
V <sub>sa</sub>	V <sub>cb</sub>	V <sub>cp</sub>	N <sub>sa</sub>	N <sub>cb</sub>	N <sub>pn</sub>	COMBINED	
0.32	0.60	0.42	0.00	0.00	0.00	0.60	
0.37	0.60	0.45	0.00	0.00	0.00	0.60	
0.45	0.60	0.60	0.00	0.00	0.00	0.60	

CRACKED CONCRETE **NO**

CODE REPORT

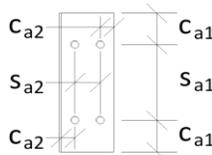
**USE: 1 3/8" x 3" LONG KWIK HUS-EZ  
1 3/8" x 3" LONG TITEN HD  
1 3/8" x 2 1/2" LONG TAPCON+**

**PER CLIP**

HILTI ICC-ES ESR-3027  
SIMPSON ICC-ES ESR-2713  
ITW RED HEAD ICC-ES ESR-3699

**SCREW DESIGN TO STUD: STUD: 1 600S162-43 33 KSI MIN. @ 16" O.C.**

2 ANCHORS PER FASTENER ROW



MIN END EDGE DISTANCE = **0.29** IN C<sub>a1</sub> **OK**  
MIN SIDE EDGE DISTANCE = **0.29** IN C<sub>a2</sub> **OK**  
MIN ROW SPACING = **0.57** IN S<sub>a1</sub> **OK**  
MIN GROUP SPACING = **0.57** IN S<sub>a2</sub> **OK**

INTERACTION SUMMARY		
SHEAR	TENSION	COMBINED
0.61	0.00	0.45
0.61	0.00	0.45
0.61	0.00	0.45
0.61	0.00	0.45

CODE REPORT

**USE: 4 #10-16 BUILDDEX "TEKS" SCREW  
#10-16 HILTI "SDS" SCREW  
#10-16 GRABBER "DRIVALL" SCREW  
#10-16 PRO-TWIST "DARTS" SCREW**

**MIN PER CLIP TOTAL**

ITW ICC ESR-1976  
HILTI ICC ESR-2196  
GRABBER ICC-ESR 1271  
PBP ICC ESR-1408

	100 CAMELOT DRIVE	PROJECT: HCA Lees Summit Medical Center Ed Expansion	PAGE: 40
	FOND DU LAC, WI 54935	LOCATION: Lee's Summit, MO	
	P: 920 926 9800 F: 920 926 9801	CLIENT: E&K of Kansas City, Inc.	DATE: 11/07/25
	www.excelengineer.com	PROJECT #: 250361200	ENGR: OLS

**TRACK SHOE CONNECTION (@ DETAIL 12/D2)**

SECTION	REACTIONS			MATERIAL				ALLOWABLE LOADS						
	VERTICAL WT	HORIZONTAL		HEADER MEMBER		JAMB MEMBER		HEADER TO SHOE			SHOE TO JAMB			
		E	WL			H	V	Interaction	H	V	Inetraction			
<b>2/S1</b>	<b>270.81</b>	<b>0.00</b>	<b>50.00</b>	<b>600S162-43</b>	<b>33</b>	<b>600S162-43</b>	<b>33</b>	785	1578	0.24	1578	1578	0.20	OK
<b>3/S1</b>	<b>660.00</b>	<b>0.00</b>	<b>175.31</b>	<b>600S162-43</b>	<b>33</b>	<b>600S162-43</b>	<b>33</b>	785	1578	0.64	1578	1578	0.53	OK
<b>5/S2</b>	<b>692.00</b>	<b>0.00</b>	<b>136.13</b>	<b>800S162-43</b>	<b>33</b>	<b>800S162-43</b>	<b>33</b>	1014	1578	0.57	1578	1578	0.52	OK

TRACK SHOE MEMBER = ..... **600T125-54** **50** KSI  
 GAP BETWEEN HEADER AND JAMB = ..... **0.125** IN

#SCREWS: HEADER TO SHOE (EA. LEG) = ..... **#10-16 EXCEL STANDARD SCREW** **3** EA  
 #SCREWS: SHOE TO JAMB = ..... **#10-16 EXCEL STANDARD SCREW** **6** EA

SCREW TENSION: HEADER TO SHOE = ..... FASTENER AISI E4.4.3 PULL-OUT AISI E4.4.1 PULL-OVER AISI E4.4.2

SCREW SHEAR: HEADER TO SHOE= ..... FASTENER AISI E4.3.3 PULL-OUT AISI E4.3.1 PULL-OVER AISI E4.3.1  
 SCREW SHEAR: HEADER TO JAMB = ..... FASTENER AISI E4.3.3 PULL-OUT AISI E4.3.1 PULL-OVER AISI E4.3.1

STUD PROPERTIES PER: AISI NASPEC-2001 © 2025 EXCEL ENGINEERING, INC.



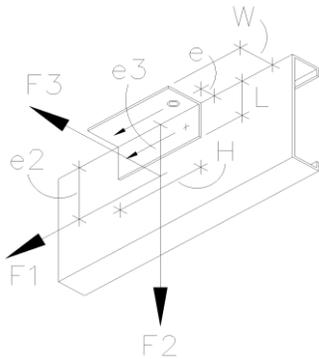
100 CAMELOT DRIVE  
FOND DU LAC, WI 54935  
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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 41  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**

DETAIL 13/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
6/S2	0	0	0	459	0	0



STUD: **HORIZONTAL**  
CLIP: **TOP**

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>0.00</b>	
F2 MAX. (LB) =	<b>459.00</b>	
F3 MAX. (LB) =	<b>0.00</b>	
W (IN) =	<b>2.00</b>	
L (IN) =	<b>4.00</b>	
H (IN) =	<b>3.50</b>	
e (IN) =	<b>0.75</b>	
e2 (IN) =	N/A	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>3.50</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>1.00</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	N/A	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	N/A	
CLIP ANGLE Fy (KSI) =	<b>50</b>	
CLIP ANGLE Fu (KSI) =	65	
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570	
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150	
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR	CLIP
	535	1041
MIN Vallow ANCHOR @ STEEL (LB) =	565	1140
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900	
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000	
MIN Tallow SCREW @ STUD (LB) =	SCREW	STUD
	386	109
MIN Vallow SCREW @ STUD (LB) =	405	263
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>	
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**CLIP ANGLE DESIGN:**

<b>BENDING F1</b>	L-LEG BENDING M1 =	0.00	IN-LB
<b>BENDING F2</b>	W-LEG BENDING M2 =	135.98	IN-LB
<b>BENDING F3</b>	L&W-LEG BENDING M3 =	0.00	IN-LB
<b>COMP. F2</b>	L-LEG COMPRESSION C2 =	459.00	LB
<b>TENSION F2</b>	L-LEG TENSION T2 =	459.00	LB
<b>SHEAR F1</b>	L-LEG SHEAR F1 =	0.00	LB
	THICKNESS OF L-LEG CLIP ANGLE REQ'D. =	0.0000	IN
	THICKNESS OF W-LEG CLIP ANGLE REQ'D. =	0.0882	IN
	CLIP THICKNESS REQUIRED =	12 GA.	
	THICKNESS PROVIDED =	<b>12 GA.</b>	IN
	L-LEG ALLOWABLE COMP. STRENGTH =	2994.2	LB
	L&W-LEG ALLOWABLE SHEAR STRENGTH =	6674.1	LB

OK  
OK  
OK

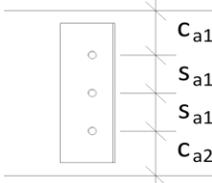
**USE: 1 2" x 4" x 12 GA. x 3.5" LONG**

**ANCHOR DESIGN TO STEEL:**

**THICKNESS: 1/2"**

**50 KSI MIN.**

1 ANCHOR PER  
FASTENER ROW  
1 ANCHOR RESISTING  
PRYING TENSION



MIN TOP EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN BOTTOM EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ANCHOR ROW SPACING =	<b>0.75</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN ANCHOR GROUP SPACING =	<b>N/A</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 3**  
.157" HILTI X-U  
.157" DEWALT SPIRAL CSI PIN  
.157" RAMSET TE

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.00	0.27	0.27	HILTI ICC ESR-2269
0.00	0.46	0.46	DEWALT ICC ESR-2024
0.00	0.41	0.41	ITW RAMSET ICC ESR-1799

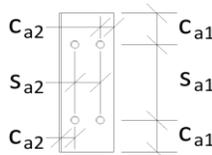
**SCREW DESIGN TO STUD:**

**STUD: 1 600S162-43**

**33 KSI MIN.**

**@ 16" O.C.**

2 ANCHORS PER  
FASTENER ROW



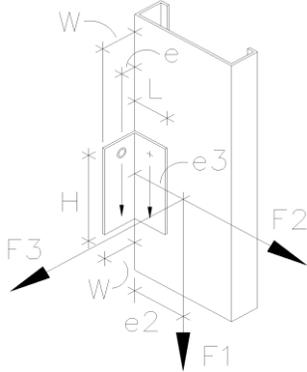
MIN END EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN SIDE EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ROW SPACING =	<b>0.57</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN GROUP SPACING =	<b>0.57</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 4**  
#10-16 BUILDDEX "TEKS" SCREW  
#10-16 HILTI "SDS" SCREW  
#10-16 GRABBER "DRIVALL" SCREW  
#10-16 PRO-TWIST "DARTS" SCREW

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.44	0.20	0.47	ITW ICC ESR-1976
0.44	0.20	0.47	HILTI ICC ESR-2196
0.44	0.20	0.47	GRABBER ICC-ESR 1271
0.44	0.20	0.47	PBP ICC ESR-1408

**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
CLIP: **SIDE**

DETAIL 14/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
6/S2	53	0	0	237	0	0

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>53.33</b>	
F2 MAX. (LB) =	<b>237.16</b>	
F3 MAX. (LB) =	<b>0.00</b>	
W (IN) =	<b>2.00</b>	
L (IN) =	<b>2.00</b>	
H (IN) =	<b>3.50</b>	
e (IN) =	<b>0.75</b>	
e2 (IN) =	<b>2.31</b>	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>3.50</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>0.50</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	<b>1.50</b>	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	<b>1.50</b>	
CLIP ANGLE Fy (KSI) =	<b>50</b>	
CLIP ANGLE Fu (KSI) =	65	
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570	
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150	
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR	CLIP
	562	730
MIN Vallow ANCHOR @ STEEL (LB) =	669	1102
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900	
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000	
MIN Tallow SCREW @ STUD (LB) =	SCREW	STUD
	386	109
MIN Vallow SCREW @ STUD (LB) =	405	263
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>	
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**CLIP ANGLE DESIGN:**

<b>BENDING F1</b>	L-LEG BENDING M1 =	123.33	IN-LB
<b>BENDING F2</b>	W-LEG BENDING M2 =	70.26	IN-LB
<b>BENDING F3</b>	L&W-LEG BENDING M3 =	0.00	IN-LB
<b>COMP. F2</b>	L-LEG COMPRESSION C2 =	237.16	LB
<b>TENSION F2</b>	L-LEG TENSION T2 =	237.16	LB
<b>SHEAR F1</b>	L-LEG SHEAR F1 =	53.33	LB
	THICKNESS OF L-LEG CLIP ANGLE REQ'D. =	0.0043	IN
	THICKNESS OF W-LEG CLIP ANGLE REQ'D. =	0.0634	IN
	CLIP THICKNESS REQUIRED =	14 GA.	
	THICKNESS PROVIDED =	<b>14 GA.</b>	IN
	L-LEG ALLOWABLE COMP. STRENGTH =	3742.0	LB
	L&W-LEG ALLOWABLE SHEAR STRENGTH =	4679.1	LB

OK  
OK  
OK

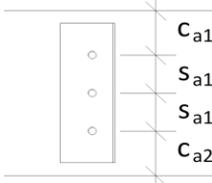
**USE: 1 2" x 2" x 14 GA. x 3.5" LONG**

**ANCHOR DESIGN TO STEEL:**

**THICKNESS: 1/4"**

**36 KSI MIN.**

1 ANCHOR PER  
FASTENER ROW  
1 ANCHOR RESISTING  
PRYING TENSION



MIN TOP EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN BOTTOM EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ANCHOR ROW SPACING =	<b>0.75</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN ANCHOR GROUP SPACING =	<b>N/A</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 3 .157" HILTI X-U  
.157" DEWALT SPIRAL CSI PIN  
.157" RAMSET TE**

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.04	0.28	0.32	HILTI ICC ESR-2269
0.05	0.29	0.33	DEWALT ICC ESR-2024
0.05	0.37	0.42	ITW RAMSET ICC ESR-1799

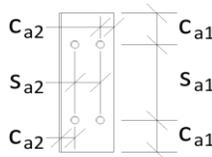
**SCREW DESIGN TO STUD:**

**STUD: 1 362S162-43**

**33 KSI MIN.**

**@ 16" O.C.**

2 ANCHORS PER  
FASTENER ROW



MIN END EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN SIDE EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ROW SPACING =	<b>0.57</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN GROUP SPACING =	<b>0.57</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 4 #10-16 BUILDDEX "TEKS" SCREW  
#10-16 HILTI "SDS" SCREW  
#10-16 GRABBER "DRIVALL" SCREW  
#10-16 PRO-TWIST "DARTS" SCREW**

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.23	0.20	0.32	ITW ICC ESR-1976
0.23	0.20	0.32	HILTI ICC ESR-2196
0.23	0.20	0.32	GRABBER ICC-ESR 1271
0.23	0.20	0.32	PBP ICC ESR-1408

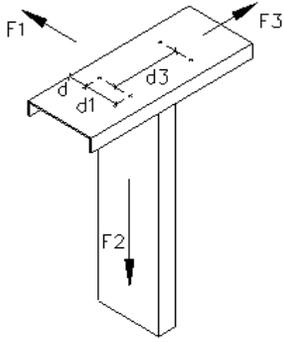


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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 43  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
TRACK: **TOP**

DETAIL 15/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
6/S2	0	73	0	0	0	0

**EXTERIOR FRAMING**

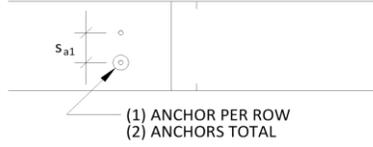
**ASD DESIGN**

**DESIGN VARIABLES**

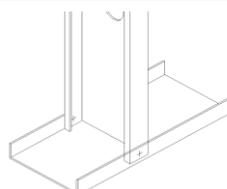
F1 MAX. (LB) =	<b>73.17</b>
F2 MAX. (LB) =	<b>0.00</b>
F3 MAX. (LB) =	<b>0.00</b>
TRACK WEB (IN) =	3.63
TRACK LEG (IN) =	2.50
TRACK EFFECTIVE LENGTH (IN) =	8.00
TRACK THICKNESS (IN) =	0.0566
d (IN) =	<b>1.06</b>
d1 (IN) =	<b>1.50</b>
d3 (IN) =	<b>8.00</b>
GAP BETWEEN STUD AND TRACK "e" (IN) =	<b>0.75</b>
CONNECTION TYPE	<b>WALL</b>
MIN ANCHOR TO STEEL SHANK DIA. (IN) $d_o$ =	0.1900
MIN ANCHOR TO STEEL HEAD DIA. (IN) $d_w$ =	0.4000
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR TRACK 386 109
MIN Vallow ANCHOR @ STEEL (LB) =	ANCHOR TRACK 405 263
MIN SCREW TO STUD SHANK DIA. (IN) $d_o$ =	0.1900
MIN SCREW TO STUD HEAD DIA. (IN) $d_w$ =	0.4000
MIN Tallow SCREW @ STUD (LB) =	SCREW STUD 386 356
MIN Vallow SCREW @ STUD (LB) =	SCREW STUD 405 629
COMPONENT OVERSTRENGTH FACTOR ( $\Omega_o$ ) =	<b>1.000</b>
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>

TRACK DESIGN:		SLOTTED SLIP TRACK	
<b>F1 BENDING: TRACK LEGS</b>			
ALLOWABLE LOAD =	305.10	LB	OK
<b>F3 COMPRESSION: EFFECTIVE TRACK LENGTH</b>			
ALLOWABLE LOAD =	6436.19	LB	OK
	0.00		
<b>F1 SHEAR: TRACK WEB</b>			
TRACK WEB ALLOWABLE SHEAR STRENGTH =	3371.56	LB	OK
<b>USE:</b>	<b>TRACK: 362SLT250-54</b>	<b>50 KSI MIN.</b>	

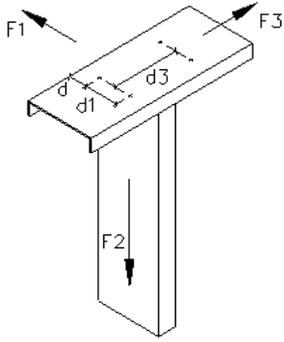
ANCHOR DESIGN TO STEEL:		THICKNESS: 43 MIL 18 GA		33 KSI MIN.			
0	LAYERS 5/8" GYP BOARD BETWEEN ANCHOR PER FASTENER ROW			TOP EDGE DISTANCE =	<b>0.50</b> IN $c_{a1}$ <b>OK</b>		
1				BOTTOM EDGE DISTANCE =	<b>0.50</b> IN $c_{a2}$ <b>OK</b>		
				ANCHOR ROW SPACING =	<b>1.50</b> IN $s_{a1}$ <b>OK</b>		
				ANCHOR GROUP SPACING =	<b>8.00</b> IN $s_{a2}$ <b>OK</b>		
				INTERACTION SUMMARY			
				SHEAR	TENSION	COMBINED	CODE REPORT
				0.14	0.33	0.35	ITW ICC ESR-1976
				0.14	0.33	0.35	HILTI ICC ESR-2196
				0.14	0.33	0.35	GRABBER ICC-ESR 1271
				0.14	0.33	0.35	PBP ICC ESR-1408
<b>USE:</b>	<b>2</b>	<b>#10-16 BUILDEX "TEKS" SCREW</b>	<b>MIN PER STUD</b>				
		<b>#10-16 HILTI "SDS" SCREW</b>					
		<b>#10-16 GRABBER "DRIVALL" SCREW</b>					
		<b>#10-16 PRO-TWIST "DARTS" SCREW</b>					



SCREW DESIGN TO STUD:		STUD: 1 362S162-97		50 KSI MIN.		@ 8" O.C.	
				MIN TOP EDGE DISTANCE =	<b>0.29</b> IN $c_{a1}$ <b>OK</b>		
				MIN SIDE EDGE DISTANCE =	<b>0.29</b> IN $c_{a2}$ <b>OK</b>		
				MIN ROW SPACING =	<b>0.57</b> IN $s_{a1}$ <b>OK</b>		
				MIN GROUP SPACING =	<b>0.57</b> IN $s_{a2}$ <b>OK</b>		
				INTERACTION SUMMARY			
				SHEAR	TENSION	COMBINED	CODE REPORT
				0.00	0.00	0.00	ITW ICC ESR-1976
				0.00	0.00	0.00	HILTI ICC ESR-2196
				0.00	0.00	0.00	GRABBER ICC-ESR 1271
				0.00	0.00	0.00	PBP ICC ESR-1408
<b>USE:</b>	<b>1</b>	<b>#10-16 BUILDEX "TEKS" SCREW</b>	<b>MIN EACH LEG</b>				
		<b>#10-16 HILTI "SDS" SCREW</b>					
		<b>#10-16 GRABBER "DRIVALL" SCREW</b>					
		<b>#10-16 PRO-TWIST "DARTS" SCREW</b>					



**WIND LOAD  
SERVICE LEVEL**



STUD: **VERTICAL**  
TRACK: **TOP**

<b>DETAIL 17/D2</b>						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
6/S2	0	73	0	0	0	0

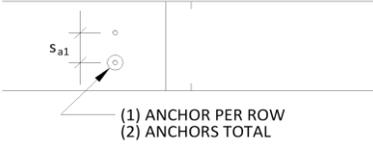
**EXTERIOR FRAMING**

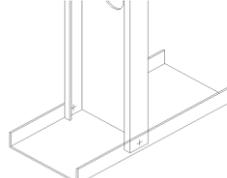
## ASD DESIGN

### DESIGN VARIABLES

F1 MAX. (LB) =	<b>73.17</b>				
F2 MAX. (LB) =	<b>0.00</b>				
F3 MAX. (LB) =	<b>0.00</b>				
TRACK WEB (IN) =	3.63				
TRACK LEG (IN) =	2.50				
TRACK EFFECTIVE LENGTH (IN) =	8.00				
TRACK THICKNESS (IN) =	0.0566				
d (IN) =	<b>1.06</b>				
d1 (IN) =	<b>1.50</b>				
d3 (IN) =	<b>8.00</b>				
GAP BETWEEN STUD AND TRACK "e" (IN) =	<b>0.75</b>				
CONNECTION TYPE	<b>WALL</b>				
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570				
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150				
MIN Tallow ANCHOR @ STEEL (LB) =	<table border="1" style="font-size: small;"> <tr> <th>ANCHOR</th> <th>TRACK</th> </tr> <tr> <td style="text-align: center;">535</td> <td style="text-align: center;">579</td> </tr> </table>	ANCHOR	TRACK	535	579
ANCHOR	TRACK				
535	579				
MIN Vallow ANCHOR @ STEEL (LB) =	<table border="1" style="font-size: small;"> <tr> <th>ANCHOR</th> <th>TRACK</th> </tr> <tr> <td style="text-align: center;">565</td> <td style="text-align: center;">902</td> </tr> </table>	ANCHOR	TRACK	565	902
ANCHOR	TRACK				
565	902				
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900				
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000				
MIN Tallow SCREW @ STUD (LB) =	<table border="1" style="font-size: small;"> <tr> <th>SCREW</th> <th>STUD</th> </tr> <tr> <td style="text-align: center;">386</td> <td style="text-align: center;">356</td> </tr> </table>	SCREW	STUD	386	356
SCREW	STUD				
386	356				
MIN Vallow SCREW @ STUD (LB) =	<table border="1" style="font-size: small;"> <tr> <th>SCREW</th> <th>STUD</th> </tr> <tr> <td style="text-align: center;">405</td> <td style="text-align: center;">629</td> </tr> </table>	SCREW	STUD	405	629
SCREW	STUD				
405	629				
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>				
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>				

TRACK DESIGN:	SLOTTED SLIP TRACK
<b>F1 BENDING: TRACK LEGS</b>	
ALLOWABLE LOAD =	305.10 LB <span style="float: right;">OK</span>
<b>F3 COMPRESSION: EFFECTIVE TRACK LENGTH</b>	
ALLOWABLE LOAD =	6436.19 LB <span style="float: right;">OK</span>
	0.00
<b>F1 SHEAR: TRACK WEB</b>	
TRACK WEB ALLOWABLE SHEAR STRENGTH =	3371.56 LB <span style="float: right;">OK</span>
<b>USE:</b>	<b>TRACK: 362SLT250-54 50 KSI MIN.</b>

ANCHOR DESIGN TO STEEL:	THICKNESS: 1/2"	50 KSI MIN.															
<p style="font-size: 2em; font-weight: bold;">1</p> <p style="font-weight: bold;">ANCHOR PER FASTENER ROW</p>	 <p style="font-size: small;">(1) ANCHOR PER ROW (2) ANCHORS TOTAL</p>	<p>EDGE DISTANCE TOWARDS LOAD = <b>0.50</b> IN c<sub>a1</sub> <b>OK</b></p> <p>EDGE DISTANCE OPPOSITE LOAD = <b>0.50</b> IN c<sub>a2</sub> <b>OK</b></p> <p>SPACING BETWEEN ANCHORS = <b>1.50</b> IN s<sub>a1</sub> <b>OK</b></p> <p>SPACING BETWEEN GROUPS = <b>8.00</b> IN s<sub>a2</sub> <b>OK</b></p>															
		<table border="1" style="width:100%; font-size: small;"> <tr> <th colspan="3">INTERACTION SUMMARY</th> <th rowspan="4">CODE REPORT</th> </tr> <tr> <th>SHEAR</th> <th>TENSION</th> <th>COMBINED</th> </tr> <tr> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.06</td> <td style="text-align: center;">0.11</td> </tr> <tr> <td style="text-align: center;">0.06</td> <td style="text-align: center;">0.07</td> <td style="text-align: center;">0.13</td> </tr> <tr> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.06</td> <td style="text-align: center;">0.11</td> <td style="text-align: center;">ITW RAMSET ICC ESR-1799</td> </tr> </table>	INTERACTION SUMMARY			CODE REPORT	SHEAR	TENSION	COMBINED	0.05	0.06	0.11	0.06	0.07	0.13	0.05	0.06
INTERACTION SUMMARY			CODE REPORT														
SHEAR	TENSION	COMBINED															
0.05	0.06	0.11															
0.06	0.07	0.13															
0.05	0.06	0.11	ITW RAMSET ICC ESR-1799														
<p><b>USE:</b></p> <p style="font-size: 2em; font-weight: bold;">2</p> <p><b>.157" HILTI X-U</b></p> <p><b>.157" DEWALT SPIRAL CSI PIN</b></p> <p><b>.157" RAMSET TE</b></p>	<p style="font-weight: bold;">MIN PER STUD</p>																

