CALCULATIONS

NAVAIRSEFAC Calibration Lab

P532V
Naval Air Station Joint Reserve Base New Orleans
Belle Chasse, LA

For
Broadmoor, L.L.C.

March 11, 2010

US DEPARTMENT OF THE NAVY – NAVFAC SOUTHEAST

Prepared by:
Dammon Engineering
1095 Florida Avenue
Slidell, La. 70458
985-649-5832
dammonengineering.com

NAVAIRSEFAC
NAS JRB NEW ORLEANS
BELLE CHASSE, LA
FOR BROADMOOR, LLC
Calibration Lab

SCOPE OF WORK:
Determine minimum sizes for metal stud walls subject to 140 mph wind loads. Provide details for all related anchoring, bracing, and fastening systems.

STANDARDS USED:
Cold Formed Metal Framing Specification Section 05 40 00
AISI S100-2007
AISI Manual Cold-Formed Steel Design 2007
ASCE 7-98
IBC 2006

RESULTS SUMMARY:
Exterior wall studs -
Unbraced height
0'-0" - 14'-0"
Use 6" web, 2-1/2" flange, 12ga. @ 16" o.c. Telling Industries (600S250-97 55ksi)
14'-0" - 16'-8"
Use 6" web, 3" flange, 12ga. @ 16" o.c. Telling Industries (600S300-97 55ksi)
16'-8" - 19'-3"
Use 6" web, 3" flange, 12ga. @ 12" o.c. Telling Industries (600S300-97 55ksi)

Interior walls studs-
Unbraced height
0'-0" - 20'-0"
Use 3-5/8" web, 1.6" flange, 16ga. @ 16" o.c. Telling Industries (362S162-54 33ksi)

Track -
Exterior walls
Use 6" web, 16ga. Telling Industries (600T125-54 33ksi)
or Dietrich SLP-TRK 16ga. slotted track where wall abuts heavy duty rigid board insulation.
See sheet A-2 for details.
Interior walls
Use 3-5/8" web, 20ga. Telling Industries (362T125-30 33ksi)
or Dietrich SLP-TRK 16ga. slotted track where wall abuts heavy duty rigid board insulation.
See sheet A-2 for details.

Anchors -
Exterior walls
Use Simpson Easy-set EZAC drive-pin expansion anchors 1/2”x6”L @ 24” o.c.
Interior walls
Use Simpson Easy-set EZAC drive-pin expansion anchors 1/4”x1-3/4” @ 24” o.c.

Structural Clips -
Exterior wall deflection clip to wind beam.
Use Dietrich FCSC 5-1/2” at each stud connection.

Horizontal Bracing -
Exterior walls
Use continuous 1-1/2” 16ga. CRC 150U050-54 @ 4'-0” o.c. Vertical.
Interior walls
Use continuous 1-1/2” 16ga. CRC 150U050-54 @ 6'-0” o.c. Vertical.

CALCULATIONS:
See the following calculations and submittal sheets.

Exterior Wall
14'-0" span

Steel F_y	50	ksi	
Steel Modulus of Elasticity	29500		
Section Height	14	feet	168 inches
Studs X inches O.C.	16	in	1.33 feet
Wind Pressure	38.5	psf	
Axial Pressure Live Load	0	psf	
Axial Pressure Dead Load	6	psf	
Studs X inches O.C.	16	in	1.33 feet
Width of Hole in Studds	1.5	in	

Member Selection	600S250-97	
Area gross	1.170	in^2
t	0.1017	in
I_x	6.500	
S_x	2.170	
r_