SCREW DESIGN TO STUD:	STUD: 1 362S162-97	50 KSI MIN. @ 8" O.C.																		
<p style="font-size: 2em; font-weight: bold;">1</p> <p style="font-weight: bold;">#10-16 BUILDDEX "TEKS" SCREW</p> <p style="font-weight: bold;">#10-16 HILTI "SDS" SCREW</p> <p style="font-weight: bold;">#10-16 GRABBER "DRIVALL" SCREW</p> <p style="font-weight: bold;">#10-16 PRO-TWIST "DARTS" SCREW</p>		<p>MIN TOP EDGE DISTANCE = <b>0.29</b> IN c<sub>a1</sub> <b>OK</b></p> <p>MIN SIDE EDGE DISTANCE = <b>0.29</b> IN c<sub>a2</sub> <b>OK</b></p> <p>MIN ROW SPACING = <b>0.57</b> IN s<sub>a1</sub> <b>OK</b></p> <p>MIN GROUP SPACING = <b>0.57</b> IN s<sub>a2</sub> <b>OK</b></p>																		
		<table border="1" style="width:100%; font-size: small;"> <tr> <th colspan="3">INTERACTION SUMMARY</th> <th rowspan="5">CODE REPORT</th> </tr> <tr> <th>SHEAR</th> <th>TENSION</th> <th>COMBINED</th> </tr> <tr> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> </tr> <tr> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> </tr> <tr> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> </tr> <tr> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">ITW ICC ESR-1976</td> </tr> </table>	INTERACTION SUMMARY			CODE REPORT	SHEAR	TENSION	COMBINED	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INTERACTION SUMMARY			CODE REPORT																	
SHEAR	TENSION	COMBINED																		
0.00	0.00	0.00																		
0.00	0.00	0.00																		
0.00	0.00	0.00																		
0.00	0.00	0.00	ITW ICC ESR-1976																	
	<p style="font-weight: bold;">MIN EACH LEG</p>																			

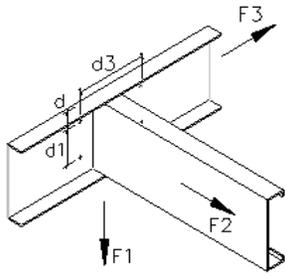


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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 45  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**



STUD: **HORIZONTAL**  
TRACK: **SIDE**

DETAIL 18/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
7/S2	0	0	0	48	0	0

**EXTERIOR FRAMING**

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>0.00</b>
F2 MAX. (LB) =	<b>48.24</b>
F3 MAX. (LB) =	<b>0.00</b>
TRACK WEB (IN) =	6.00
TRACK LEG (IN) =	1.25
TRACK EFFECTIVE LENGTH (IN) =	9.56
TRACK THICKNESS (IN) =	0.0451
d (IN) =	<b>2.25</b>
d1 (IN) =	1.50
d3 (IN) =	16.00
GAP BETWEEN STUD AND TRACK "e" (IN) =	<b>0.13</b>
CONNECTION TYPE	<b>WALL</b>
MIN ANCHOR TO STEEL SHANK DIA. (IN) $d_o$ =	0.1900
MIN ANCHOR TO STEEL HEAD DIA. (IN) $d_w$ =	0.4000
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR TRACK 386 109
MIN Vallow ANCHOR @ STEEL (LB) =	ANCHOR TRACK 300 195
MIN SCREW TO STUD SHANK DIA. (IN) $d_o$ =	0.1900
MIN SCREW TO STUD HEAD DIA. (IN) $d_w$ =	0.4000
MIN Tallow SCREW @ STUD (LB) =	SCREW STUD 386 109
MIN Vallow SCREW @ STUD (LB) =	SCREW STUD 405 263
COMPONENT OVERSTRENGTH FACTOR ( $\Omega_o$ ) =	<b>1.000</b>
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>

TRACK DESIGN:	STANDARD
<b>F1 BENDING: TRACK LEGS</b>	
ALLOWABLE LOAD =	567.63 LB OK
<b>F2 BENDING: TRACK WEB</b>	
WEB BENDING M2 =	24.72 IN-LB
THICKNESS OF TRACK WEB REQUIRED =	0.0280 IN OK
<b>F3 COMPRESSION: EFFECTIVE TRACK LENGTH</b>	
ALLOWABLE LOAD =	3200.77 LB OK
	0.00
<b>F1 SHEAR: TRACK WEB</b>	
TRACK WEB ALLOWABLE SHEAR STRENGTH =	1360.79 LB OK
<b>USE: TRACK: 600T125-43 33 KSI MIN.</b>	

ANCHOR DESIGN TO STEEL:	THICKNESS: 43 MIL 18 GA	33 KSI MIN.																							
1 LAYER 5/8" GYP BOARD BETWEEN ANCHOR PER FASTENER ROW	<p>(1) ANCHOR PER ROW (2) ANCHORS TOTAL</p>	TOP EDGE DISTANCE = <b>0.50</b> IN $c_{a1}$ <b>OK</b> BOTTOM EDGE DISTANCE = <b>0.50</b> IN $c_{a2}$ <b>OK</b> ANCHOR ROW SPACING = <b>1.50</b> IN $s_{a1}$ <b>OK</b> ANCHOR GROUP SPACING = <b>16.00</b> IN $s_{a2}$ <b>OK</b>																							
<b>USE: 2 #10-16 BUILDEX "TEKS" SCREW</b>	<b>MIN PER STUD</b>	<table border="1"> <thead> <tr> <th colspan="3">INTERACTION SUMMARY</th> <th rowspan="2">CODE REPORT</th> </tr> <tr> <th>SHEAR</th> <th>TENSION</th> <th>COMBINED</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>0.41</td> <td>0.30</td> <td>ITW ICC ESR-1976</td> </tr> <tr> <td>0.00</td> <td>0.41</td> <td>0.30</td> <td>HILTI ICC ESR-2196</td> </tr> <tr> <td>0.00</td> <td>0.41</td> <td>0.30</td> <td>GRABBER ICC-ESR 1271</td> </tr> <tr> <td>0.00</td> <td>0.41</td> <td>0.30</td> <td>PBP ICC ESR-1408</td> </tr> </tbody> </table>	INTERACTION SUMMARY			CODE REPORT	SHEAR	TENSION	COMBINED	0.00	0.41	0.30	ITW ICC ESR-1976	0.00	0.41	0.30	HILTI ICC ESR-2196	0.00	0.41	0.30	GRABBER ICC-ESR 1271	0.00	0.41	0.30	PBP ICC ESR-1408
INTERACTION SUMMARY			CODE REPORT																						
SHEAR				TENSION	COMBINED																				
0.00			0.41	0.30	ITW ICC ESR-1976																				
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<b>#10-16 GRABBER "DRIVALL" SCREW</b>																									
<b>#10-16 PRO-TWIST "DARTS" SCREW</b>																									

SCREW DESIGN TO STUD:	STUD: 1 600S162-43	33 KSI MIN.	@ 16" O.C.																						
		MIN TOP EDGE DISTANCE = <b>0.29</b> IN $c_{a1}$ <b>OK</b> MIN SIDE EDGE DISTANCE = <b>0.29</b> IN $c_{a2}$ <b>OK</b> MIN ROW SPACING = <b>0.57</b> IN $s_{a1}$ <b>OK</b> MIN GROUP SPACING = <b>0.57</b> IN $s_{a2}$ <b>OK</b>																							
<b>USE: 1 #10-16 BUILDEX "TEKS" SCREW</b>	<b>MIN EACH LEG</b>	<table border="1"> <thead> <tr> <th colspan="3">INTERACTION SUMMARY</th> <th rowspan="2">CODE REPORT</th> </tr> <tr> <th>SHEAR</th> <th>TENSION</th> <th>COMBINED</th> </tr> </thead> <tbody> <tr> <td>0.09</td> <td>0.00</td> <td>0.07</td> <td>ITW ICC ESR-1976</td> </tr> <tr> <td>0.09</td> <td>0.00</td> <td>0.07</td> <td>HILTI ICC ESR-2196</td> </tr> <tr> <td>0.09</td> <td>0.00</td> <td>0.07</td> <td>GRABBER ICC-ESR 1271</td> </tr> <tr> <td>0.09</td> <td>0.00</td> <td>0.07</td> <td>PBP ICC ESR-1408</td> </tr> </tbody> </table>	INTERACTION SUMMARY			CODE REPORT	SHEAR	TENSION	COMBINED	0.09	0.00	0.07	ITW ICC ESR-1976	0.09	0.00	0.07	HILTI ICC ESR-2196	0.09	0.00	0.07	GRABBER ICC-ESR 1271	0.09	0.00	0.07	PBP ICC ESR-1408
INTERACTION SUMMARY			CODE REPORT																						
SHEAR				TENSION	COMBINED																				
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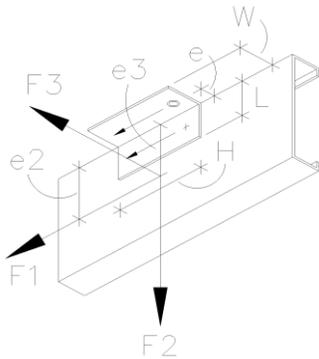
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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
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PROJECT #: 250361200

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ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**

DETAIL 19/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
8/S2	0	51	60	0	0	0



STUD: **HORIZONTAL**  
CLIP: **TOP**

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>50.89</b>	
F2 MAX. (LB) =	<b>60.00</b>	
F3 MAX. (LB) =	<b>0.00</b>	
W (IN) =	<b>2.00</b>	
L (IN) =	<b>2.00</b>	
H (IN) =	<b>3.50</b>	
e (IN) =	<b>0.75</b>	
e2 (IN) =	<b>2.31</b>	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>3.50</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>0.50</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	<b>1.50</b>	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	<b>1.50</b>	
CLIP ANGLE Fy (KSI) =	<b>50</b>	
CLIP ANGLE Fu (KSI) =	65	
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570	
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150	
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR	CLIP
	535	730
MIN Vallow ANCHOR @ STEEL (LB) =	565	1136
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900	
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000	
MIN Tallow SCREW @ STUD (LB) =	SCREW	STUD
	386	109
MIN Vallow SCREW @ STUD (LB) =	405	263
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>	
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**CLIP ANGLE DESIGN:**

<b>BENDING F1</b>	L-LEG BENDING M1 =	117.68	IN-LB
<b>BENDING F2</b>	W-LEG BENDING M2 =	17.78	IN-LB
<b>BENDING F3</b>	L&W-LEG BENDING M3 =	0.00	IN-LB
<b>COMP. F2</b>	L-LEG COMPRESSION C2 =	60.00	LB
<b>TENSION F2</b>	L-LEG TENSION T2 =	60.00	LB
<b>SHEAR F1</b>	L-LEG SHEAR F1 =	50.89	LB
	THICKNESS OF L-LEG CLIP ANGLE REQ'D. =	0.0025	IN
	THICKNESS OF W-LEG CLIP ANGLE REQ'D. =	0.0319	IN
	CLIP THICKNESS REQUIRED =	20 GA.	
	THICKNESS PROVIDED =	<b>14 GA.</b>	IN
	L-LEG ALLOWABLE COMP. STRENGTH =	3742.0	LB
	L&W-LEG ALLOWABLE SHEAR STRENGTH =	4679.1	LB

OK  
OK  
OK

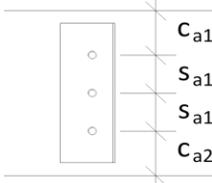
**USE: 1 2" x 2" x 14 GA. x 3.5" LONG**

**ANCHOR DESIGN TO STEEL:**

**THICKNESS: 1/2"**

**50 KSI MIN.**

1 ANCHOR PER  
FASTENER ROW  
1 ANCHOR RESISTING  
PRYING TENSION



MIN TOP EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN BOTTOM EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ANCHOR ROW SPACING =	<b>0.75</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN ANCHOR GROUP SPACING =	<b>N/A</b>	IN	S <sub>a2</sub>	<b>OK</b>

**INTERACTION SUMMARY**

SHEAR	TENSION	COMBINED	CODE REPORT
0.04	0.15	0.19	HILTI ICC ESR-2269
0.05	0.21	0.26	DEWALT ICC ESR-2024
0.04	0.18	0.22	ITW RAMSET ICC ESR-1799

**USE: 3 .157" HILTI X-U  
.157" DEWALT SPIRAL CSI PIN  
.157" RAMSET TE**

**MIN  
PER  
CLIP  
TOTAL**

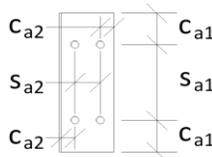
**SCREW DESIGN TO STUD:**

**STUD: 1 362S162-43**

**33 KSI MIN.**

**@ 16" O.C.**

2 ANCHORS PER  
FASTENER ROW



MIN END EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN SIDE EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ROW SPACING =	<b>0.57</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN GROUP SPACING =	<b>0.57</b>	IN	S <sub>a2</sub>	<b>OK</b>

**INTERACTION SUMMARY**

SHEAR	TENSION	COMBINED	CODE REPORT
0.07	0.05	0.09	ITW ICC ESR-1976
0.07	0.05	0.09	HILTI ICC ESR-2196
0.07	0.05	0.09	GRABBER ICC-ESR 1271
0.07	0.05	0.09	PBP ICC ESR-1408

**USE: 4 #10-16 BUILDDEX "TEKS" SCREW  
#10-16 HILTI "SDS" SCREW  
#10-16 GRABBER "DRIVALL" SCREW  
#10-16 PRO-TWIST "DARTS" SCREW**

**MIN  
PER  
CLIP  
TOTAL**



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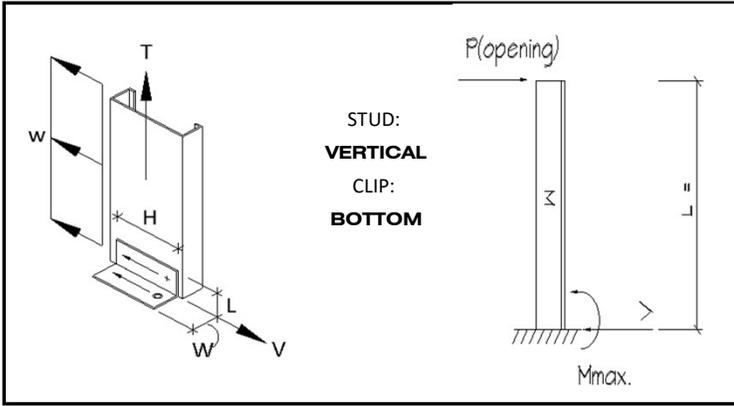
PROJECT: HCA Lees Summit Medical Center Ed Expansion  
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# LRFD DESIGN

## WIND LOAD SERVICE LEVEL

# DETAIL 20/D2



	WL PSF	P <sub>o</sub> LB	L FT	TRACK DIST.	DEFL. MOD.	DEFL. RATIO	w PLF	V LB	T LB	M <sub>max</sub> IN-LB	Δstud IN	Δclip IN
9/S2	50.9	0.0	1.29	1.00	0.70	360	67.9	87.5	0.0	677	0.00	0.07
CLIP ANGLE WIDTH "W" (IN) =							<b>2.00</b>					
CLIP ANGLE HEIGHT "L" (IN) =							<b>4.00</b>					
CLIP ANGLE LENGTH "H" (IN) =							<b>5.50</b>					
CLIP ANGLE F <sub>y</sub> (KSI) =							<b>50</b>					
CLIP ANGLE F <sub>u</sub> (KSI) =							<b>65</b>					
ANCHOR COUPLE ARM "Z" (IN) =							<b>2.69</b>					
SCREW SPACING IN VERTICAL LEG "X" (IN) =							<b>4.00</b>					
MIN ANCHOR TO CONC SHANK DIA. (IN) d <sub>o</sub> =							0.2500					
MIN ANCHOR TO CONC HEAD DIA. (IN) d <sub>w</sub> =							#VALUE!					
							ANCHOR	CLIP				
MIN T <sub>design</sub> ANCHOR @ CONCRETE (LB) =							825	#VALUE!				
MIN V <sub>design</sub> ANCHOR @ CONCRETE (LB) =							814	106				
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =							0.1900					
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =							0.4000					
							SCREW	STUD				
MIN T <sub>design</sub> SCREW @ STUD (LB) =							1390	164				
MIN V <sub>design</sub> SCREW @ STUD (LB) =							1189	395				
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =							<b>1.000</b>					
SEISMIC AMPLIFICATION & RESPONSE FACTOR							<b>1.000</b>					

CANTILEVERED STUD DESIGN:	MAX.	ALLOW.	
UNIFORM LATERAL LOAD =	67.85		PLF
SHEAR =	87.5	1489	LB
TENSION =	0.0	4415	LB
MOMENT =	677.5	16287	IN-LB
STIFFNESS =	0.0004	2.3160	IN <sup>4</sup>
<b>USE: 1</b>	<b>600S162-43</b>	<b>33 KSI @ 16" O.C.</b>	

CLIP ANGLE DESIGN:	MAX.	ALLOW.	
MOMENT =	677.5	1200.0	IN-LB
SHEAR =	87.5	1052.0	LB
TENSION =	0.0	1052.0	LB
INTERACTION =		0.5646	
ASSEMBLY DEFLECTION =	0.0750	0.0860	IN
DEFLECTION RATIO =	2L /	413	
<b>USE: 1</b>	<b>2x4x68 x 5 1/2"</b>	<b>4 SCREWS</b>	

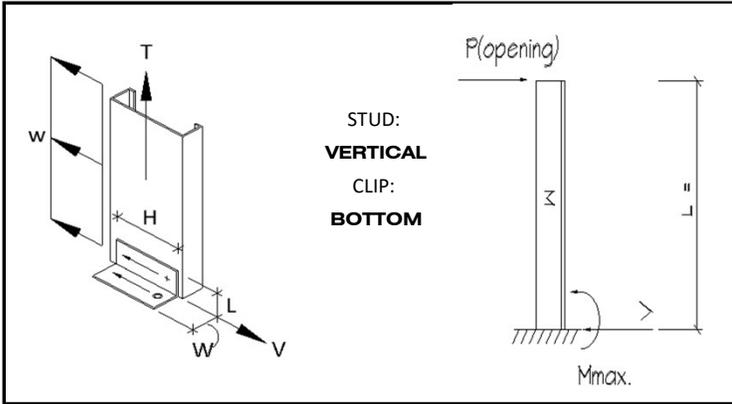
ANCHOR DESIGN TO CONCRETE:	THICKNESS:	4.00	IN	h <sub>a</sub>	OK	3000	PSI	f' <sub>c</sub>	NORMAL WT		
1 TENSION ANCHOR PER FASTENER ROW	EDGE DISTANCE TOWARDS LOAD =	3.00	IN	c <sub>a1</sub>	OK		EDGE DISTANCE OPPOSITE LOAD =	9.00	IN	c <sub>a2</sub>	OK
	ANCHOR ROW SPACING =	N/A	IN	s <sub>a1</sub>	OK		ANCHOR GROUP SPACING =	N/A	IN	s <sub>a2</sub>	OK
<b>USE: 1</b> 1/4" x 1 7/8" LONG KWIK HUS-EZ 1/4" x 1 7/8" LONG TITEN HD 1/4" x 2 1/4" LONG TAPCON+	INTERACTION SUMMARY		CRACKED CONCRETE		NO			CODE REPORT			
	V <sub>sa</sub>	V <sub>cb</sub>	V <sub>cp</sub>	N <sub>sa</sub>	N <sub>cb</sub>	N <sub>pn</sub>	COMBINED	HILTI ICC-ES ESR-3027			
	0.16	0.12	0.14	0.11	0.61	0.68	0.68	SIMPSON ICC-ES ESR-2713			
0.12	0.12	0.11	0.12	0.33	0.00	0.33	ITW RED HEAD ICC-ES ESR-3699				
0.12	0.11	0.10	0.11	0.36	0.33	0.36					

SCREW DESIGN TO STUD:	MIN END EDGE DISTANCE =	0.29	IN	c <sub>a1</sub>	OK
2 SCREWS PER FASTENER ROW	MIN SIDE EDGE DISTANCE =	0.29	IN <td>c<sub>a2</sub></td> <td>OK</td>	c <sub>a2</sub>	OK
	MIN ROW SPACING =	4.00	IN <td>s<sub>a1</sub></td> <td>OK</td>	s <sub>a1</sub>	OK
<b>USE: 4</b> #10-16 BUILDDEX "TEKS" SCREW #10-16 HILTI "SDS" SCREW #10-16 GRABBER "DRIVALL" SCREW #10-16 PRO-TWIST "DARTS" SCREW	MIN GROUP SPACING =	0.57	IN <td>s<sub>a2</sub></td> <td>OK</td>	s <sub>a2</sub>	OK
	INTERACTION SUMMARY		CODE REPORT		
	SHEAR	TENSION	COMBINED		
	0.35	0.00	0.12	ITW ICC ESR-1976	
	0.35	0.00	0.17	HILTI ICC ESR-2196	
	0.35	0.00	0.13	GRABBER ICC-ESR 1271	
	0.35	0.00	0.14	PBP ICC ESR-1408	

# ASD DESIGN

## WIND LOAD SERVICE LEVEL

# DETAIL 21/D2



	WL PSF	P <sub>o</sub> LB	L FT	TRACK DIST.	DEFL. MOD.	DEFL. RATIO	w PLF	V LB	T LB	M <sub>max</sub> IN-LB	Δstud IN	Δclip IN		
10/S3	50.9	0.0	1.91	1.00	0.70	360	33.9	64.8	0.0	743	0.00	0.12		
CLIP ANGLE WIDTH "W" (IN) =							<b>2.00</b>							
CLIP ANGLE HEIGHT "L" (IN) =							<b>4.00</b>							
CLIP ANGLE LENGTH "H" (IN) =							<b>3.50</b>							
CLIP ANGLE F <sub>y</sub> (KSI) =							<b>50</b>							
CLIP ANGLE F <sub>u</sub> (KSI) =							<b>65</b>							
OK	ANCHOR SPACING IN BASE LEG "D" (IN) =							<b>1.50</b>						
OK	SCREW SPACING IN VERTICAL LEG "X" (IN) =							<b>2.50</b>						
OK	MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =							0.1570						
OK	MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =							0.3150						
							ANCHOR	CLIP						
MIN Tallow ANCHOR @ STEEL (LB) =							615	730						
MIN Vallow ANCHOR @ STEEL (LB) =							495	1136						
OK	MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =							0.1900						
OK	MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =							0.4000						
							SCREW	STUD						
OK	MIN Tallow SCREW @ STUD (LB) =							386	109					
OK	MIN Vallow SCREW @ STUD (LB) =							405	263					
OK	COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =							<b>1.000</b>						
SEISMIC AMPLIFICATION & RESPONSE FACTOR							<b>1.000</b>							

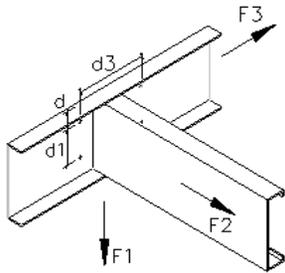
CANTILEVERED STUD DESIGN:	MAX.	ALLOW.	
UNIFORM LATERAL LOAD =	33.93		PLF
SHEAR =	64.8	1554	LB
TENSION =	0.0	3357	LB
MOMENT =	742.6	7503	IN-LB
STIFFNESS =	0.0033	0.7099	IN <sup>4</sup>
<b>USE: 1</b>	<b>362S162-43</b>	<b>33 KSI @</b>	<b>8" O.C.</b>

CLIP ANGLE DESIGN:	MAX.	ALLOW.	
MOMENT =	742.6	1200.0	IN-LB
SHEAR =	64.8	1052.0	LB
TENSION =	0.0	1052.0	LB
INTERACTION =		0.6188	
ASSEMBLY DEFLECTION =	0.1183	0.1273	IN
DEFLECTION RATIO =	2L /	388	
<b>USE: 1</b>	<b>2x4x68 x 3 1/2": 4 SCREWS</b>		

ANCHOR DESIGN TO STEEL:		THICKNESS: 3/8"	36 KSI MIN.
1	TENSION ANCHOR PER FASTENER ROW		MIN TOP EDGE DISTANCE = <b>0.50</b> IN c <sub>a1</sub> <b>OK</b>
	.157" HILTI X-U		MIN BOTTOM EDGE DISTANCE = <b>0.50</b> IN c <sub>a2</sub> <b>OK</b>
2	.157" DEWALT SPIRAL CSI PIN		MIN ANCHOR ROW SPACING = <b>1.50</b> IN s <sub>a1</sub> <b>OK</b>
	.157" RAMSET TE		MIN ANCHOR GROUP SPACING = <b>N/A</b> IN s <sub>a2</sub> <b>OK</b>
			INTERACTION SUMMARY
			SHEAR TENSION COMBINED CODE REPORT
			0.04 0.67 0.71 HILTI ICC ESR-2269
			0.07 0.80 0.87 DEWALT ICC ESR-2024
			0.04 0.67 0.71 ITW RAMSET ICC ESR-1799
		<b>MIN PER CLIP TOTAL</b>	

SCREW DESIGN TO STUD:			
2	SCREWS PER FASTENER ROW		MIN END EDGE DISTANCE = <b>0.29</b> IN c <sub>a1</sub> <b>OK</b>
	#10-16 BUILDDEX "TEKS" SCREW		MIN SIDE EDGE DISTANCE = <b>0.29</b> IN c <sub>a2</sub> <b>OK</b>
4	#10-16 HILTI "SDS" SCREW		MIN ROW SPACING = <b>2.50</b> IN s <sub>a1</sub> <b>OK</b>
	#10-16 GRABBER "DRIVALL" SCREW		MIN GROUP SPACING = <b>0.57</b> IN s <sub>a2</sub> <b>OK</b>
			INTERACTION SUMMARY
			SHEAR TENSION COMBINED CODE REPORT
			0.63 0.00 0.22 ITW ICC ESR-1976
			0.63 0.00 0.31 HILTI ICC ESR-2196
			0.63 0.00 0.23 GRABBER ICC-ESR 1271
			0.63 0.00 0.26 PBP ICC ESR-1408
		<b>MIN PER CLIP TOTAL</b>	

**WIND LOAD  
SERVICE LEVEL**



STUD: **HORIZONTAL**  
TRACK: **SIDE**

DETAIL 22/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
7/S2	0	0	0	48	0	0

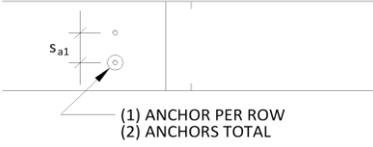
**EXTERIOR FRAMING**

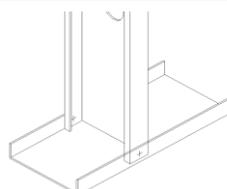
## ASD DESIGN

### DESIGN VARIABLES

F1 MAX. (LB) =	<b>0.00</b>				
F2 MAX. (LB) =	<b>48.24</b>				
F3 MAX. (LB) =	<b>0.00</b>				
TRACK WEB (IN) =	3.63				
TRACK LEG (IN) =	1.25				
TRACK EFFECTIVE LENGTH (IN) =	11.24				
TRACK THICKNESS (IN) =	0.0451				
d (IN) =	<b>1.06</b>				
d1 (IN) =	1.50				
d3 (IN) =	16.00				
GAP BETWEEN STUD AND TRACK "e" (IN) =	<b>0.25</b>				
CONNECTION TYPE	<b>WALL</b>				
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570				
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150				
MIN Tallow ANCHOR @ STEEL (LB) =	<table border="1" style="font-size: small;"> <tr> <th>ANCHOR</th> <th>TRACK</th> </tr> <tr> <td style="text-align: center;">320</td> <td style="text-align: center;">320</td> </tr> </table>	ANCHOR	TRACK	320	320
ANCHOR	TRACK				
320	320				
MIN Vallow ANCHOR @ STEEL (LB) =	<table border="1" style="font-size: small;"> <tr> <th>ANCHOR</th> <th>TRACK</th> </tr> <tr> <td style="text-align: center;">497</td> <td style="text-align: center;">497</td> </tr> </table>	ANCHOR	TRACK	497	497
ANCHOR	TRACK				
497	497				
MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900				
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000				
MIN Tallow SCREW @ STUD (LB) =	<table border="1" style="font-size: small;"> <tr> <th>SCREW</th> <th>STUD</th> </tr> <tr> <td style="text-align: center;">386</td> <td style="text-align: center;">109</td> </tr> </table>	SCREW	STUD	386	109
SCREW	STUD				
386	109				
MIN Vallow SCREW @ STUD (LB) =	<table border="1" style="font-size: small;"> <tr> <th>SCREW</th> <th>STUD</th> </tr> <tr> <td style="text-align: center;">405</td> <td style="text-align: center;">263</td> </tr> </table>	SCREW	STUD	405	263
SCREW	STUD				
405	263				
COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>				
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>				

TRACK DESIGN:	STANDARD
<b>F1 BENDING: TRACK LEGS</b>	
ALLOWABLE LOAD =	378.76 LB
<b>F2 BENDING: TRACK WEB</b>	
WEB BENDING M2 =	10.91 IN-LB
THICKNESS OF TRACK WEB REQUIRED =	0.0172 IN
<b>F3 COMPRESSION: EFFECTIVE TRACK LENGTH</b>	
ALLOWABLE LOAD =	3057.47 LB
	0.00
<b>F1 SHEAR: TRACK WEB</b>	
TRACK WEB ALLOWABLE SHEAR STRENGTH =	1739.09 LB
<b>USE: TRACK: 362T125-43 33 KSI MIN.</b>	

<b>ANCHOR DESIGN TO STEEL:</b>		<b>THICKNESS: 1/2"</b>		<b>50 KSI MIN.</b>	
1	<b>ANCHOR PER FASTENER ROW</b>	EDGE DISTANCE TOWARDS LOAD = <b>0.50</b> IN c <sub>a1</sub> <b>OK</b>			
		EDGE DISTANCE OPPOSITE LOAD = <b>0.50</b> IN c <sub>a2</sub> <b>OK</b>			
		SPACING BETWEEN ANCHORS = <b>1.50</b> IN s <sub>a1</sub> <b>OK</b>			
		SPACING BETWEEN GROUPS = <b>16.00</b> IN s <sub>a2</sub> <b>OK</b>			
					
		(1) ANCHOR PER ROW (2) ANCHORS TOTAL			
		INTERACTION SUMMARY			CODE REPORT
		SHEAR	TENSION	COMBINED	
2					HILTI ICC ESR-2269
					DEWALT ICC ESR-2024
					ITW RAMSET ICC ESR-1799
<b>USE: 2</b> .157" HILTI X-U .157" DEWALT SPIRAL CSI PIN .157" RAMSET TE		<b>MIN PER STUD</b>			

<b>SCREW DESIGN TO STUD:</b>		<b>STUD: 1 362S162-43</b>		<b>33 KSI MIN.</b>		<b>@ 16" O.C.</b>	
		MIN TOP EDGE DISTANCE = <b>0.29</b> IN c <sub>a1</sub> <b>OK</b>					
		MIN SIDE EDGE DISTANCE = <b>0.29</b> IN c <sub>a2</sub> <b>OK</b>					
		MIN ROW SPACING = <b>0.57</b> IN s <sub>a1</sub> <b>OK</b>					
		MIN GROUP SPACING = <b>0.57</b> IN s <sub>a2</sub> <b>OK</b>					
							
		INTERACTION SUMMARY			CODE REPORT		
		SHEAR	TENSION	COMBINED			
1					ITW ICC ESR-1976		
					HILTI ICC ESR-2196		
					GRABBER ICC-ESR 1271		
					PBP ICC ESR-1408		
<b>USE: 1</b> #10-16 BUILDDEX "TEKS" SCREW #10-16 HILTI "SDS" SCREW #10-16 GRABBER "DRIVALL" SCREW #10-16 PRO-TWIST "DARTS" SCREW		<b>MIN EACH LEG</b>					



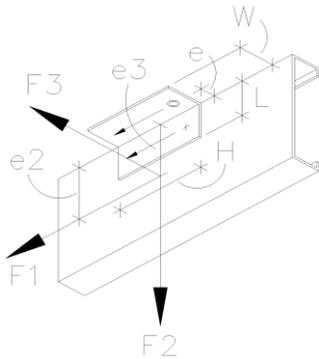
100 CAMELOT DRIVE  
FOND DU LAC, WI 54935  
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PROJECT: HCA Lees Summit Medical Center Ed Expansion  
LOCATION: Lee's Summit, MO  
CLIENT: E&K of Kansas City, Inc.  
PROJECT #: 250361200

PAGE: 50  
DATE: 11/11/25  
ENGR: OLS

**WIND LOAD  
SERVICE LEVEL**

DETAIL 23/D2						
	F1		F2		F3	
	DL	WL	DL	WL	DL	WL
6/S2	0	0	0	244	0	0



STUD: **HORIZONTAL**  
CLIP: **TOP**

**ASD DESIGN**

**DESIGN VARIABLES**

F1 MAX. (LB) =	<b>0.00</b>	
F2 MAX. (LB) =	<b>243.89</b>	
F3 MAX. (LB) =	<b>0.00</b>	
W (IN) =	<b>2.00</b>	
L (IN) =	<b>6.50</b>	
H (IN) =	<b>3.50</b>	
e (IN) =	<b>0.75</b>	
e2 (IN) =	N/A	
e3 (IN) =	N/A	
BEARING LENGTH AGAINST STRUCTURE "a" (IN) =	<b>3.50</b>	
GAP BETWEEN STUD AND STRUCTURE "b" (IN) =	<b>3.25</b>	
COUPLE ARM TO RESIST F1*e "Lm" (IN) =	N/A	
COUPLE ARM TO RESIST F1*e2 "Lm2" (IN) =	N/A	
CLIP ANGLE Fy (KSI) =	<b>50</b>	
CLIP ANGLE Fu (KSI) =	65	
MIN ANCHOR TO STEEL SHANK DIA. (IN) d <sub>o</sub> =	0.1570	
MIN ANCHOR TO STEEL HEAD DIA. (IN) d <sub>w</sub> =	0.3150	
MIN Tallow ANCHOR @ STEEL (LB) =	ANCHOR	CLIP
	615	730
MIN Vallow ANCHOR @ STEEL (LB) =	495	1136
	MIN SCREW TO STUD SHANK DIA. (IN) d <sub>o</sub> =	0.1900
MIN SCREW TO STUD HEAD DIA. (IN) d <sub>w</sub> =	0.4000	
MIN Tallow SCREW @ STUD (LB) =	SCREW	STUD
	386	109
MIN Vallow SCREW @ STUD (LB) =	405	263
	COMPONENT OVERSTRENGTH FACTOR (Ω <sub>o</sub> ) =	<b>1.000</b>
SEISMIC AMPLIFICATION & RESPONSE FACTOR	<b>1.000</b>	

**CLIP ANGLE DESIGN:**

<b>BENDING F1</b>	L-LEG BENDING M1 =	0.00	IN-LB
<b>BENDING F2</b>	W-LEG BENDING M2 =	72.25	IN-LB
<b>BENDING F3</b>	L&W-LEG BENDING M3 =	0.00	IN-LB
<b>COMP. F2</b>	L-LEG COMPRESSION C2 =	243.89	LB
<b>TENSION F2</b>	L-LEG TENSION T2 =	243.89	LB
<b>SHEAR F1</b>	L-LEG SHEAR F1 =	0.00	LB
	THICKNESS OF L-LEG CLIP ANGLE REQ'D. =	0.0000	IN
	THICKNESS OF W-LEG CLIP ANGLE REQ'D. =	0.0643	IN
	CLIP THICKNESS REQUIRED =	14 GA.	
	THICKNESS PROVIDED =	<b>14 GA.</b>	IN
	L-LEG ALLOWABLE COMP. STRENGTH =	271.3	LB
	L&W-LEG ALLOWABLE SHEAR STRENGTH =	4679.1	LB

OK  
OK  
OK

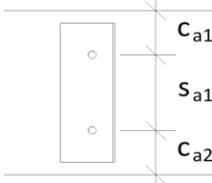
**USE: 1 2" x 6.5" x 14 GA. x 3.5" LONG**

**ANCHOR DESIGN TO STEEL:**

**THICKNESS: 3/8"**

**36 KSI MIN.**

1 ANCHOR PER  
FASTENER ROW  
1 ANCHOR RESISTING  
PRYING TENSION



MIN TOP EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN BOTTOM EDGE DISTANCE =	<b>0.50</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ANCHOR ROW SPACING =	<b>1.50</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN ANCHOR GROUP SPACING =	<b>N/A</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 2**  
 .157" HILTI X-U  
 .157" DEWALT SPIRAL CSI PIN  
 .157" RAMSET TE

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.00	0.26	0.26	HILTI ICC ESR-2269
0.00	0.32	0.32	DEWALT ICC ESR-2024
0.00	0.26	0.26	ITW RAMSET ICC ESR-1799

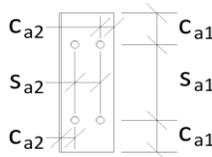
**SCREW DESIGN TO STUD:**

**STUD: 1 600S162-43**

**33 KSI MIN.**

**@ 16" O.C.**

2 ANCHORS PER  
FASTENER ROW



MIN END EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a1</sub>	<b>OK</b>
MIN SIDE EDGE DISTANCE =	<b>0.29</b>	IN	C <sub>a2</sub>	<b>OK</b>
MIN ROW SPACING =	<b>0.57</b>	IN	S <sub>a1</sub>	<b>OK</b>
MIN GROUP SPACING =	<b>0.57</b>	IN	S <sub>a2</sub>	<b>OK</b>

**USE: 4**  
 #10-16 BUILDDEX "TEKS" SCREW  
 #10-16 HILTI "SDS" SCREW  
 #10-16 GRABBER "DRIVALL" SCREW  
 #10-16 PRO-TWIST "DARTS" SCREW

**MIN  
PER  
CLIP  
TOTAL**

INTERACTION SUMMARY			CODE REPORT
SHEAR	TENSION	COMBINED	
0.23	0.06	0.22	ITW ICC ESR-1976
0.23	0.06	0.22	HILTI ICC ESR-2196
0.23	0.06	0.22	GRABBER ICC-ESR 1271
0.23	0.06	0.22	PBP ICC ESR-1408

# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 362S162-43

**MARINO\WARE PART #** 358SS18

**05.40.00 Cold-Formed Metal Framing**

## PROPERTIES:

<b>A. Web (in)</b>	3-5/8"	<b>Yield Strength Fy (KSI)</b>	33
<b>B. Flange (in)</b>	1-5/8"	<b>Tensile Strength Fu (KSI)</b>	45
<b>C. Lip (in)</b>	1/2"	<b>Design Thickness (in)</b>	0.0451
<b>Mils</b>	43	<b>Minimum Thickness (in)</b>	0.0428
<b>Available Finish</b>	G60	<b>Gauge</b>	18

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.340
Weight of Member: (lb/ft)	1.16
Moment of Inertia: <b>Ix</b> (in <sup>4</sup> )	0.710
Section Modulus: <b>Sx</b> (in <sup>3</sup> )	0.392
Radius of Gyration: <b>Rx</b> (in)	1.445
Gross Moment of Inertia: <b>Iy</b> (in <sup>4</sup> )	0.127
Gross Radius of Gyration: <b>Ry</b> (in)	0.611

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>Ixe</b> (in <sup>4</sup> )	0.71
Section Modulus: <b>Sxe</b> (in <sup>3</sup> )	0.37
Allowable Local Bending Moment: <b>Mal</b> (in-k)	7.34
Allowable Distortional Bending Moment: <b>Mad</b> (in-k)	7.27
Allowable strong axis shear away from punch: <b>Vag</b> (lb)	1739
Allowable strong axis shear at punch: <b>Vanet</b> (lb)	676

### TORSIONAL SECTION PROPERTIES

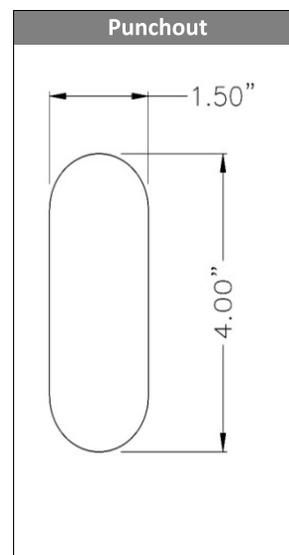
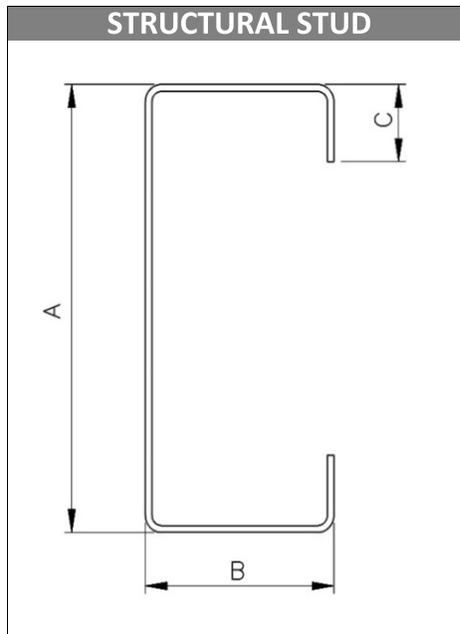
St. Venant Torsional Constant: <b>Jx1000</b> (in <sup>4</sup> )	0.230
Torsional Warping Constant: <b>Cw</b> (in <sup>6</sup> )	0.376
Shear Center to Centroid on Principal X-axis: <b>Xo</b> (in)	-1.297
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.782
Radius of Gyration on the Centroid Principal axis: <b>Ro</b> (in)	2.036
Torsional Flexural Constant: <b>β</b> 1-(xo/Ro) <sup>2</sup>	0.594

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



For more information, please contact Marino\WARE Technical Services at 866-545-1545.

This technical information reflects the most current information available and supersedes any and all publications, effective 11/5/2023  
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# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 600S162-43

**MARINO\WARE PART #** 600SS18

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	6"	<b>Yield Strength Fy (KSI)</b>	33
<b>B. Flange (in)</b>	1-5/8"	<b>Tensile Strength Fu (KSI)</b>	45
<b>C. Lip (in)</b>	1/2"	<b>Design Thickness (in)</b>	0.0451
<b>Mils</b>	43	<b>Minimum Thickness (in)</b>	0.0428
<b>Available Finish</b>	G60	<b>Gauge</b>	18

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.447
Weight of Member: (lb/ft)	1.52
Moment of Inertia: <b>Ix</b> (in <sup>4</sup> )	2.316
Section Modulus: <b>Sx</b> (in <sup>3</sup> )	0.772
Radius of Gyration: <b>Rx</b> (in)	2.276
Gross Moment of Inertia: <b>Iy</b> (in <sup>4</sup> )	0.148
Gross Radius of Gyration: <b>Ry</b> (in)	0.576

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>Ixe</b> (in <sup>4</sup> )	2.32
Section Modulus: <b>Sxe</b> (in <sup>3</sup> )	0.77
Allowable Local Bending Moment: <b>Mal</b> (in-k)	16.70*
Allowable Distortional Bending Moment: <b>Mad</b> (in-k)	13.00
Allowable strong axis shear away from punch: <b>Vag</b> (lb)	1416
Allowable strong axis shear at punch: <b>Vanet</b> (lb)	1240

\* Allowable Bending Moment includes cold work of forming

### TORSIONAL SECTION PROPERTIES

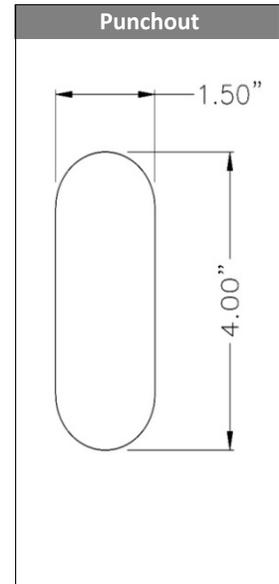
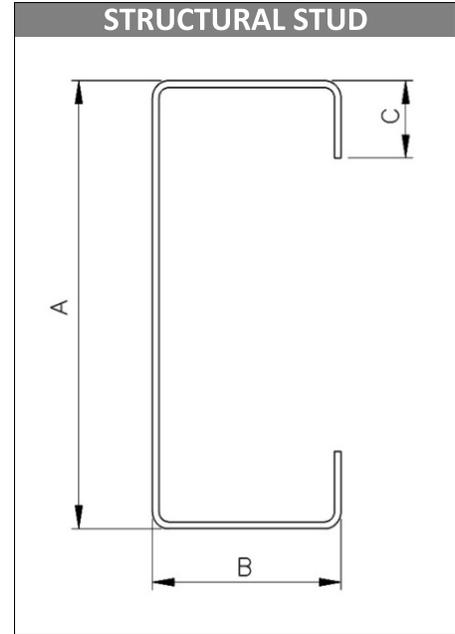
St. Venant Torsional Constant: <b>Jx1000</b> (in <sup>4</sup> )	0.303
Torsional Warping Constant: <b>Cw</b> (in <sup>6</sup> )	1.095
Shear Center to Centroid on Principal X-axis: <b>Xo</b> (in)	-1.062
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.670
Radius of Gyration on the Centroid Principal axis: <b>Ro</b> (in)	2.577
Torsional Flexural Constant: <b>β</b> 1-(xo/Ro) <sup>2</sup>	0.830

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 800S162-43

**MARINO\WARE PART #** 800SS18

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	8"	<b>Yield Strength Fy (KSI)</b>	33
<b>B. Flange (in)</b>	1-5/8"	<b>Tensile Strength Fu (KSI)</b>	45
<b>C. Lip (in)</b>	1/2"	<b>Design Thickness (in)</b>	0.0451
<b>Mils</b>	43	<b>Minimum Thickness (in)</b>	0.0428
<b>Available Finish</b>	G60	<b>Gauge</b>	18

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.537
Weight of Member: (lb/ft)	1.828
Moment of Inertia: <b>Ix</b> (in <sup>4</sup> )	4.635
Section Modulus: <b>Sx</b> (in <sup>3</sup> )	1.159
Radius of Gyration: <b>Rx</b> (in)	2.938
Gross Moment of Inertia: <b>Iy</b> (in <sup>4</sup> )	0.160
Gross Radius of Gyration: <b>Ry</b> (in)	0.546

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>Ixe</b> (in <sup>4</sup> )	4.483
Section Modulus: <b>Sxe</b> (in <sup>3</sup> )	1.019
Allowable Local Bending Moment: <b>Mal</b> (in-k)	20.14
Allowable Distortional Bending Moment: <b>Mad</b> (in-k)	17.60
Allowable strong axis shear away from punch: <b>Vag</b> (lb)	1051
Allowable strong axis shear at punch: <b>Vanet</b> (lb)	1051

### TORSIONAL SECTION PROPERTIES

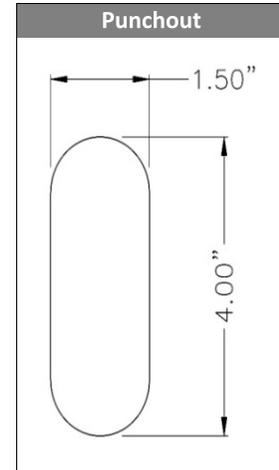
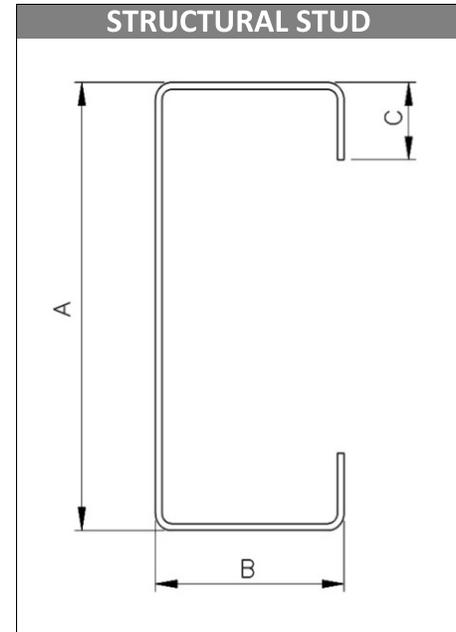
St. Venant Torsional Constant: <b>Jx1000</b> (in <sup>4</sup> )	0.364
Torsional Warping Constant: <b>Cw</b> (in <sup>6</sup> )	2.076
Shear Center to Centroid on Principal X-axis: <b>Xo</b> (in)	-0.926
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.601
Radius of Gyration on the Centroid Principal axis: <b>Ro</b> (in)	3.128
Torsional Flexural Constant: <b>β</b> 1-(xo/Ro) <sup>2</sup>	0.912

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 362T125-43

05.40.00 Cold-Formed Metal Framing

**MARINO\WARE PART #** 358ST18

## PROPERTIES:

<b>A. Web (in)</b>	3-5/8"	<b>Yield Strength Fy (KSI)</b>	33
<b>B. Flange (in)</b>	1-1/4"	<b>Tensile Strength Fu (KSI)</b>	45
<b>Mils</b>	43	<b>Design Thickness (in)</b>	0.0451
<b>Available Finish</b>	G60	<b>Minimum Thickness (in)</b>	0.0428
		<b>Gauge</b>	18

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.276
Weight of Member: (lb/ft)	0.94
Moment of Inertia: <b>Ix</b> (in <sup>4</sup> )	0.571
Section Modulus: <b>Sx</b> (in <sup>3</sup> )	0.302
Radius of Gyration: <b>Rx</b> (in)	1.439
Gross Moment of Inertia: <b>Iy</b> (in <sup>4</sup> )	0.039
Gross Radius of Gyration: <b>Ry</b> (in)	0.375

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>Ix</b> (in <sup>4</sup> )	0.531
Section Modulus: <b>Sx</b> (in <sup>3</sup> )	0.245
Allowable Bending Moment: <b>Ma</b> (in-k)	4.840
Allowable strong axis shear away from punch: <b>Vag</b> (lb)	1739

### TORSIONAL SECTION PROPERTIES

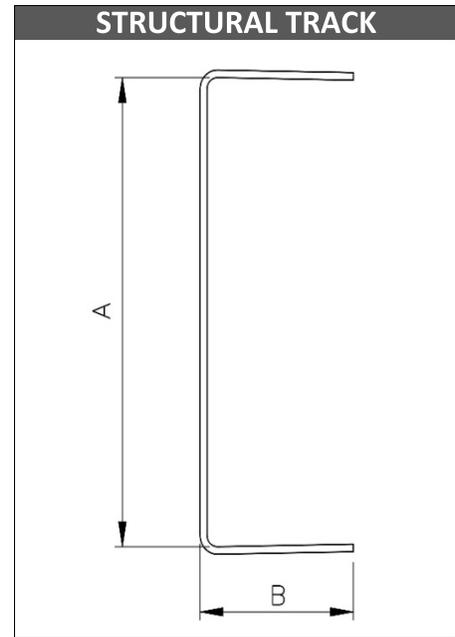
St. Venant Torsional Constant: <b>Jx1000</b> (in <sup>4</sup> )	0.187
Torsional Warping Constant: <b>Cw</b> (in <sup>6</sup> )	0.098
Shear Center to Centroid on Principal X-axis: <b>Xo</b> (in)	-0.654
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.407
Radius of Gyration on the Centroid Principal axis: <b>Ro</b> (in)	1.625
Torsional Flexural Constant: <b>β</b> [1-(xo/Ro) <sup>2</sup> ]	0.838

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 600T125-43

**MARINO\WARE PART #** 600ST18

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	6"	<b>Yield Strength Fy (KSI)</b>	33
<b>B. Flange (in)</b>	1-1/4"	<b>Tensile Strength Fu (KSI)</b>	45
<b>Mils</b>	43	<b>Design Thickness (in)</b>	0.0451
<b>Available Finish</b>	G60	<b>Minimum Thickness (in)</b>	0.0428
		<b>Gauge</b>	18

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.383
Weight of Member: (lb/ft)	1.30
Moment of Inertia: <b>I<sub>x</sub></b> (in <sup>4</sup> )	1.861
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.604
Radius of Gyration: <b>R<sub>x</sub></b> (in)	2.205
Gross Moment of Inertia: <b>I<sub>y</sub></b> (in <sup>4</sup> )	0.044
Gross Radius of Gyration: <b>R<sub>y</sub></b> (in)	0.337

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>I<sub>x</sub></b> (in <sup>4</sup> )	1.768
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.461
Allowable Bending Moment: <b>M<sub>a</sub></b> (in-k)	9.110
Allowable strong axis shear away from punch: <b>V<sub>ag</sub></b> (lb)	1377

### TORSIONAL SECTION PROPERTIES

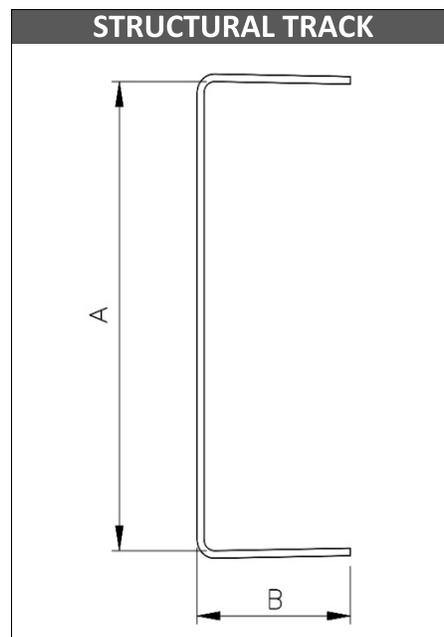
St. Venant Torsional Constant: <b>J<sub>x1000</sub></b> (in <sup>4</sup> )	0.260
Torsional Warping Constant: <b>C<sub>w</sub></b> (in <sup>6</sup> )	0.307
Shear Center to Centroid on Principal X-axis: <b>X<sub>o</sub></b> (in)	-0.513
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.335
Radius of Gyration on the Centroid Principal axis: <b>R<sub>o</sub></b> (in)	2.288
Torsional Flexural Constant: <b>β</b> [1-(x <sub>o</sub> /R <sub>o</sub> ) <sup>2</sup> ]	0.950

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



www.marinoware.com

For more information, please contact Marino\WARE Technical Services at 866-545-1545.

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# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 600T125-54

**MARINO\WARE PART #** 600ST16

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	6"	<b>Yield Strength Fy (KSI)</b>	50
<b>B. Flange (in)</b>	1-1/4"	<b>Tensile Strength Fu (KSI)</b>	65
<b>Mils</b>	54	<b>Design Thickness (in)</b>	0.0566
<b>Available Finish</b>	G60	<b>Minimum Thickness (in)</b>	0.0538
		<b>Gauge</b>	16

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.480
Weight of Member: (lb/ft)	1.63
Moment of Inertia: <b>I<sub>x</sub></b> (in <sup>4</sup> )	2.344
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.756
Radius of Gyration: <b>R<sub>x</sub></b> (in)	2.209
Gross Moment of Inertia: <b>I<sub>y</sub></b> (in <sup>4</sup> )	0.054
Gross Radius of Gyration: <b>R<sub>y</sub></b> (in)	0.335

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>I<sub>x</sub></b> (in <sup>4</sup> )	2.241
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.592
Allowable Bending Moment: <b>M<sub>a</sub></b> (in-k)	17.730
Allowable strong axis shear away from punch: <b>V<sub>ag</sub></b> (lb)	2728

### TORSIONAL SECTION PROPERTIES

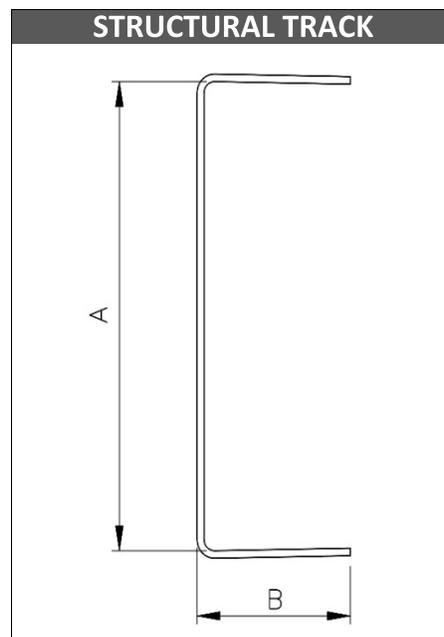
St. Venant Torsional Constant: <b>J<sub>x1000</sub></b> (in <sup>4</sup> )	0.513
Torsional Warping Constant: <b>C<sub>w</sub></b> (in <sup>6</sup> )	0.384
Shear Center to Centroid on Principal X-axis: <b>X<sub>o</sub></b> (in)	-0.508
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.332
Radius of Gyration on the Centroid Principal axis: <b>R<sub>o</sub></b> (in)	2.291
Torsional Flexural Constant: <b>β</b> [1-(x <sub>o</sub> /R <sub>o</sub> ) <sup>2</sup> ]	0.951

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



www.marinoware.com

For more information, please contact Marino\WARE Technical Services at 866-545-1545.

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# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 800T125-43

**MARINO\WARE PART #** 800ST18

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	8"	<b>Yield Strength Fy (KSI)</b>	33
<b>B. Flange (in)</b>	1-1/4"	<b>Tensile Strength Fu (KSI)</b>	45
<b>Mils</b>	43	<b>Design Thickness (in)</b>	0.0451
<b>Available Finish</b>	G60	<b>Minimum Thickness (in)</b>	0.0428
		<b>Gauge</b>	18

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.473
Weight of Member: (lb/ft)	1.61
Moment of Inertia: <b>I<sub>x</sub></b> (in <sup>4</sup> )	3.773
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.924
Radius of Gyration: <b>R<sub>x</sub></b> (in)	2.824
Gross Moment of Inertia: <b>I<sub>y</sub></b> (in <sup>4</sup> )	0.046
Gross Radius of Gyration: <b>R<sub>y</sub></b> (in)	0.311

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>I<sub>x</sub></b> (in <sup>4</sup> )	3.484
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.640
Allowable Bending Moment: <b>M<sub>a</sub></b> (in-k)	12.650
Allowable strong axis shear away from punch: <b>V<sub>ag</sub></b> (lb)	1030

### TORSIONAL SECTION PROPERTIES

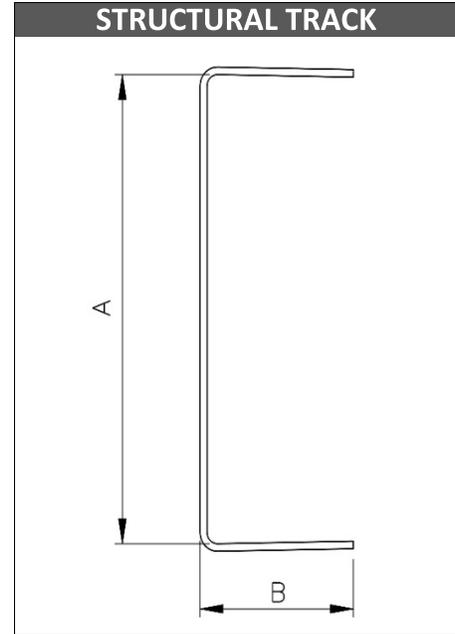
St. Venant Torsional Constant: <b>J<sub>x1000</sub></b> (in <sup>4</sup> )	0.321
Torsional Warping Constant: <b>C<sub>w</sub></b> (in <sup>6</sup> )	0.589
Shear Center to Centroid on Principal X-axis: <b>X<sub>o</sub></b> (in)	-0.436
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.292
Radius of Gyration on the Centroid Principal axis: <b>R<sub>o</sub></b> (in)	2.874
Torsional Flexural Constant: <b>β</b> [1-(x <sub>o</sub> /R <sub>o</sub> ) <sup>2</sup> ]	0.977

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 600S162-54

**MARINO\WARE PART #** 600SS16

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	6"	<b>Yield Strength Fy (KSI)</b>	50
<b>B. Flange (in)</b>	1-5/8"	<b>Tensile Strength Fu (KSI)</b>	65
<b>C. Lip (in)</b>	1/2"	<b>Design Thickness (in)</b>	0.0566
<b>Mils</b>	54	<b>Minimum Thickness (in)</b>	0.0538
<b>Available Finish</b>	G60	<b>Gauge</b>	16

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.556
Weight of Member: (lb/ft)	1.89
Moment of Inertia: <b>I<sub>x</sub></b> (in <sup>4</sup> )	2.860
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.953
Radius of Gyration: <b>R<sub>x</sub></b> (in)	2.267
Gross Moment of Inertia: <b>I<sub>y</sub></b> (in <sup>4</sup> )	0.180
Gross Radius of Gyration: <b>R<sub>y</sub></b> (in)	0.570

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>I<sub>xe</sub></b> (in <sup>4</sup> )	2.86
Section Modulus: <b>S<sub>xe</sub></b> (in <sup>3</sup> )	0.92
Allowable Local Bending Moment: <b>M<sub>al</sub></b> (in-k)	30.30*
Allowable Distortional Bending Moment: <b>M<sub>ad</sub></b> (in-k)	23.00
Allowable strong axis shear away from punch: <b>V<sub>ag</sub></b> (lb)	2823
Allowable strong axis shear at punch: <b>V<sub>anet</sub></b> (lb)	1947

\* Allowable Bending Moment includes cold work of forming

### TORSIONAL SECTION PROPERTIES

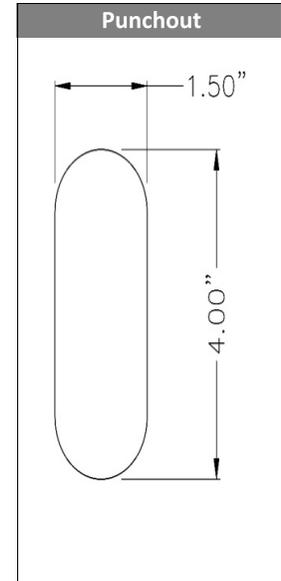
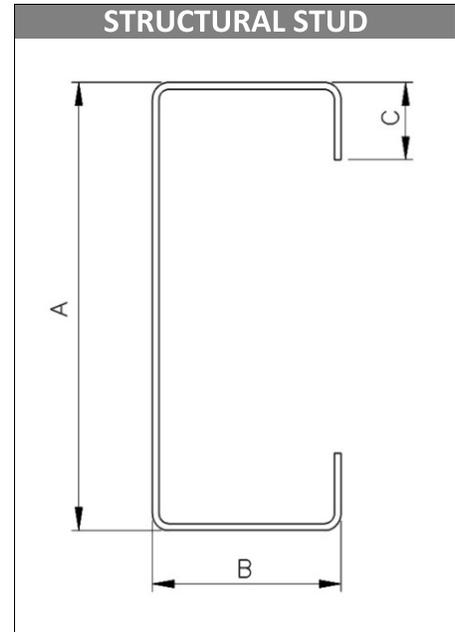
St. Venant Torsional Constant: <b>J<sub>x1000</sub></b> (in <sup>4</sup> )	0.594
Torsional Warping Constant: <b>C<sub>w</sub></b> (in <sup>6</sup> )	1.337
Shear Center to Centroid on Principal X-axis: <b>X<sub>o</sub></b> (in)	-1.049
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.663
Radius of Gyration on the Centroid Principal axis: <b>R<sub>o</sub></b> (in)	2.562
Torsional Flexural Constant: <b>β</b> 1-(x <sub>o</sub> /R <sub>o</sub> ) <sup>2</sup>	0.832

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



For more information, please contact Marino\WARE Technical Services at 866-545-1545.

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# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 600T200-54

**MARINO\WARE PART #** 600T216

05.40.00 Cold-Formed Metal Framing

## PROPERTIES:

<b>A. Web (in)</b>	6"	<b>Yield Strength Fy (KSI)</b>	50
<b>B. Flange (in)</b>	2"	<b>Tensile Strength Fu (KSI)</b>	65
<b>Mils</b>	54	<b>Design Thickness (in)</b>	0.0566
<b>Available Finish</b>	G60	<b>Minimum Thickness (in)</b>	0.0538
		<b>Gauge</b>	16

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A</b> (in <sup>2</sup> )	0.565
Weight of Member: (lb/ft)	1.92
Moment of Inertia: <b>I<sub>x</sub></b> (in <sup>4</sup> )	3.145
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	1.015
Radius of Gyration: <b>R<sub>x</sub></b> (in)	2.359
Gross Moment of Inertia: <b>I<sub>y</sub></b> (in <sup>4</sup> )	0.203
Gross Radius of Gyration: <b>R<sub>y</sub></b> (in)	0.600

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>I<sub>x</sub></b> (in <sup>4</sup> )	2.641
Section Modulus: <b>S<sub>x</sub></b> (in <sup>3</sup> )	0.717
Allowable Bending Moment: <b>M<sub>a</sub></b> (in-k)	21.480
Allowable strong axis shear away from punch: <b>V<sub>ag</sub></b> (lb)	2728

### TORSIONAL SECTION PROPERTIES

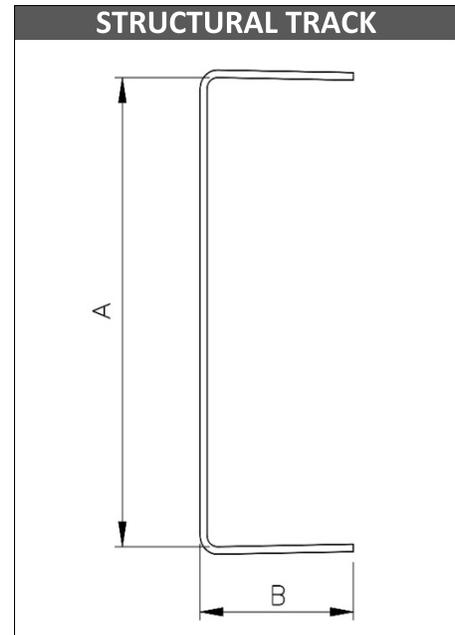
St. Venant Torsional Constant: <b>J<sub>x1000</sub></b> (in <sup>4</sup> )	0.604
Torsional Warping Constant: <b>C<sub>w</sub></b> (in <sup>6</sup> )	1.381
Shear Center to Centroid on Principal X-axis: <b>X<sub>o</sub></b> (in)	-1.038
Shear Center to Mid-Plane of the Web: <b>m</b> (in)	0.649
Radius of Gyration on the Centroid Principal axis: <b>R<sub>o</sub></b> (in)	2.646
Torsional Flexural Constant: <b>β</b> [1-(x <sub>o</sub> /R <sub>o</sub> ) <sup>2</sup> ]	0.846

## CODES & STANDARDS

- AISI S100, S240 & ICC ES ESR-4062
- ASTM A 1003, A 653, & C 955
- IBC 2012, 2015, 2018, 2021 & FBC 2020, 2023

## GREEN INFO

- LEED credits available
- Contact Technical Services for more information.



**362S162-43-P (33ksi, CP60, Punched)**
**3-5/8" structural stud with S162 (1-5/8") flange - 43mils (18ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Yellow

**Geometric Properties**

**Web depth:** 3.625 in      **Thickness:** 43mils (18ga)      **Yield strength, Fy:** 33 ksi  
**Flange width:** 1.625 in      **Design Thickness:** 0.0451 in      **\*Fy with Cold-Work, Fya:** 33.0 ksi  
**Stiffening lip:** 0.500 in      **Min. steel thickness:** 0.0428 in      **Ultimate, Fu:** 45.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.340 in <sup>2</sup>
Member weight per foot of length	1.16 lb/ft
Moment of inertia (Ix)	0.710 in <sup>4</sup>
Section Modulus (Sx)	0.392 in <sup>3</sup>
Radius of gyration (Rx)	1.445 in
Gross moment of inertia (Iy)	0.127 in <sup>4</sup>
Gross radius of gyration (Ry)	0.611 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.248 in <sup>2</sup>
Moment of inertia for deflection (Ix)	0.710 in <sup>4</sup>
Section modulus (Sx)	0.372 in <sup>3</sup>
Allowable bending moment (Ma)	7.34 in-k
Allowable moment based on distortion buckling (Mad)	7.32 in-k
Allowable shear force in web (solid section)	1739 lb
Allowable shear force in web (perforated section)	676 lb
Unbraced length (Lu)	42.5 in

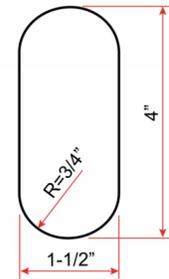
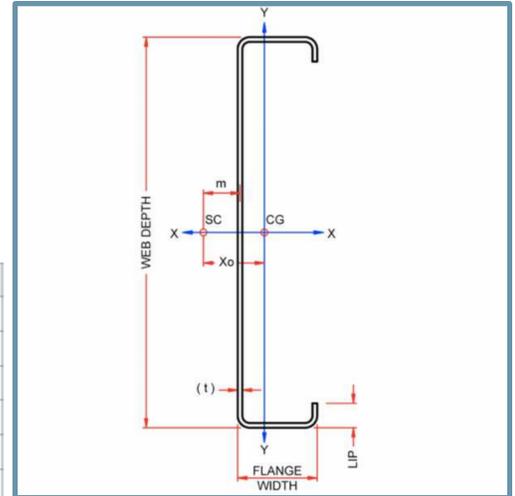
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.230 in <sup>4</sup>
Warping constant (Cw)	0.376 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-1.297 in
Distance between shear center and web centerline (m)	0.782 in
Radii of gyration (Ro)	2.036 in
Torsional flexural constant (Beta)	0.594

- Effective properties incorporate the strength increase from the cold work of forming.
- Gross properties are based on the cross section away from the punchouts.
- Effective properties are based on knockout/punched sections.

**Code Approvals & Performance Standards**

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
- [AISI S202-20](#) Code of Standard Practice for Cold-Formed Steel Structural Framing
  - Section F3 Delivery, Handling and Storage of Materials
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  - [ESR-1166P Catalog](#) ClarkDietrich Structural Technical Design Guide (6/1/24)
- [Intertek CCR-0206](#) Structural Studs and Track
- [SFIA Stud](#) Code Compliance Certification Program
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories


**Structural Punchout**
**East Coast / Central punch spacing:**

Center of punchouts are 12" from lead end, then 24" o.c.

**West Coast punch spacing:**

Center of punchouts are 24" from lead end, then 24" o.c.

Center of tail end punchout not less than 12" from end of stud.

If lateral bracing is required for head-of-wall deflection track and a punchout is not spaced 12" from the top of stud, use strapping and blocking in lieu of CRC or Spazzer Bar lateral bridging.

If custom punchout patterns are required, contact ClarkDietrich Sales or local plant for requests.

**Sustainability Credits** For more details and LEED letters contact Technical Services at 888-437-3244 or visit [clarkdietrich.com/LEED](http://clarkdietrich.com/LEED).

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- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).

**600S162-43-P (33ksi, CP60, Punched)**
**6" structural stud with S162 (1-5/8") flange - 43mils (18ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Yellow

**Geometric Properties**
**Web depth:** 6.000 in

**Thickness:** 43mils (18ga)

**Yield strength,  $F_y$ :** 33 ksi

**Flange width:** 1.625 in

**Design Thickness:** 0.0451 in

**\* $F_y$  with Cold-Work,  $F_{ya}$ :** 36.3 ksi

**Stiffening lip:** 0.500 in

**Min. steel thickness:** 0.0428 in

**Ultimate,  $F_u$ :** 45.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.447 in <sup>2</sup>
Member weight per foot of length	1.52 lb/ft
Moment of inertia (Ix)	2.316 in <sup>4</sup>
Section Modulus (Sx)	0.772 in <sup>3</sup>
Radius of gyration (Rx)	2.277 in
Gross moment of inertia (Iy)	0.148 in <sup>4</sup>
Gross radius of gyration (Ry)	0.576 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.256 in <sup>2</sup>
Moment of inertia for deflection (Ix)	2.316 in <sup>4</sup>
Section modulus (Sx)	0.767 in <sup>3</sup>
Allowable bending moment (Ma)	16.68 in-k
Allowable moment based on distortion buckling (Mad)	13.06 in-k
Allowable shear force in web (solid section)	1416 lb
Allowable shear force in web (perforated section)	1240 lb
Unbraced length (Lu)	39.0 in

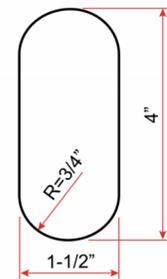
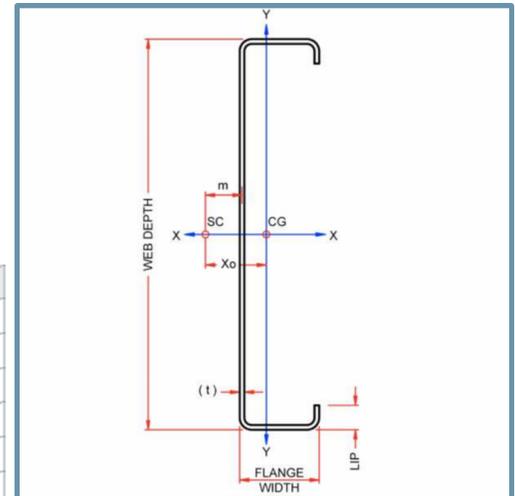
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.303 in <sup>4</sup>
Warping constant (Cw)	1.095 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-1.062 in
Distance between shear center and web centerline (m)	0.670 in
Radii of gyration (Ro)	2.577 in
Torsional flexural constant (Beta)	0.830

- Effective properties incorporate the strength increase from the cold work of forming.
- Gross properties are based on the cross section away from the punchouts.
- Effective properties are based on knockout/punched sections.

**Code Approvals & Performance Standards**

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
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  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
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- [SFIA Stud](#) Code Compliance Certification Program
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**Structural Punchout**
**East Coast / Central punch spacing:**

Center of punchouts are 12" from lead end, then 24" o.c.

**West Coast punch spacing:**

Center of punchouts are 24" from lead end, then 24" o.c.

Center of tail end punchout not less than 12" from end of stud.

If lateral bracing is required for head-of-wall deflection track and a punchout is not spaced 12" from the top of stud, use strapping and blocking in lieu of CRC or Spazzer Bar lateral bridging.

If custom punchout patterns are required, contact ClarkDietrich Sales or local plant for requests.

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**800S162-43-P (33ksi, CP60, Punched)**
**8" structural stud with S162 (1-5/8") flange - 43mils (18ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Yellow

**Geometric Properties**
**Web depth:** 8.000 in

**Thickness:** 43mils (18ga)

**Yield strength,  $F_y$ :** 33 ksi

**Flange width:** 1.625 in

**Design Thickness:** 0.0451 in

**\* $F_y$  with Cold-Work,  $F_{ya}$ :** 33.0 ksi

**Stiffening lip:** 0.500 in

**Min. steel thickness:** 0.0428 in

**Ultimate,  $F_u$ :** 45.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.537 in <sup>2</sup>
Member weight per foot of length	1.83 lb/ft
Moment of inertia (Ix)	4.635 in <sup>4</sup>
Section Modulus (Sx)	1.159 in <sup>3</sup>
Radius of gyration (Rx)	2.938 in
Gross moment of inertia (Iy)	0.160 in <sup>4</sup>
Gross radius of gyration (Ry)	0.546 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.258 in <sup>2</sup>
Moment of inertia for deflection (Ix)	4.500 in <sup>4</sup>
Section modulus (Sx)	1.019 in <sup>3</sup>
Allowable bending moment (Ma)	20.14 in-k
Allowable moment based on distortion buckling (Mad)	17.72 in-k
Allowable shear force in web (solid section)	1051 lb
Allowable shear force in web (perforated section)	1051 lb
Unbraced length (Lu)	39.8 in

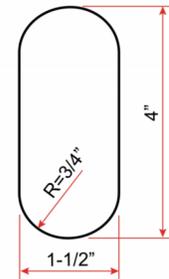
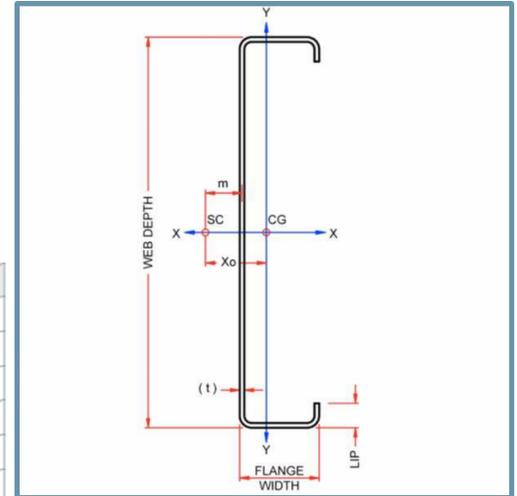
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.364 in <sup>4</sup>
Warping constant (Cw)	2.076 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-0.926 in
Distance between shear center and web centerline (m)	0.601 in
Radii of gyration (Ro)	3.128 in
Torsional flexural constant (Beta)	0.912

- Effective properties incorporate the strength increase from the cold work of forming.
- Gross properties are based on the cross section away from the punchouts.
- Effective properties are based on knockout/punched sections.

**Code Approvals & Performance Standards**

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- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
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  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
- [AISI S202-20](#) Code of Standard Practice for Cold-Formed Steel Structural Framing
  - Section F3 Delivery, Handling and Storage of Materials
- [IBC 2024](#) International Building Code
- [ICC-ES ESR-1166P](#) Structural Studs and Track
  - [ESR-1166P Catalog](#) ClarkDietrich Structural Technical Design Guide (6/1/24)
- [Intertek CCR-0206](#) Structural Studs and Track
- [SFIA Stud](#) Code Compliance Certification Program
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories


**Structural Punchout**
**East Coast / Central punch spacing:**

Center of punchouts are 12" from lead end, then 24" o.c.

**West Coast punch spacing:**

Center of punchouts are 24" from lead end, then 24" o.c.

Center of tail end punchout not less than 12" from end of stud.

If lateral bracing is required for head-of-wall deflection track and a punchout is not spaced 12" from the top of stud, use strapping and blocking in lieu of CRC or Spazzer Bar lateral bridging.

If custom punchout patterns are required, contact ClarkDietrich Sales or local plant for requests.

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**362T125-43 (33ksi, CP60)**
**362 (3-5/8") structural track with T125 (1-1/4") leg - 43mils (18ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Yellow

**Geometric Properties**

**Web depth:** 3.786 in    **Thickness:** 43mils (18ga)    **Yield strength, Fy:** 33 ksi  
**Leg width:** 1.25 in    **Design Thickness:** 0.0451 in    **\*Fy with Cold-Work, Fya:** 33.0 ksi  
**Min. steel thickness:** 0.0428 in    **Ultimate, Fu:** 45.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.276 in <sup>2</sup>
Member weight per foot of length	0.94 lb/ft
Moment of inertia (Ix)	0.571 in <sup>4</sup>
Section Modulus (Sx)	0.302in <sup>3</sup>
Radius of gyration (Rx)	1.439 in
Gross moment of inertia (Iy)	0.039 in <sup>4</sup>
Gross radius of gyration (Ry)	0.375 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.174 in <sup>2</sup>
Moment of inertia for deflection (Ix)	0.531 in <sup>4</sup>
Section modulus (Sx)	0.245 in <sup>3</sup>
Allowable bending moment (Ma)	4.84 in-k
Allowable shear force in web	1739 lb

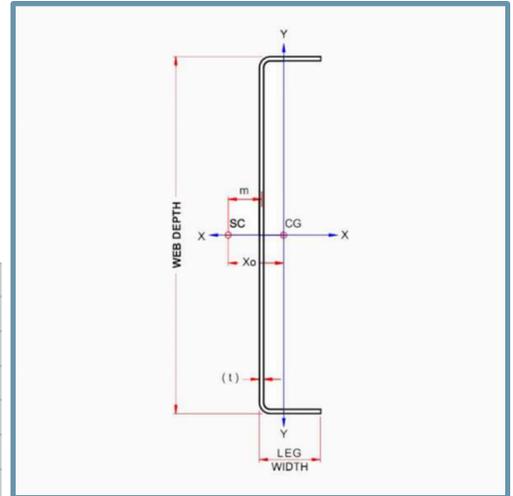
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.187 in <sup>4</sup>
Warping constant (Cw)	0.098 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-0.654 in
Distance between shear center and web centerline (m)	0.407 in
Radii of gyration (Ro)	1.625 in
Torsional flexural constant (Beta)	0.838

- Effective properties incorporate the strength increase from the cold work of forming.

**Code Approvals & Performance Standards**

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
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  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
- [AISI S202-20](#) Code of Standard Practice for Cold-Formed Steel Structural Framing
  - Section F3 Delivery, Handling and Storage of Materials
- [IBC 2024](#) International Building Code
- [ICC-ES ESR-1166P](#) Structural Studs and Track
  - [ESR-1166P Catalog](#) ClarkDietrich Structural Technical Design Guide (6/1/24)
- [Intertek CCRR-0206](#) Structural Studs and Track
- [SFIA Stud](#) Code Compliance Certification Program
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories



- Load-bearing walls
- Curtain walls
- Tall interior walls
- Floor & ceiling joists
- Trusses



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**600T125-43 (33ksi, CP60)**
**600 (6") structural track with T125 (1-1/4") leg - 43mils (18ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Yellow

**Geometric Properties**

**Web depth:** 6.161 in    **Thickness:** 43mils (18ga)    **Yield strength, Fy:** 33 ksi  
**Leg width:** 1.25 in    **Design Thickness:** 0.0451 in    **\*Fy with Cold-Work, Fya:** 33.0 ksi  
**Min. steel thickness:** 0.0428 in    **Ultimate, Fu:** 45.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.383 in <sup>2</sup>
Member weight per foot of length	1.30 lb/ft
Moment of inertia (Ix)	1.862 in <sup>4</sup>
Section Modulus (Sx)	0.604in <sup>3</sup>
Radius of gyration (Rx)	2.205 in
Gross moment of inertia (Iy)	0.044 in <sup>4</sup>
Gross radius of gyration (Ry)	0.337 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.181 in <sup>2</sup>
Moment of inertia for deflection (Ix)	1.768 in <sup>4</sup>
Section modulus (Sx)	0.461 in <sup>3</sup>
Allowable bending moment (Ma)	9.11 in-k
Allowable shear force in web	1377 lb

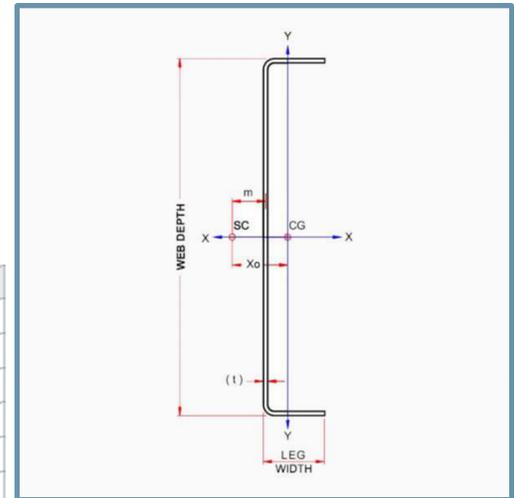
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.260 in <sup>4</sup>
Warping constant (Cw)	0.307 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-0.513 in
Distance between shear center and web centerline (m)	0.335 in
Radius of gyration (Ro)	2.289 in
Torsional flexural constant (Beta)	0.950

- Effective properties incorporate the strength increase from the cold work of forming.

**Code Approvals & Performance Standards**

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**800T125-43 (33ksi, CP60)**
**800 (8") structural track with T125 (1-1/4") leg - 43mils (18ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Yellow

**Geometric Properties**

**Web depth:** 8.161 in    **Thickness:** 43mils (18ga)    **Yield strength, Fy:** 33 ksi  
**Leg width:** 1.25 in    **Design Thickness:** 0.0451 in    **\*Fy with Cold-Work, Fya:** 33.0 ksi  
**Min. steel thickness:** 0.0428 in    **Ultimate, Fu:** 45.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.473 in <sup>2</sup>
Member weight per foot of length	1.61 lb/ft
Moment of inertia (Ix)	3.774 in <sup>4</sup>
Section Modulus (Sx)	0.925in <sup>3</sup>
Radius of gyration (Rx)	2.824 in
Gross moment of inertia (Iy)	0.046 in <sup>4</sup>
Gross radius of gyration (Ry)	0.311 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.184 in <sup>2</sup>
Moment of inertia for deflection (Ix)	3.484 in <sup>4</sup>
Section modulus (Sx)	0.640 in <sup>3</sup>
Allowable bending moment (Ma)	12.65 in-k
Allowable shear force in web	1030 lb

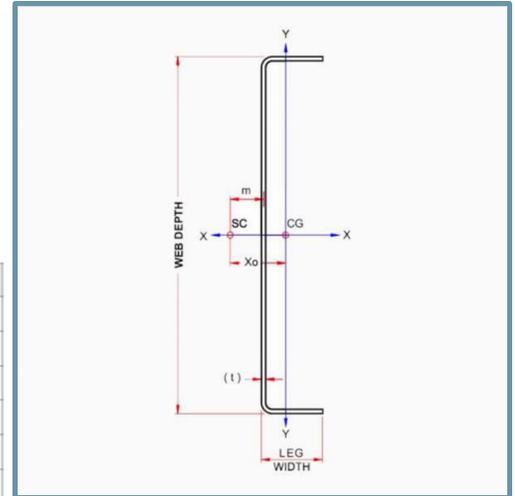
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.321 in <sup>4</sup>
Warping constant (Cw)	0.589 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-0.436 in
Distance between shear center and web centerline (m)	0.292 in
Radius of gyration (Ro)	2.875 in
Torsional flexural constant (Beta)	0.977

- Effective properties incorporate the strength increase from the cold work of forming.

**Code Approvals & Performance Standards**

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**600S162-54-P (50ksi, CP60, Punched)**
**6" structural stud with S162 (1-5/8") flange - 54mils (16ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Green

**Geometric Properties**

**Web depth:** 6.000 in      **Thickness:** 54mils (16ga)      **Yield strength, Fy:** 50 ksi  
**Flange width:** 1.625 in      **Design Thickness:** 0.0566 in      **\*Fy with Cold-Work, Fya:** 55.3 ksi  
**Stiffening lip:** 0.500 in      **Min. steel thickness:** 0.0538 in      **Ultimate, Fu:** 65.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.556 in <sup>2</sup>
Member weight per foot of length	1.89 lb/ft
Moment of inertia (Ix)	2.861 in <sup>4</sup>
Section Modulus (Sx)	0.954 in <sup>3</sup>
Radius of gyration (Rx)	2.268 in
Gross moment of inertia (Iy)	0.180 in <sup>4</sup>
Gross radius of gyration (Ry)	0.570 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.307 in <sup>2</sup>
Moment of inertia for deflection (Ix)	2.860 in <sup>4</sup>
Section modulus (Sx)	0.916 in <sup>3</sup>
Allowable bending moment (Ma)	30.33 in-k
Allowable moment based on distortion buckling (Mad)	23.17 in-k
Allowable shear force in web (solid section)	2823 lb
Allowable shear force in web (perforated section)	1947 lb
Unbraced length (Lu)	31.4 in

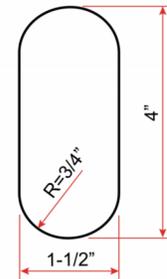
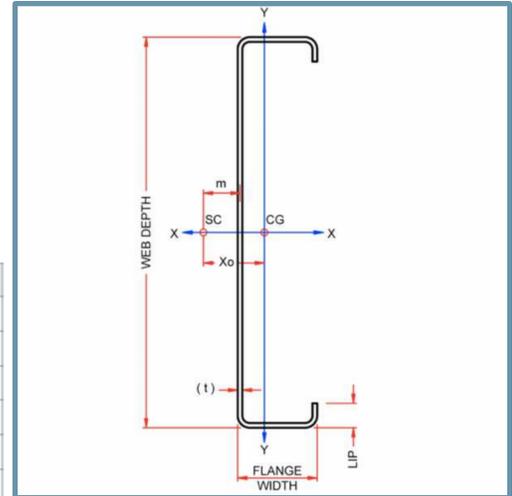
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.594 in <sup>4</sup>
Warping constant (Cw)	1.337 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-1.049 in
Distance between shear center and web centerline (m)	0.663 in
Radii of gyration (Ro)	2.563 in
Torsional flexural constant (Beta)	0.833

- Effective properties incorporate the strength increase from the cold work of forming.
- Gross properties are based on the cross section away from the punchouts.
- Effective properties are based on knockout/punched sections.

**Code Approvals & Performance Standards**

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
- [AISI S202-20](#) Code of Standard Practice for Cold-Formed Steel Structural Framing
  - Section F3 Delivery, Handling and Storage of Materials
- [IBC 2024](#) International Building Code
- [ICC-ES ESR-1166P](#) Structural Studs and Track
  - [ESR-1166P Catalog](#) ClarkDietrich Structural Technical Design Guide (6/1/24)
- [Intertek CCR-0206](#) Structural Studs and Track
- [SFIA Stud](#) Code Compliance Certification Program
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories


**Structural Punchout**
**East Coast / Central punch spacing:**

Center of punchouts are 12" from lead end, then 24" o.c.

**West Coast punch spacing:**

Center of punchouts are 24" from lead end, then 24" o.c.

Center of tail end punchout not less than 12" from end of stud.

If lateral bracing is required for head-of-wall deflection track and a punchout is not spaced 12" from the top of stud, use strapping and blocking in lieu of CRC or Spazzer Bar lateral bridging.

If custom punchout patterns are required, contact ClarkDietrich Sales or local plant for requests.

**Sustainability Credits** For more details and LEED letters contact Technical Services at 888-437-3244 or visit [clarkdietrich.com/LEED](http://clarkdietrich.com/LEED).

- **LEED v4.1 MR Credit:** Environmental Product Declarations: EPD (1 point) - Sourcing of Raw Materials (up to 2 points) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points)
- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).

**600T125-54 (50ksi, CP60)**
**600 (6") structural track with T125 (1-1/4") leg - 54mils (16ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Green

**Geometric Properties**

**Web depth:** 6.198 in    **Thickness:** 54mils (16ga)    **Yield strength, Fy:** 50 ksi  
**Leg width:** 1.25 in    **Design Thickness:** 0.0566 in    **\*Fy with Cold-Work, Fya:** 50.0 ksi  
**Min. steel thickness:** 0.0538 in    **Ultimate, Fu:** 65.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.480 in <sup>2</sup>
Member weight per foot of length	1.63 lb/ft
Moment of inertia (Ix)	2.345 in <sup>4</sup>
Section Modulus (Sx)	0.757in <sup>3</sup>
Radius of gyration (Rx)	2.209 in
Gross moment of inertia (Iy)	0.054 in <sup>4</sup>
Gross radius of gyration (Ry)	0.335 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.234 in <sup>2</sup>
Moment of inertia for deflection (Ix)	2.241 in <sup>4</sup>
Section modulus (Sx)	0.592 in <sup>3</sup>
Allowable bending moment (Ma)	17.74 in-k
Allowable shear force in web	2728 lb

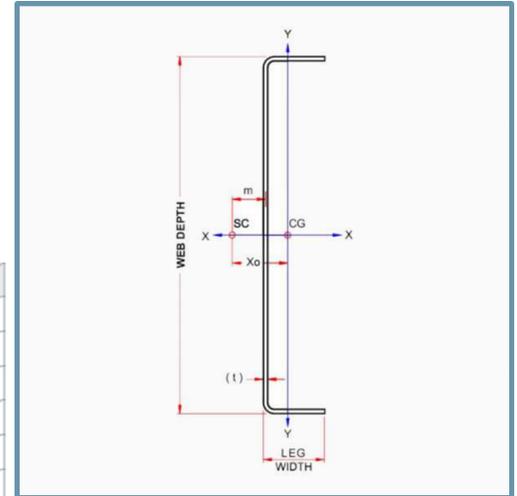
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.513 in <sup>4</sup>
Warping constant (Cw)	0.384 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-0.508 in
Distance between shear center and web centerline (m)	0.332 in
Radii of gyration (Ro)	2.292 in
Torsional flexural constant (Beta)	0.951

- Effective properties incorporate the strength increase from the cold work of forming.

**Code Approvals & Performance Standards**

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
- [AISI S202-20](#) Code of Standard Practice for Cold-Formed Steel Structural Framing
  - Section F3 Delivery, Handling and Storage of Materials
- [IBC 2024](#) International Building Code
- [ICC-ES ESR-1166P](#) Structural Studs and Track
  - [ESR-1166P Catalog](#) ClarkDietrich Structural Technical Design Guide (6/1/24)
- [Intertek CRRR-0206](#) Structural Studs and Track
- [SFIA Stud](#) Code Compliance Certification Program
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories



- Load-bearing walls
- Curtain walls
- Tall interior walls
- Floor & ceiling joists
- Trusses



**Sustainability Credits** For more details and LEED letters contact Technical Services at 888-437-3244 or visit [clarkdietrich.com/LEED](http://clarkdietrich.com/LEED).

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- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).

**600T200-54 (50ksi, CP60)**
**600 (6") structural track with T200 (2") leg - 54mils (16ga)**
**Coating:** CP60 per AISI S240

**Color Code:** Green

**Geometric Properties**

**Web depth:** 6.198 in    **Thickness:** 54mils (16ga)    **Yield strength, Fy:** 50 ksi  
**Leg width:** 2.00 in    **Design Thickness:** 0.0566 in    **\*Fy with Cold-Work, Fya:** 50.0 ksi  
**Min. steel thickness:** 0.0538 in    **Ultimate, Fu:** 65.0 ksi

**Gross Section Properties of Full Section, Strong Axis**

Cross sectional area (A)	0.565 in <sup>2</sup>
Member weight per foot of length	1.92 lb/ft
Moment of inertia (Ix)	3.146 in <sup>4</sup>
Section Modulus (Sx)	1.015in <sup>3</sup>
Radius of gyration (Rx)	2.359 in
Gross moment of inertia (Iy)	0.203 in <sup>4</sup>
Gross radius of gyration (Ry)	0.600 in

**Effective Section Properties, Strong Axis**

Effective Area (Ae)	0.241 in <sup>2</sup>
Moment of inertia for deflection (Ix)	2.641 in <sup>4</sup>
Section modulus (Sx)	0.717 in <sup>3</sup>
Allowable bending moment (Ma)	21.48 in-k
Allowable shear force in web	2728 lb

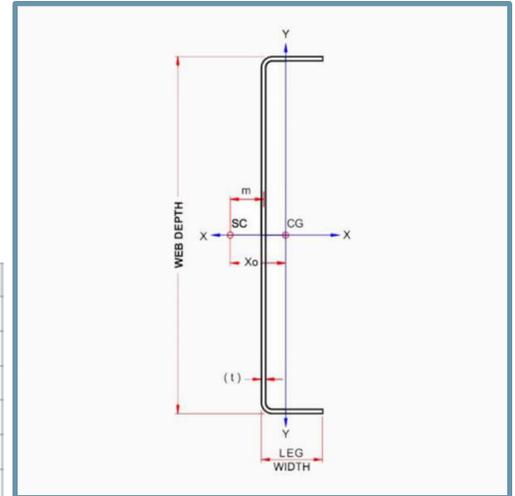
**Torsional Properties**

St. Venant torsional constant (J x 1000)	0.604 in <sup>4</sup>
Warping constant (Cw)	1.381 in <sup>6</sup>
Distance from shear center to neutral axis (Xo)	-1.038 in
Distance between shear center and web centerline (m)	0.649 in
Radius of gyration (Ro)	2.646 in
Torsional flexural constant (Beta)	0.846

- Effective properties incorporate the strength increase from the cold work of forming.

**Code Approvals & Performance Standards**

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section A5 Products - Thickness, shapes, tolerances, identification
  - Section C Installation - (Referencing ASTM C1007)
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  - Section F3 Delivery, Handling and Storage of Materials
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- [Intertek CCRR-0206](#) Structural Studs and Track
- [SFIA Stud](#) Code Compliance Certification Program
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories



- Load-bearing walls
- Curtain walls
- Tall interior walls
- Floor & ceiling joists
- Trusses



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- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).

## L-Angle

### 2" x 4" Standard L-Angle

A standard 10'-0" long galvanized steel product, which is often field cut to job site conditions for the ultimate use as a connector for framing members. On interior framing it is often used to secure drywall at corner intersections or along horizontal planes. It can also be used as a half track in chase and furred walls.

#### Product Data & Ordering Information:

**Material:** All non-structural material: Grade 33ksi min. yield strength  
18mils (25ga), 0.0188" Design Thickness, 0.0179" Min. Thickness  
30mils (20ga DW), 0.0312" Design Thickness, 0.0296" Min. Thickness

**Coating:** G40EQ (G40 or G60 available)

**Material:** All Structural Material: Grade 33ksi min. yield strength  
33mils (20ga STR), 0.0346" Design Thickness, 0.0329" Min. Thickness  
43mils (18ga), 0.0451" Design Thickness, 0.0428" Min. Thickness  
54mils (16ga), 0.0566" Design Thickness, 0.0538" Min. Thickness  
68mils (14ga), 0.0713" Design Thickness, 0.0677" Min. Thickness  
97mils (12ga), 0.1017" Design Thickness, 0.0966" Min. Thickness

**Coating:** CP60 (G90 available)

**Dimensions:** 2" leg x 4" leg angle

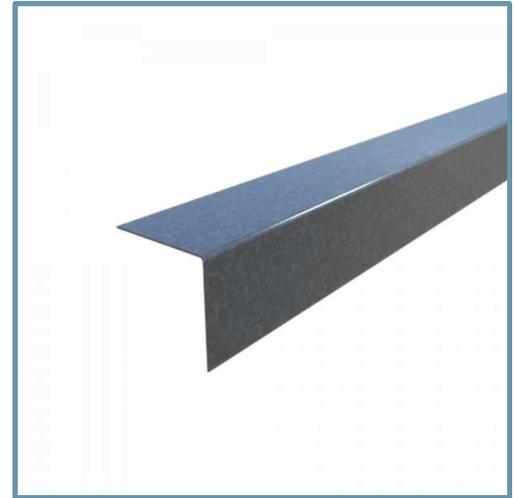
**Stock Lengths:** 10'-0" long (Custom lengths available by special order)

#### Code Approvals & Performance Standards

- [AISI S220-20](#) North American Standard for Cold-Formed Steel Framing - Nonstructural Members
  - (Compliant to ASTM C645, but IBC replaced with AISI S220 in IBC 2015)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section C Installation - (Referencing ASTM C754)
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section C Installation - (Referencing ASTM C1007)
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories

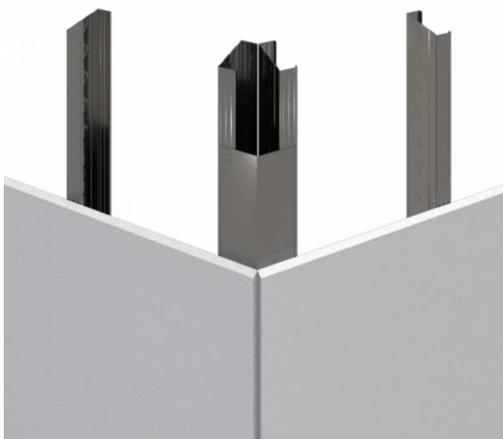
**Sustainability Credits** For more details and LEED letters contact Technical Services at 888-437-3244 or visit [clarkdietrich.com/LEED](http://clarkdietrich.com/LEED).

- **LEED v4.1 MR Credit:** Environmental Product Declarations: EPD (1 point) - Sourcing of Raw Materials (up to 2 points) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points)
- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).



#### Used in framing applications:

- Framing connections
- Corner intersections
- Half track connections
- Truss Uplift



Drywall Framing - 120° / 135° Degree Corner



Drywall Framing - Bulkhead Leading Edge



Structural Framing - Ledger Support

## L-Angle

### 2" x 2" Standard L-Angle

A standard 10'-0" long galvanized steel product, which is often field cut to job site conditions for the ultimate use as a connector for framing members. On interior framing it is often used to secure drywall at corner intersections or along horizontal planes. It can also be used as a half track in chase and furred walls.

#### Product Data & Ordering Information:

**Material:** All non-structural material: Grade 33ksi min. yield strength  
18mils (25ga), 0.0188" Design Thickness, 0.0179" Min. Thickness  
30mils (20ga DW), 0.0312" Design Thickness, 0.0296" Min. Thickness

**Coating:** G40EQ (G40 or G60 available)

**Material:** All Structural Material: Grade 33ksi min. yield strength  
33mils (20ga STR), 0.0346" Design Thickness, 0.0329" Min. Thickness  
43mils (18ga), 0.0451" Design Thickness, 0.0428" Min. Thickness  
54mils (16ga), 0.0566" Design Thickness, 0.0538" Min. Thickness  
68mils (14ga), 0.0713" Design Thickness, 0.0677" Min. Thickness  
97mils (12ga), 0.1017" Design Thickness, 0.0966" Min. Thickness

**Coating:** CP60 (G90 available)

**Dimensions:** 2" leg x 2" leg angle

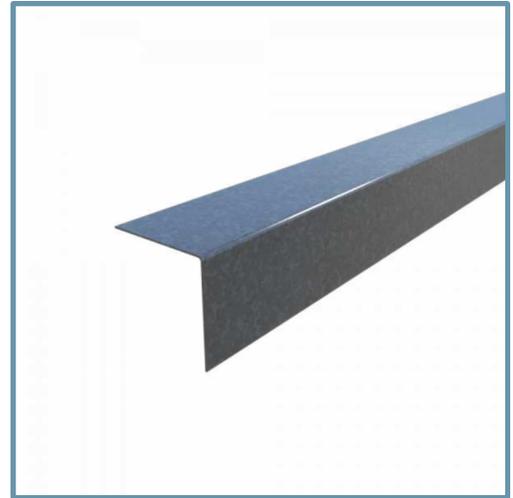
**Stock Lengths:** 10'-0" long (Custom lengths available by special order)

#### Code Approvals & Performance Standards

- [AISI S220-20](#) North American Standard for Cold-Formed Steel Framing - Nonstructural Members
  - (Compliant to ASTM C645, but IBC replaced with AISI S220 in IBC 2015)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section C Installation - (Referencing ASTM C754)
- [AISI S240-20](#) North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section C Installation - (Referencing ASTM C1007)
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories

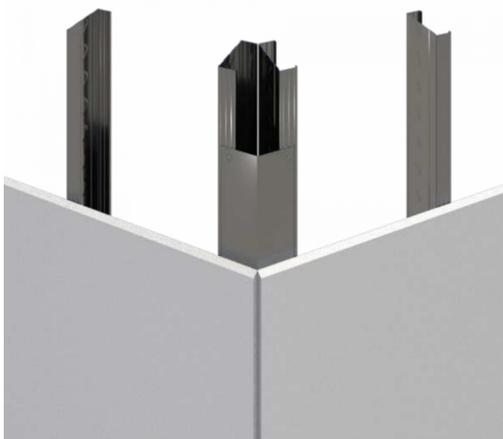
**Sustainability Credits** For more details and LEED letters contact Technical Services at 888-437-3244 or visit [clarkdietrich.com/LEED](http://clarkdietrich.com/LEED).

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#### Used in framing applications:

- Framing connections
- Corner intersections
- Half track connections
- Truss Uplift



Drywall Framing - 120° / 135° Degree Corner



Drywall Framing - Bulkhead Leading Edge



Structural Framing - Ledger Support

# SUBH Bridging Connectors

## Simplified Design and Installation Through Innovation

Simpson Strong-Tie® SUBH and MSUBH wall stud bridging connectors for cold-formed steel (CFS) framing offer a compact profile that allows standard 1½" studs to be sistered directly against adjacent studs. The LSUBH connector provides the same installation benefits of the SUBH/MSUBH connectors, and is suitable for many wind- and load-bearing situations where the load demand is light to moderate.

Many applications require only one screw, greatly reducing labor costs and increasing productivity.



This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

### Features:

- Tested to include stud-web strength and stiffness in the tabulated design values
- Design values ensure compliance with AISI S100 Sections C2.2.1 and C2.3 for axially and laterally-loaded studs
- Flexible design solutions for web thicknesses of 33 mil (20 ga.) through 97 mil (12 ga.) and stud sizes from 3½" to 8"
- SUBH and LSUBH accommodates single studs 33 mil (20 ga.) to 54 mil (16 ga.)
- MSUBH accommodates single studs 54 mil (16 ga.) to 97 mil (12 ga.) and back-to-back built-up members ranging from 33 mil (20 ga.) to 54 mil (16 ga.)

**Material:** LSUBH3.25 — 33 mil (20 ga.); SUBH3.25 — 43 mil (18 ga.); MSUBH3.25 — 68 mil (14 ga.)

**Finish:** Galvanized (G90)

### Installation:

- See pp. 138 through 140

**Codes:** See p. 13 for Code Reference Key Chart

### Ordering Information:

LSUBH3.25 and SUBH3.25-R150 (Bucket of 150),  
MSUBH3.25-R100 (Bucket of 100)



### Compact Geometry

Facilitates efficient installation in industry-standard 1.5" web knockouts

### Web Slots

Offers strong rotational resistance without the use of screws

### Embossments

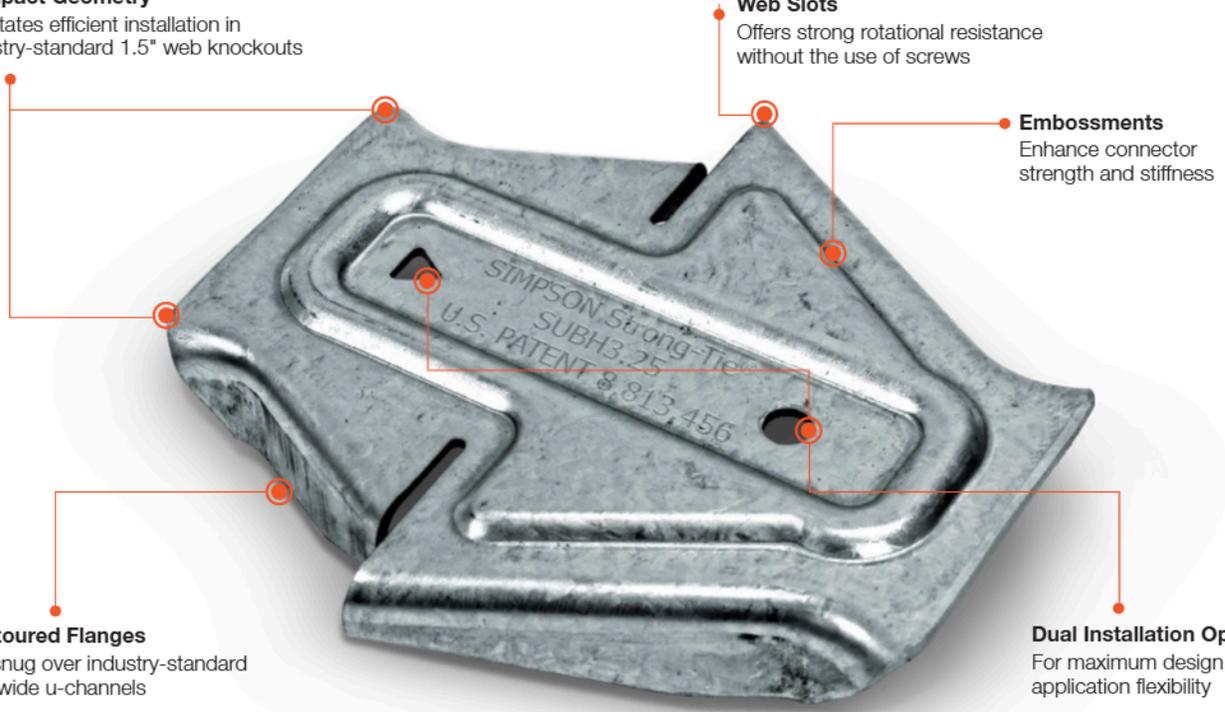
Enhance connector strength and stiffness

### Contoured Flanges

Fits snug over industry-standard 1.5" wide u-channels

### Dual Installation Options

For maximum design and application flexibility

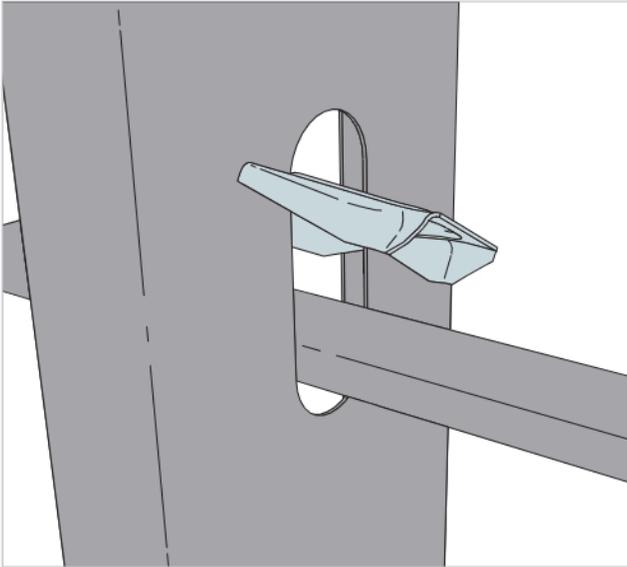


(LSUBH3.25 and MSUBH3.25 similar)

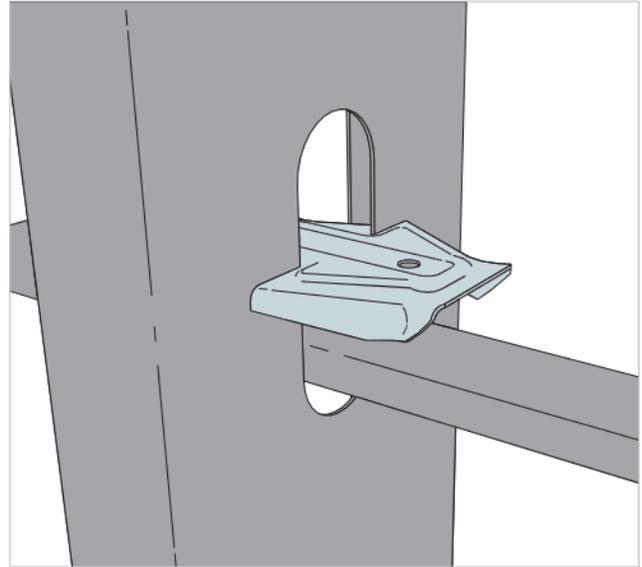
US Patent: 8,813,456

## SUBH Bridging Connectors

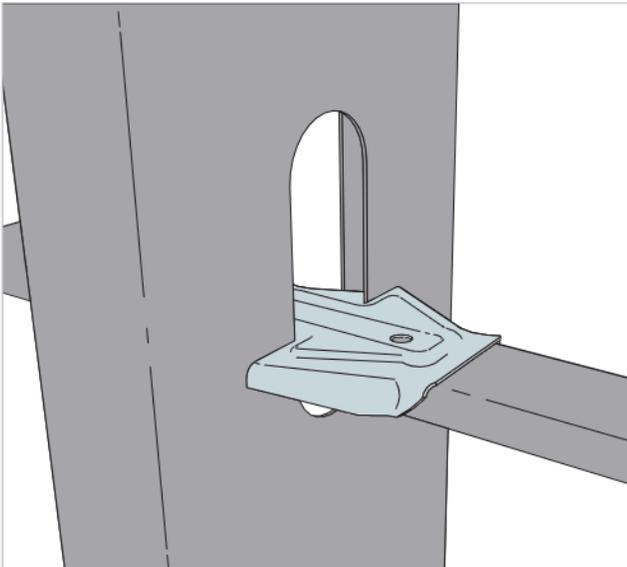
## Installation Instructions



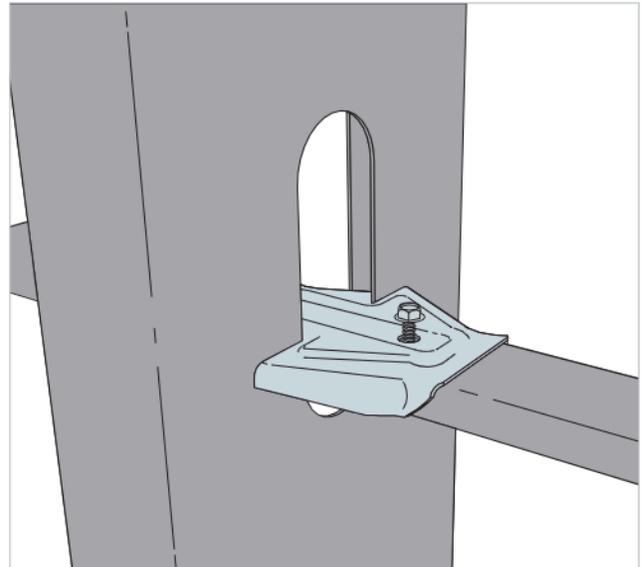
**Step 1:** With the u-channel in a stable, horizontal position, insert either end of the SUBH into the web knockout at approximately 45°.



**Step 2:** Rotate the SUBH into a horizontal position aligned with the u-channel so the slots engage the stud web.



**Step 3:** Slide the SUBH down over the u-channel flanges, ensuring that the connector and u-channel are fully seated.  
**(Note:** For installations at slip track, the connector may be installed inverted — see p. 139.)

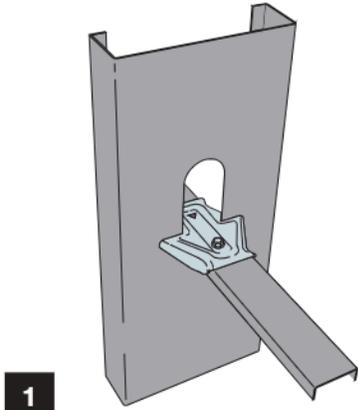


**Step 4:** Install the specified type and number of screws through the holes of the SUBH into the u-channel.

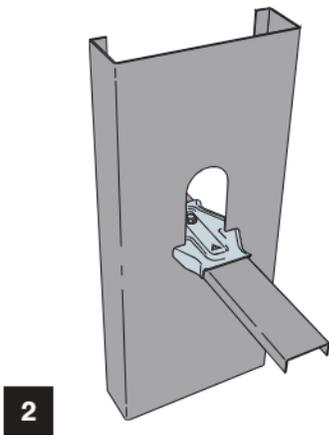
# SUBH Bridging Connectors

## Installation Details

### Typical Orientations

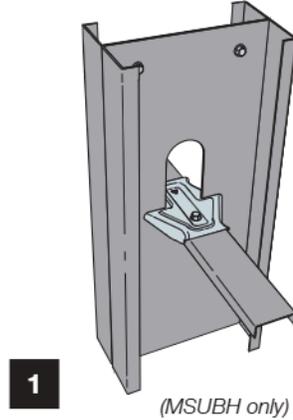


1 Round Hole Near Side



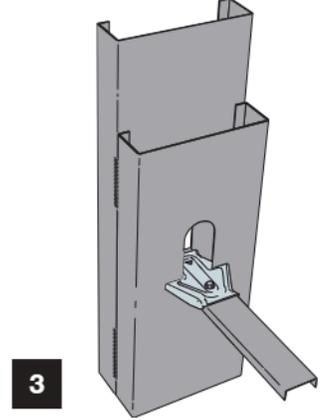
2 Round Hole Far Side

### Recommended Details at Built-Up Studs

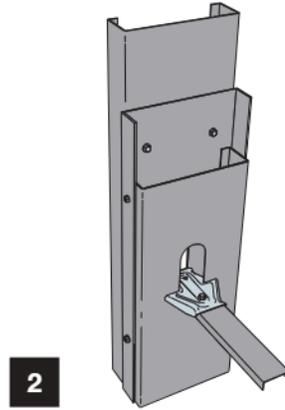


1

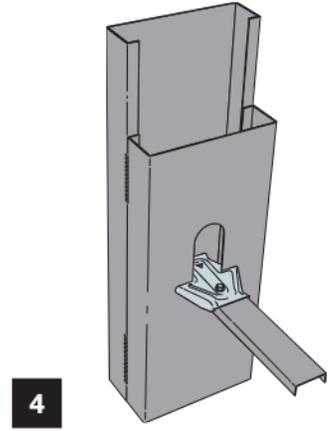
(MSUBH only)



3

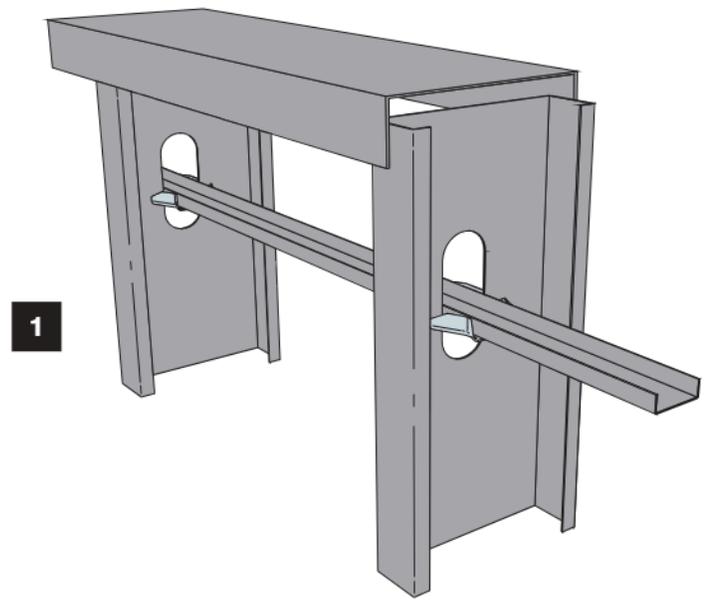


2



4

### Recommended Detail at Slip Track



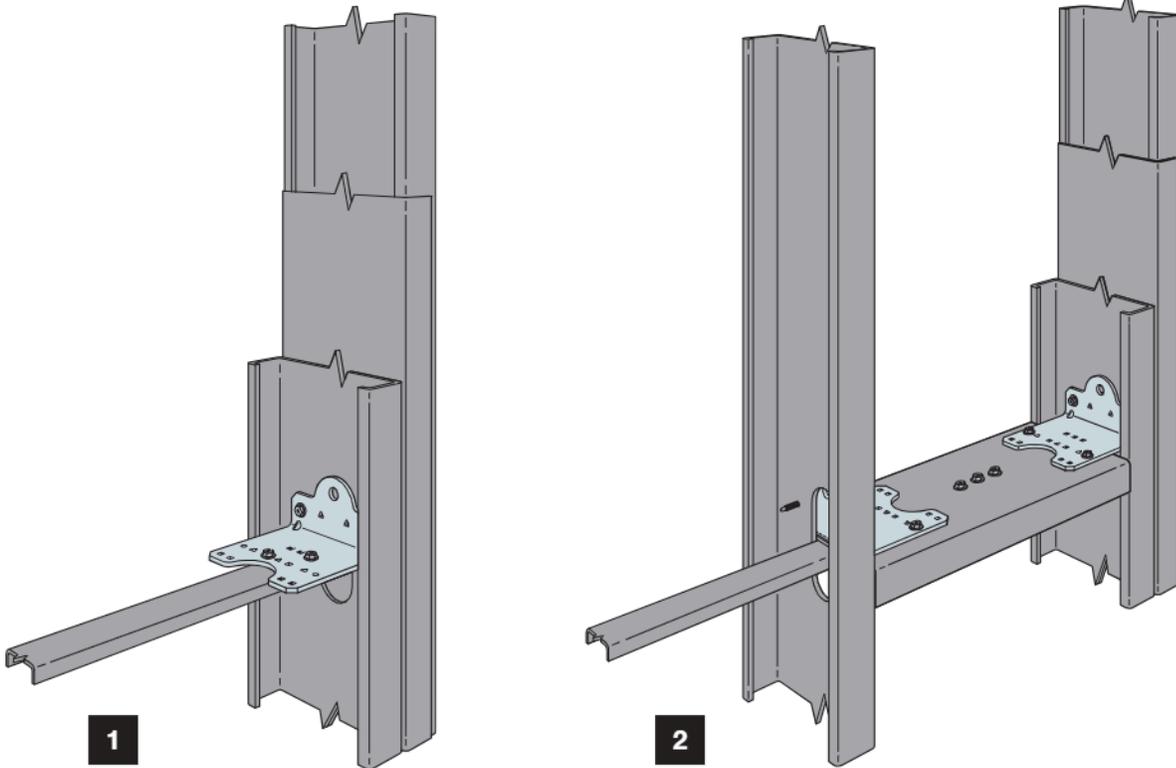
1

# SUBH Bridging Connectors

Bridging, Bracing and Backing

## Alternate and Optional U-Channel Bridging Installation Details

Recommended details where knockout access is restricted, or where additional u-channel restraint is needed for load path considerations.



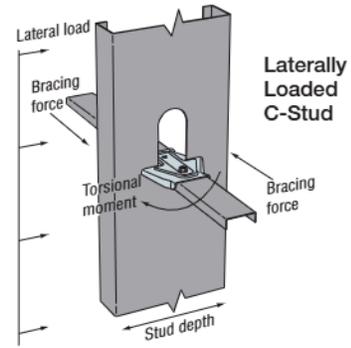
# SUBH Bridging Connectors

## How to Use Bridging Connector Allowable Load Table

The tabulated strength and stiffness values are for use with Sections C2.2.1 and C2.3 of the 2016 edition of AISI North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100-2016) as follows:

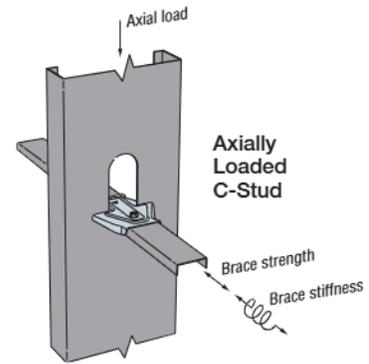
### Bracing Design for Laterally Loaded C-Studs

- Step 1: Calculate required bracing force for each flange using equation C2.2.1-3
- Step 2: Multiply result by stud depth to obtain torsional moment
- Step 3: Select connector with tabulated allowable torsional moment that exceeds torsional moment from Step 2 for the stud depth and gauge required



### Bracing Design for Axially Loaded C-Studs

- Step 1: Calculate required brace strength using equation C2.3-1
- Step 2: Calculate required brace stiffness using equation C2.3-2a
- Step 3: Select connector with tabulated allowable brace strength that exceeds strength from Step 1 and tabulated brace stiffness that exceeds stiffness from Step 2 for the stud depth and gauge required



## SUBH Bridge Clip Connector — Strength and Stiffness

Model No.	Stud Depth (in.)	Stud Thickness mils (ga.)	Laterally Loaded C-Stud		Axially Loaded C-Stud			Code Ref.	
			Allowable Torsional Moment <sup>1</sup> (in.-lb.)		Allowable Brace Strength <sup>1,2</sup> (lb.)		Brace Stiffness <sup>3</sup> (lb./in.)		
			Min.	Max.	Min.	Max.	Min.		Max.
LSUBH3.25	3.50 or 3.625	33 (20)	215	330	155	275	2,300	2,685	IBC, FL, LA
		43 (18)	230	370	175	310	5,075	7,585	
		54 (16)	225	370	195	345	5,075	8,100	
SUBH3.25		33 (20)	320	345	230	370	1,450	1,985	
		43 (18)	355	430	255	420	2,780	4,035	
		54 (16)	420	455	290	475	2,925	3,975	
MSUBH3.25		54 (16)	550	800	435	630	3,440	4,015	
		68 (14)	640	860	485	695	4,040	6,145	
		97 (12)	670	860	515	770	6,860	14,265	
LSUBH3.25	6.00	33 (20)	225	330	120	140	670	730	
		43 (18)	250	395	155	285	1,010	2,075	
		54 (16)	265	395	180	330	1,025	2,565	
SUBH3.25		33 (20)	275	385	110	110	605	605	
		43 (18)	295	525	230	250	1,050	1,205	
		54 (16)	350	550	275	415	1,130	1,700	
MSUBH3.25		54 (16)	565	895	385	430	1,630	1,695	
		68 (14)	655	925	455	620	1,860	2,655	
		97 (12)	690	960	505	765	4,070	4,090	
LSUBH3.25	8.00	43 (18)	235	375	135	135	815	815	
		54 (16)	250	375	180	260	1,130	1,130	
		43 (18)	255	570	190	190	505	535	
SUBH3.25		54 (16)	325	605	250	300	895	1,025	
		54 (16)	545	890	270	270	1,025	1,045	
		68 (14)	635	925	435	455	1,400	1,400	
MSUBH3.25		97 (12)	665	955	545	545	2,465	2,465	
		MSUBH3.25	10, 12	54 (16)	—	820	—	200	—

1. Allowable loads are for use when utilizing Allowable Stress Design methodology. For LRFD loads multiply the ASD tabulated values by 1.6.
2. Allowable brace strengths are based on ultimate test load divided by a safety factor. Serviceability limit is not considered, as brace stiffness requirements are given in section C2.3 of AISI S100-2016. Contact Simpson Strong-Tie if nominal brace strength is required.
3. Tabulated stiffness values apply to both ASD and LRFD designs.
4. Allowable loads consider bridging connection only. It is responsibility of the designer to verify the strength and serviceability of the framing members.
5. Min. fastener quantity and tabulated values – fill round hole (one screw total); Max. fastener quantity and tabulated values – fill round and triangle holes (two screws total).
6. For 4" and 5.5" stud depth, reference SUBH connector page at [strongtie.com](http://strongtie.com).

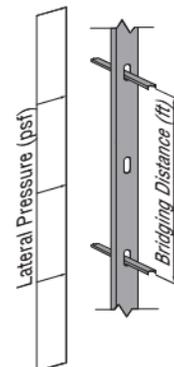
# SUBH Design Tables

Bridging, Bracing and Backing

## LSUBH – Maximum Vertical Spacing for Rows of U-Channel Bridging (ft.)

Stud Spacing (in.)	Stud Section	Stud Thickness mil (ga.)	Lateral Stud Pressure (psf)																			
			5		10		15		20		25		30		35		40		45		50	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
16	362S162	33 (20)	8	8	8	8	8	8	6	8	5	8	4	6	—	5	—	5	—	4	—	4
		43 (18)	8	8	8	8	8	8	7	8	5	8	4	7	4	6	—	5	—	5	—	4
		54 (16)	8	8	8	8	8	8	7	8	5	8	4	7	4	6	—	5	—	5	—	4
	362S200	33 (20)	8	8	8	8	6	8	5	8	4	6	—	5	—	4	—	4	—	—	—	—
		43 (18)	8	8	8	8	7	8	5	8	4	7	—	6	—	5	—	4	—	4	—	—
		54 (16)	8	8	8	8	7	8	5	8	4	7	—	6	—	5	—	4	—	4	—	—
	362S250	43 (18)	8	8	8	8	6	8	4	7	—	5	—	4	—	4	—	—	—	—	—	—
		54 (16)	8	8	8	8	5	8	4	7	—	5	—	4	—	4	—	—	—	—	—	—
	600S162	33 (20)	8	8	8	8	8	8	8	8	6	8	5	8	4	6	4	6	—	5	—	4
		43 (18)	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	7	4	6	—	5
		54 (16)	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	7	4	6	—	5
	600S200	33 (20)	8	8	8	8	8	8	6	8	4	7	4	6	—	5	—	4	—	4	—	—
		43 (18)	8	8	8	8	8	8	6	8	5	8	4	7	—	6	—	5	—	4	—	4
		54 (16)	8	8	8	8	8	8	7	8	5	8	4	7	4	6	—	5	—	4	—	4
	600S250	43 (18)	8	8	8	8	7	8	5	8	4	6	—	5	—	4	—	4	—	—	—	—
		54 (16)	8	8	8	8	7	8	5	8	4	6	—	5	—	4	—	4	—	—	—	—
	800S162	43 (18)	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	7	4	6	—	6
		54 (16)	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	7	4	7	4
	800S200	43 (18)	8	8	8	8	8	7	8	5	8	4	7	4	6	—	5	—	5	—	4	—
		54 (16)	8	8	8	8	8	7	8	6	8	5	7	4	6	—	5	—	5	—	4	—
	800S250	43 (18)	8	8	8	8	7	8	5	8	4	7	—	5	—	5	—	4	—	—	—	—
		54 (16)	8	8	8	8	8	8	6	8	4	7	4	6	—	5	—	4	—	4	—	—
	24	362S162 362S162 362S162	33 (20)	8	8	8	8	6	8	4	6	—	5	—	4	—	—	—	—	—	—	—
			43 (18)	8	8	8	8	6	8	4	7	—	6	—	5	—	4	—	—	—	—	—
54 (16)			8	8	8	8	6	8	4	7	—	6	—	5	—	4	—	—	—	—	—	
362S200 362S200 362S200		33 (20)	8	8	6	8	4	7	—	5	—	4	—	—	—	—	—	—	—	—	—	
		43 (18)	8	8	7	8	4	8	—	6	—	4	—	4	—	—	—	—	—	—	—	
		54 (16)	8	8	7	8	4	8	—	6	—	4	—	4	—	—	—	—	—	—	—	
362S250 362S250		43 (18)	8	8	6	8	4	6	—	4	—	—	—	—	—	—	—	—	—	—	—	
		54 (16)	8	8	5	8	—	6	—	4	—	—	—	—	—	—	—	—	—	—	—	
600S162 600S162 600S162		33 (20)	8	8	8	8	7	8	5	8	4	6	—	5	—	4	—	4	—	—	—	
		43 (18)	8	8	8	8	8	8	6	8	4	7	4	6	—	5	—	4	—	4	—	
		54 (16)	8	8	8	8	8	8	6	8	5	7	4	6	—	5	—	4	—	4	—	
600S200 600S200 600S200		33 (20)	8	8	8	8	5	8	4	6	—	4	—	4	—	—	—	—	—	—	—	
		43 (18)	8	8	8	8	6	8	4	7	—	5	—	4	—	4	—	—	—	—	—	
		54 (16)	8	8	8	8	6	8	4	7	—	5	—	4	—	4	—	—	—	—	—	
600S250 600S250		43 (18)	8	8	7	8	4	7	—	5	—	4	—	—	—	—	—	—	—	—	—	
		54 (16)	8	8	7	8	5	7	—	5	—	4	—	—	—	—	—	—	—	—	—	
800S162 800S162		43 (18)	8	8	8	8	8	8	6	8	5	8	4	6	—	5	—	5	—	4	—	4
		54 (16)	8	8	8	8	8	8	7	8	5	8	4	7	4	6	—	5	—	4	—	4
800S200 800S200		43 (18)	8	8	8	8	6	8	4	7	—	6	—	5	—	4	—	—	—	—	—	
		54 (16)	8	8	8	8	6	8	5	7	4	6	—	5	—	4	—	—	—	—	—	
800S250 800S250		43 (18)	8	8	7	8	5	7	—	5	—	4	—	—	—	—	—	—	—	—	—	
		54 (16)	8	8	8	8	5	8	4	6	—	4	—	4	—	—	—	—	—	—	—	

1. See General Information and Notes on pp. 15–17 and 26.
2. Tabulated solutions are for ASD lateral pressure. Contact Simpson Strong-Tie for LRFD solutions.
3. Lateral pressure shall be determined based on load combinations of the applicable code. For designs in accordance with the 2009 IBC and earlier, wind pressures are at working stress level and may be used directly. For designs in accordance with the 2012 IBC and later, wind pressures are at strength level and must be multiplied by 0.6 for ASD load combinations.
4. "Min." designates a solution with the minimum number of fasteners ((1) #10 screw installed in round hole). "Max." designates a solution requiring the maximum number of fasteners ((2) #10 screws; fill both round and triangle holes). Blank areas designate conditions where the LSUBH does not offer a solution.

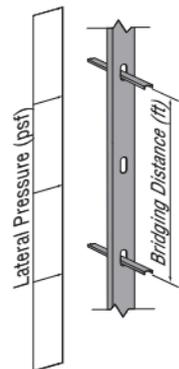


# SUBH Design Tables

## SUBH — Maximum Vertical Spacing for Rows of U-Channel Bridging (ft.)

Stud Spacing (in.)	Stud Section	Stud Thickness mil (ga.)	Lateral Stud Pressure (psf)																						
			5		10		15		20		25		30		35		40		45		50				
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			
16	362S162	33 (20)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
		43 (18)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
		54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	362S200	33 (20)	8	8	8	8	8	8	8	7	8	6	6	5	5	4	4	—	4	—	—	—	—	—	
		43 (18)	8	8	8	8	8	8	8	8	8	6	8	5	6	4	5	4	5	—	4	—	4	—	
		54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	6	7	5	6	5	5	4	4	4	4	4
	362S250	43 (18)	8	8	8	8	8	8	8	6	8	5	6	4	5	—	4	—	4	—	—	—	—	—	
		54 (16)	8	8	8	8	8	8	8	8	8	6	7	5	5	4	5	4	4	—	—	—	—	—	
	600S162	33 (20)	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	5	8	5	7	4	6	4	5
		43 (18)	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	8	4	7	7
		54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	5	8	8
	600S200	33 (20)	8	8	8	8	8	8	8	7	8	6	8	5	7	4	6	—	5	—	4	—	4	—	4
		43 (18)	8	8	8	8	8	8	8	8	8	6	8	5	8	4	8	4	7	—	6	—	6	—	5
		54 (16)	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	7	4	7	4	6	—	6
	600S250	43 (18)	8	8	8	8	8	8	6	8	5	8	4	7	—	6	—	5	—	5	—	5	—	4	4
		54 (16)	8	8	8	8	8	8	7	8	6	8	5	8	4	6	—	6	—	5	—	5	—	4	4
	800S162	43 (18)	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	8	4	8	4	8
		54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	6	8	5	8
	800S200	43 (18)	8	8	8	8	8	8	7	8	6	8	5	8	4	8	—	8	—	7	—	7	—	7	—
		54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	6	8	5	8	5	8	4	8	4	7	7
800S250	43 (18)	8	8	8	8	8	8	6	8	4	8	4	8	—	7	—	6	—	6	—	6	—	5	5	
	54 (16)	8	8	8	8	8	8	7	8	6	8	5	8	4	8	—	7	—	7	—	6	—	5	5	
24	362S162	33 (20)	8	8	8	8	8	8	6	7	5	5	4	4	—	4	—	4	—	—	—	—	—	—	
		43 (18)	8	8	8	8	8	8	7	8	6	7	5	6	4	5	—	4	—	4	—	4	—	—	
		54 (16)	8	8	8	8	8	8	8	8	7	7	6	6	5	5	4	4	4	4	4	4	—	—	
	362S200	33 (20)	8	8	8	8	6	7	5	5	4	4	—	—	—	—	—	—	—	—	—	—	—	—	
		43 (18)	8	8	8	8	7	8	5	6	4	5	—	4	—	—	—	—	—	—	—	—	—	—	
	362S250	43 (18)	8	8	8	8	6	7	4	5	—	4	—	—	—	—	—	—	—	—	—	—	—	—	
		54 (16)	8	8	8	8	7	7	5	5	4	4	—	—	—	—	—	—	—	—	—	—	—	—	
	600S162	33 (20)	8	8	8	8	8	8	6	8	5	7	4	6	—	5	—	4	—	4	—	4	—	—	
		43 (18)	8	8	8	8	8	8	7	8	5	8	4	8	4	7	—	6	—	5	—	5	—	5	
		54 (16)	8	8	8	8	8	8	8	8	7	8	5	8	5	7	4	6	—	6	—	6	—	5	
	600S200	33 (20)	8	8	8	8	6	8	5	7	4	5	—	4	—	4	—	—	—	—	—	—	—	—	
		43 (18)	8	8	8	8	7	8	5	8	4	7	—	6	—	5	—	4	—	4	—	4	—	—	
		54 (16)	8	8	8	8	8	8	6	8	5	8	4	6	—	5	—	5	—	5	—	4	—	4	
	600S250	43 (18)	8	8	8	8	5	8	4	7	—	6	—	5	—	4	—	—	—	—	—	—	—	—	
		54 (16)	8	8	8	8	6	8	5	8	4	6	—	5	—	4	—	4	—	4	—	—	—	—	
	800S162	43 (18)	8	8	8	8	8	8	7	8	5	8	4	8	4	8	—	7	—	7	—	7	—	6	
		54 (16)	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	8	4	8	4	7	—	6	
	800S200	43 (18)	8	8	8	8	6	8	5	8	4	8	—	7	—	6	—	5	—	5	—	5	—	4	
		54 (16)	8	8	8	8	8	8	6	8	5	8	4	8	—	7	—	6	—	5	—	5	—	5	
	800S250	43 (18)	8	8	8	8	5	8	4	8	—	7	—	6	—	5	—	4	—	4	—	4	—	—	
54 (16)		8	8	8	8	6	8	5	8	4	7	—	6	—	5	—	4	—	4	—	4	—	—		

1. See General Information and Notes on pp. 15–17 and 26.
2. Tabulated solutions are for ASD lateral pressure. Contact Simpson Strong-Tie for LRFD solutions.
3. Lateral pressure shall be determined based on load combinations of the applicable code. For designs in accordance with the 2009 IBC and earlier, wind pressures are at working stress level and may be used directly. For designs in accordance with the 2012 IBC and later, wind pressures are at strength level and must be multiplied by 0.6 for ASD load combinations.
4. "Min." designates a solution with the minimum number of fasteners ((1) #10 screw installed in round hole). "Max." designates a solution requiring the maximum number of fasteners ((2) #10 screws; fill both round and triangle holes). Blank areas designate conditions where the SUBH does not offer a solution.



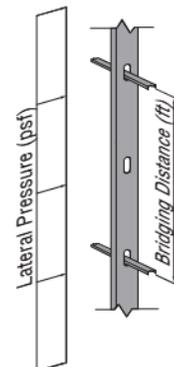
# SUBH Design Tables

## MSUBH — Maximum Vertical Spacing for Rows of U-Channel Bridging (ft.)

Bridging, Bracing and Backing

Stud Spacing (in.)	Stud Section	Stud Thickness mil (ga.)	Lateral Stud Pressure (psf)																						
			5		10		15		20		25		30		35		40		45		50				
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			
16	362S162	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	362S200	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	5	7		
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	8	7	8	6	8	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	8	6	8	
	362S250	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	7	4	6	
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	5	7	5	6	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	7	5	6	5	6	
	600S162	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	600S200	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	8	7	8	6	8	
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	600S250	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	5	7		
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	5	8	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	6	8	
	800S162	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	800S200	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8		
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
800S250	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	5	8			
	68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	6	8		
	97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8		
1000S162	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
1000S200	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
1000S250	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
1200S162	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
1200S200	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
1200S250	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8		

1. See General Information and Notes on pp. 15–17 and 26.
2. Tabulated solutions are for ASD lateral pressure. Contact Simpson Strong-Tie for LRFD solutions.
3. Lateral pressure shall be determined based on load combinations of the applicable code. For designs in accordance with the 2009 IBC and earlier, wind pressures are at working stress level and may be used directly. For designs in accordance with the 2012 IBC and later, wind pressures are at strength level and must be multiplied by 0.6 for ASD load combinations.
4. "Min." designates a solution with the minimum number of fasteners ((1) #10 screw installed in round hole). "Max." designates a solution requiring the maximum number of fasteners ((2) #10 screws; fill both round and triangle holes). Blank areas designate conditions where the MSUBH does not offer a solution.

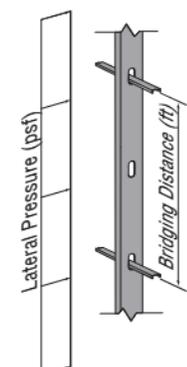


# SUBH Design Tables

## MSUBH — Maximum Vertical Spacing for Rows of U-Channel Bridging (ft.) (cont.)

Stud Spacing (in.)	Stud Section	Stud Thickness mil (ga.)	Lateral Stud Pressure (psf)																							
			5		10		15		20		25		30		35		40		45		50					
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.				
24	362S162	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	362S200	54 (16)	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	6	4	5	—	5	—	5	
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	6	4	5	—	5	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	5	6	4	5	—	5	
	362S250	54 (16)	8	8	8	8	8	8	8	7	8	5	8	4	7	4	6	—	5	—	4	—	4	—	4	
		68 (14)	8	8	8	8	8	8	8	8	6	8	5	7	4	6	4	5	—	5	—	4	—	4	—	
		97 (12)	8	8	8	8	8	8	8	8	7	8	6	7	5	6	4	5	4	5	—	4	—	4	—	
	600S162	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	600S200	54 (16)	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	4	7	4	6	—	6	
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	7	—	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	5	8	—	
	600S250	54 (16)	8	8	8	8	8	8	8	8	6	8	5	8	4	7	4	6	—	5	—	5	—	5	—	
		68 (14)	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	6	4	6	—	5	—	5	—	
		97 (12)	8	8	8	8	8	8	8	8	8	8	6	8	5	8	5	7	4	6	4	6	—	5	—	
	800S162	54 (16)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	800S200	54 (16)	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	5	8	4	7	—	7	
		68 (14)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	8	5	8	—	
		97 (12)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	8	6	8	5	8	—	
800S250	54 (16)	8	8	8	8	8	8	8	8	7	8	5	8	5	8	4	7	—	6	—	5	—	5	—		
	68 (14)	8	8	8	8	8	8	8	8	8	8	6	8	5	8	5	7	4	6	4	6	—	6	—		
	97 (12)	8	8	8	8	8	8	8	8	8	8	7	8	6	8	5	7	4	7	4	7	—	6	—		
1000S162	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
1000S200	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—		
1000S250	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—	6	—	5	—	5	—		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—	6	—	5	—	5	—		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—	6	—	5	—	5	—		
1200S162	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
1200S200	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—		
1200S250	54 (16)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—	6	—	6	—	6	—		
	68 (14)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—	6	—	6	—	6	—		
	97 (12)	—	8	—	8	—	8	—	8	—	8	—	8	—	8	—	7	—	7	—	7	—	6	—		

1. See General Information and Notes on pp. 15–17 and 26.
2. Tabulated solutions are for ASD lateral pressure. Contact Simpson Strong-Tie for LRFD solutions.
3. Lateral pressure shall be determined based on load combinations of the applicable code. For designs in accordance with the 2009 IBC and earlier, wind pressures are at working stress level and may be used directly. For designs in accordance with the 2012 IBC and later, wind pressures are at strength level and must be multiplied by 0.6 for ASD load combinations.
4. "Min." designates a solution with the minimum number of fasteners ((1) #10 screw installed in round hole). "Max." designates a solution requiring the maximum number of fasteners ((2) #10 screws; fill both round and triangle holes). Blank areas designate conditions where the MSUBH does not offer a solution.



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Bridging, Bracing and Backing

# SUBH Bridging Connectors

## Example #1: Curtain-Wall Stud

### Given

- 2021 IBC (ASCE 7-16 and AISI S100-16)
- 600S162-43 (33 ksi) studs at 24" o.c.
- 10'-tall studs with mid-point bracing (5' o.c.)
- Wind design pressure = 41 psf

### Select Connector Using Design Table (p. 143)

ASD wind pressure:

$$p = (0.6)(41 \text{ psf}) = 24.6 \text{ psf}$$

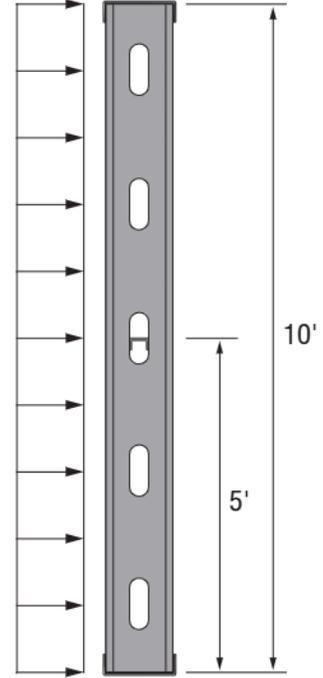
**Note:** 2021 IBC load combinations for ASD include a factor of 0.6 for wind loads.

For 600S162-43 stud with SUBH3.25 connector, and 25 psf wind pressure with 5' bracing distance:

➔ SUBH3.25 with Min. fasteners **OK**

### Notes

1. Only lateral load has been included for clarity. Design of curtain-wall studs should consider load combinations with vertical load in accordance with the applicable building code (see Example #2).
2. Bridging connector may also be designed using Allowable Loads table on p. 141 (see Example #2).



## Example #2: Exterior Bearing-Wall Stud

### Given

- 2021 IBC (ASCE 7-16 and AISI S100-16)
- 600S162-54 (50 ksi) studs at 24" o.c., 10' tall  
Mid-point bracing (5' o.c.)  
Required axial stud strength,  $P_{ra} = 2,200 \text{ lb.}$   
Distance from shear center to mid-plane of web,  $m = 0.663''$  (AISI Manual, Table I-2)
- Wind design pressure = 34 psf

### Axially-Loaded Stud Design

Required brace strength (AISI S100 Eq. C2.3-1):

$$P_{br,1} = 0.01P_{ra} = (0.01)(2,200 \text{ lb.}) = 22 \text{ lb.}$$

Required brace stiffness (AISI S100 Eq. C2.3-2a):

$$\beta_{rb} = \{2[4 - (2/n)]/L_b\} \Omega P_{ra} = \{2[4 - (2/1)]/60 \text{ in.}\} (2)(2,200) = 294 \text{ lb./in.}$$

From Allowable Loads table (p. 141) for 6"-deep 54-mil stud:

- ➔ Select SUBH3.25 with Min. fasteners  
Allowable brace strength = 275 lb. > 22 lb. **OK**  
Brace stiffness = 1,130 lb./in. > 294 lb./in. **OK**

### Laterally-Loaded Stud Design

Design load tributary to a single connector:

$$W = (0.6)(34 \text{ psf})(2 \text{ ft.})(5 \text{ ft.}) = 204 \text{ lb.}$$

**Note:** 2021 IBC load combinations for ASD include a factor of 0.6 for wind loads.

Required flange force (AISI S100 Eq. C2.2.1-3):

$$P_{L1} = -P_{L2} = 1.5(m/d)W = (1.5)(0.663 \text{ in.}/6 \text{ in.})(204 \text{ lb.}) = 33.8 \text{ lb.}$$

Torsional moment:

$$M_z = P_{L1}d = -P_{L2}d = (33.8 \text{ lb.})(6 \text{ in.}) = 203 \text{ in.-lb.}$$

From Allowable Loads table (p. 141) for 6"-deep 54-mil stud:

- ➔ Select SUBH3.25 with Min. fasteners  
Allowable torsional moment = 350 in.-lb. > 203 in.-lb. **OK**

### Combined-Loading Check

$$(P_{br,1}/\text{Allowable brace strength}) + (M_z/\text{Allowable torsional moment}) = (22 \text{ lb.}/275 \text{ lb.}) + (203 \text{ in.-lb.}/350 \text{ in.-lb.}) = 0.66 < 1.0 \text{ **OK**}$$

# SCB/MSCB Bypass Framing Slide-Clip Connector



This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

The SCB/MSCB slide-clip connectors are high-performance connectors for bypass framing applications designed to reduce design time and overall installed cost. Various anchorage methods have been tested, and the resulting allowable loads eliminate the need to design connector anchorage. The SCB/MSCB can accommodate applications that typically require two parts with a single connector, reducing material and labor cost. These connectors are manufactured in five different lengths to accommodate a variety of standoff conditions and steel-stud sizes.

**Features:**

- Provides a full 1" of both upward and downward movement
- The precision-manufactured shouldered screws provided with the SCB/MSCB connector are designed to prevent overdriving and to ensure the clip functions properly
- Strategically placed stiffeners, embossments and anchor holes maximize connector performance
- Simpson Strong-Tie® No-Equal® stamps mark the center of the slots to help ensure correct shouldered-screw placement

**Material:** SCB — 54 mil (16 ga.); MSCB — 68 mil (14 ga.)

**Finish:** Galvanized (G90)

**Installation:**

- Use the specified type and number of anchors.
- Use the specified number of XLSH34B1414 #14 shouldered screws (included). Install shouldered screws in the slots adjacent to the No-Equal stamp.
- Use a maximum of one screw per slot.
- For installations to wood framing, see Simpson Strong-Tie engineering letter L-CF-DEFCLIPW at [strongtie.com](http://strongtie.com).

**Codes:** See p. 13 for Code Reference Key Chart

**Ordering Information:**

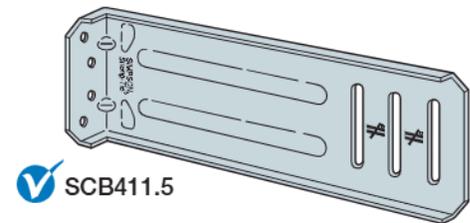
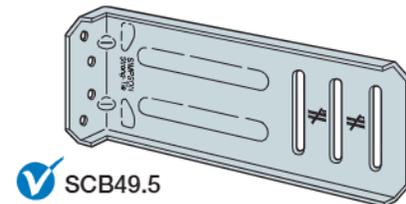
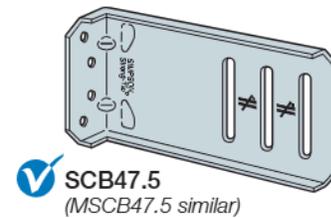
SCB43.5-KT contains:

- 25 connectors
- (55) XLSH34B1414 #14 shouldered screws

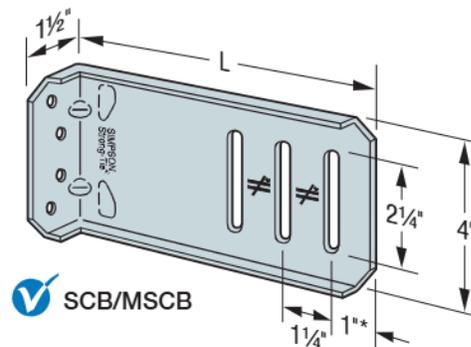
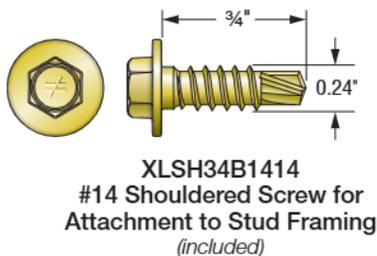
SCB45.5-KT, MSCB45.5-KT, SCB47.5-KT, MSCB47.5-KT, SCB49.5-KT, and SCB411.5-KT contain:

- 25 connectors
- (83) XLSH34B1414 #14 shouldered screws

**Note:** Replacement #14 shouldered screws for SCB/MSCB connectors are XLSH34B1414-RP83

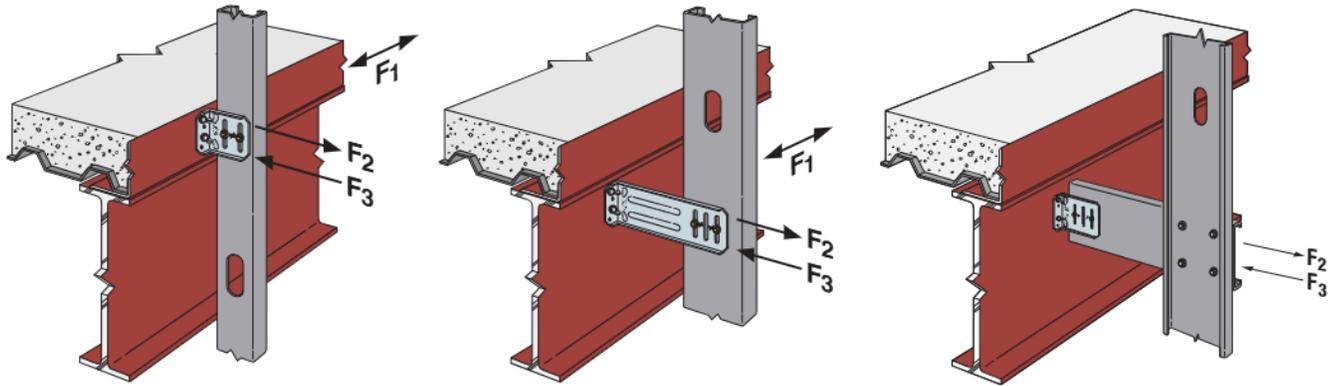


US Patent: 8,555,592



\*3/4" for SCB43.5

# SCB/MSCB Bypass Framing Slide-Clip Connector



Typical SCB/MSCB Installation

SCB/MSCB Installation at Fascia Beam

Typical SCB/MSCB Installation with Stud Strut

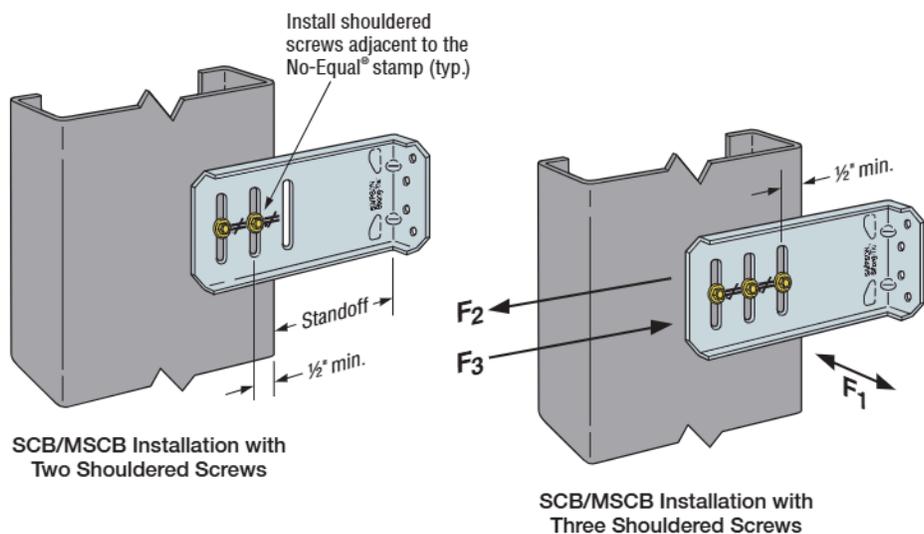
## SCB/MSCB Allowable Connector Loads (lb.)

Model No.	Connector Material Thickness mil (ga.)	L (in.)	No. of #14 Shouldered Screws <sup>1</sup>	Stud Thickness												Code Ref.
				33 mil (20 ga.)			43 mil (18 ga.)			54 mil (16 ga.)			68 mil (14 ga.)			
				F <sub>1</sub> <sup>3,4</sup>	F <sub>2</sub> <sup>2</sup>	F <sub>3</sub> <sup>2</sup>	F <sub>1</sub> <sup>3,4</sup>	F <sub>2</sub> <sup>2</sup>	F <sub>3</sub> <sup>2</sup>	F <sub>1</sub> <sup>3,4</sup>	F <sub>2</sub> <sup>2</sup>	F <sub>3</sub> <sup>2</sup>	F <sub>1</sub> <sup>3,4</sup>	F <sub>2</sub> <sup>2</sup>	F <sub>3</sub> <sup>2</sup>	
SCB43.5	54 (16)	3½	2	100	520	520	160	610	690	215	760	975	215	760	975	IBC, FL, LA
SCB45.5	54 (16)	5½	2	120	490	520	150	610	690	200	760	975	215	760	975	
			3	120	675	675	150	895	1,000	200	990	1,260	215	990	1,260	
MSCB45.5	68 (14)	5½	2	120	490	520	185	780	690	250	1,055	1,200	270	1,195	1,475	IBC, LA
			3	120	675	675	185	1,070	1,000	250	1,220	1,930	270	1,365	1,930	
SCB47.5	54 (16)	7½	2	90	490	520	120	610	690	160	760	945	175	760	945	IBC, FL, LA
			3	90	675	675	120	895	1,000	160	990	1,260	175	990	1,260	
MSCB47.5	68 (14)	7½	2	105	490	520	140	780	690	190	1,055	1,200	205	1,195	1,475	IBC, LA
			3	105	675	675	140	1,070	1,000	190	1,220	1,930	205	1,365	1,930	
SCB49.5	54 (16)	9½	2	90	490	520	110	690	690	105	760	945	110	760	945	IBC, FL, LA
			3	90	675	675	110	895	1,000	105	990	1,260	110	990	1,260	
SCB411.5	54 (16)	11½	2	90	490	520	90	690	690	85	990	920	90	990	920	IBC, FL, LA
			3	90	675	675	90	860	1,000	85	990	1,260	90	990	1,260	

- When the SCB or MSCB connector is used with two shouldered screws, the screws may be installed in any two slots.
- Allowable loads are based on clips installed with (4) #12-14 screws in the anchor leg. For other anchorage installations, the capacity of the connection system will be the minimum of the tabulated value and the allowable load from the SCB/MSCB Allowable Anchorage Loads table on p. 31.
- Anchorage to the supporting structure using welds or a minimum of (2) fasteners is required.
- Tabulated F<sub>1</sub> loads are based on assembly tests with the load through the centerline of stud. Tested failure mode due to screw pullout; therefore compare F<sub>1</sub> against F<sub>p</sub> calculated per ASCE 7-16 Chapter 13 with a<sub>p</sub> = 1.25 and R<sub>p</sub> = 1.0.

## SCB/MSCB Standoff Distances

Model No.	L (in.)	No. of #14 Shouldered Screws	Maximum Standoff (in.)
SCB43.5	3½	2	1
SCB45.5	5½	2	2¾
		3	1½
MSCB45.5	5½	2	2¾
		3	1½
SCB47.5	7½	2	4¾
		3	3½
MSCB47.5	7½	2	4¾
		3	3½
SCB49.5	9½	2	6¾
		3	5½
SCB411.5	11½	2	8¾
		3	7½



SCB/MSCB Installation with Two Shouldered Screws

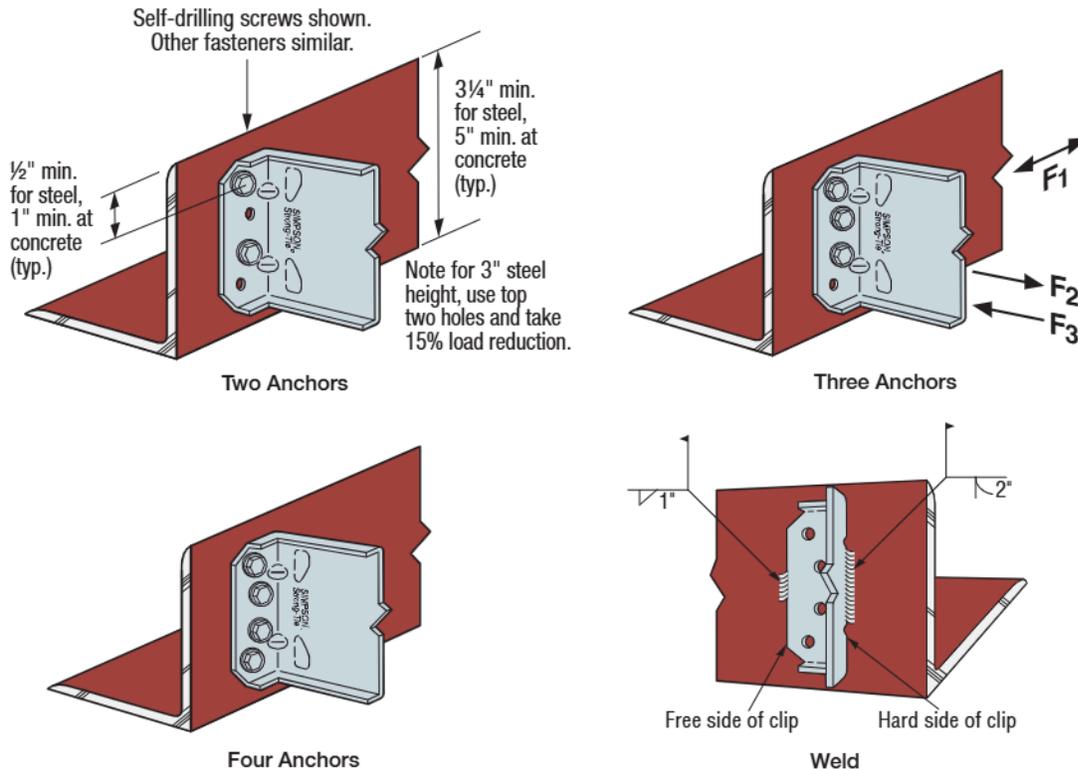
SCB/MSCB Installation with Three Shouldered Screws

# SCB/MSCB Bypass Framing Slide-Clip Connector

## SCB/MSCB Allowable Anchorage Loads (lb.)

Anchorage Type	Minimum Base Material	No. of Anchors	F <sub>2</sub> and F <sub>3</sub>	
			SCB	MSCB
#12-24 self-drilling screws Simpson Strong-Tie® X and XL Metal screws	A36 steel 3/8" thick	2	1,115	1,150
		3	1,645	1,725
		4	2,230	2,300
Simpson Strong-Tie 0.157" x 5/8" powder-actuated fasteners PDPAT-62KP	A36 steel 3/8" thick	2	440	520
		3	585	780
		4	895	1,040
Simpson Strong-Tie 0.157" x 5/8" powder-actuated fasteners PDPAT-62KP	A572 or A992 steel 3/8" thick	2	585	610
		3	800	915
		4	1,170	1,220
Simpson Strong-Tie 1/4" x 1 3/4" Titen Turbo™ TNT25134H	Concrete f' <sub>c</sub> = 2,500 psi	2	330	330
		3	460	460
		4	595	595
Weld E70XX electrodes	A36 steel 3/8" thick	Hard side: 2"	1,740	4,570
		Free side: 1"		

- For additional important information, see General Information and Notes on p. 26.
- Allowable loads are for clip anchorage only. The capacity of the connection system will be the minimum of the tabulated allowable anchorage loads the allowable load from the SCB/MSCB Allowable Connector Load table on p. 30.
- Allowable loads for #12-24 self-drilling screws and PDPAT powder-actuated fasteners are based on installation in minimum 3/8" thick structural steel with F<sub>y</sub> = 36 ksi. PDPAT values are also provided for A572 steel. Values listed above may be used where other thicknesses of steel are encountered or other manufacturers are used, provided that the fastener has equal or better tested values (see p. 26). It is the responsibility of the designer to select the proper length fasteners based on the steel thickness installation.
- For screw fastener installation into steel backed by concrete, predrilling of both the steel and the concrete is suggested. For predrilling use a maximum 3/16"-diameter drill bit.



SCB/MSCB Anchor Layout

## 1-1/2" U-Channel (CRC) 150U50-54

**54mil (16ga) 50ksi**

### Used in framing applications:

- Furring for metal lath systems
- Drop down ceilings
- Lateral bracing in walls

### Geometric Properties

**Web Depth:** 1.500 in  
**Leg Width:** 0.500 in

**Design Thickness:** 0.0566 in  
**Min. steel thickness:** 0.0538 in

**Ultimate, Fu:** 65 ksi  
**Yield stress, Fy:** 50ksi  
 \*Fy with Cold-Work, Fya 55.3 ksi

#### Gross Section Properties of Full Section, Strong Axis

Cross sectional area (A)	0.130 in <sup>2</sup>
Member weight per foot of length	0.441 lb/ft
Moment of inertia (Ix)	0.039 in <sup>4</sup>
Radius of gyration (Rx)	0.549 in
Gross moment of inertia (Iy)	0.003 in <sup>4</sup>
Gross radius of gyration (Ry)	0.146 in

#### Effective Section Properties, Strong Axis

Moment of inertia for deflection (Ix)	0.039 in <sup>4</sup>
Section modulus (Sx)	0.052 in <sup>3</sup>
Allowable bending moment (Ma)	1.821 in-k
Allowable shear force (Va)	1292 lb

### Product Data & Ordering Information:

**Coating:** G40, CP60 or G90

**Color coding:** Green

**Stock length:** 16'-0" long pieces (Custom length available by special orders)

**Packaging:** 10 pieces per bundle - 240 pieces per pallet

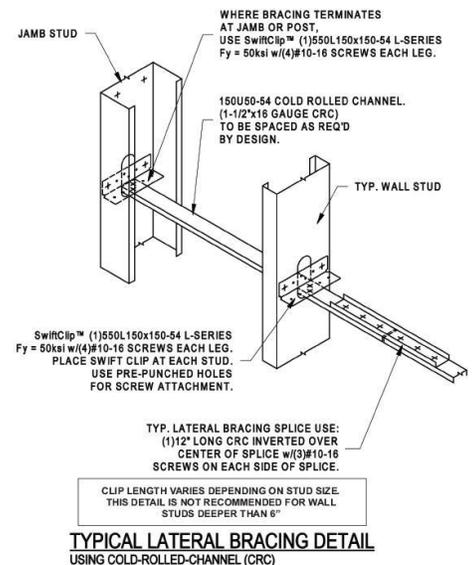
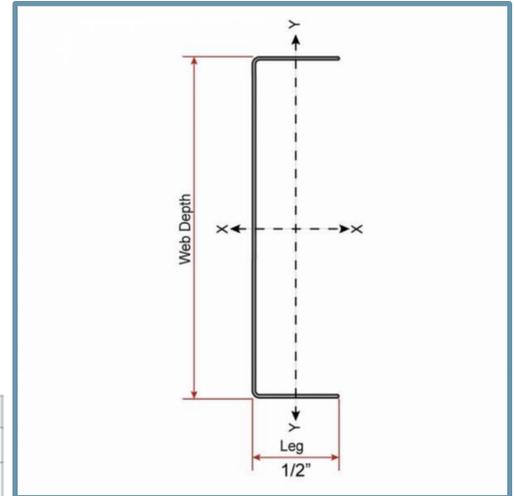
**Packaging weight:** 71 lbs/bundle

### Code Approvals & Performance Standards

- **AISI S100-16 (2020) w/S2-20** North American Specification for the Design of Cold-Formed Steel Structural Members
- **AISI S240-20** North American Standard for Cold-Formed Steel Structural Framing
  - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
  - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
  - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
  - Section C Installation - (Referencing ASTM C1007)
- **SDS For ASTM A1003 Steel Framing Products** For Interior Framing, Exterior Framing and Clips/Accessories

**Sustainability Credits** For more details and LEED letters contact Technical Services at 888-437-3244 or visit [clarkdietrich.com/LEED](http://clarkdietrich.com/LEED).

- **LEED v4.1 MR Credit:** Environmental Product Declarations: EPD (1 point) - Sourcing of Raw Materials (up to 2 points) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points)
- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).



**TYPICAL LATERAL BRACING DETAIL**  
 USING COLD-ROLLED-CHANNEL (CRC)

For more ClarkDietrich CAD details see:  
[cad.clarkdietrich.com](http://cad.clarkdietrich.com)

# Marino\WARE® Product Submittal Data

**PRODUCT NAME:** 1-1/2" Cold Rolled Channel (CRC)

**MARINO\WARE PART #** 112CU16

## PROPERTIES:

<b>A. (in)</b>	1-1/2	<b>Yield Strength Fy (KSI)</b>	33
<b>B. (in)</b>	1/2	<b>Mils</b>	54
<b>Available Finish</b>	G40, G60	<b>Gauge</b>	16
		<b>Design Thickness (in)</b>	0.0566
		<b>Minimum Thickness (in)</b>	0.0538

## SECTION PROPERTIES

### GROSS SECTION PROPERTIES

Cross Sectional Area: <b>A (in<sup>2</sup>)</b>	0.129
Weight of Member: <b>(lb/ft)</b>	0.44
Moment of Inertia: <b>Ix (in<sup>4</sup>)</b>	0.039
Radius of Gyration: <b>Rx (in)</b>	0.547
Gross Moment of Inertia: <b>Iy (in<sup>4</sup>)</b>	0.003
Radius of Gyration: <b>Ry (in)</b>	0.144

### EFFECTIVE SECTION PROPERTIES

Moment of Inertia-Deflection: <b>Ix (in<sup>4</sup>)</b>	0.039
Section Modulus: <b>Sx (in<sup>3</sup>)</b>	0.052
Allowable Bending Moment: <b>Ma (in-k)</b>	1.22
Allowable strong axis shear: <b>Va (lb)</b>	840

## CODES & STANDARDS

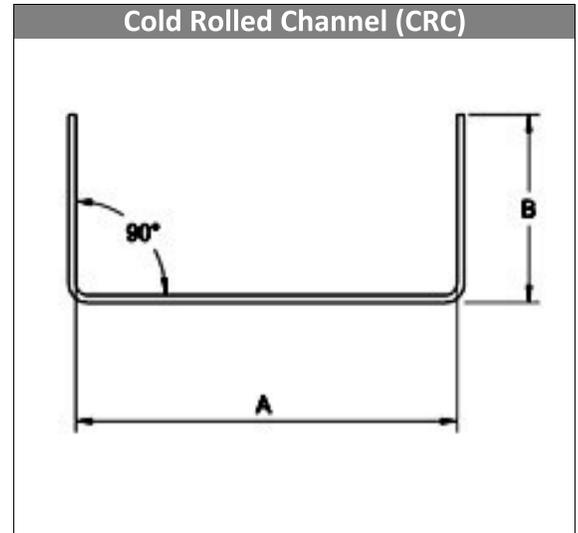
- AISI S100, IBC 20105, 2018, 2021 compliant
- ASTM C955 & AISI S240
- ICC-ES ESR-4062
- Galvanized steel sheet meets ASTM A1003 or A653

## GREEN INFO

- LEED v4 credits available
- Contact Technical Services for more information

## 05.40.00 Cold Formed Metal Framing

### Cold Rolled Channel (CRC)



[www.marinoware.com](http://www.marinoware.com)

For more information, please contact Marino\WARE Technical Services at 866-545-1545.

This technical information reflects the most current information available and supersedes any and all publications, effective 4/5/2024  
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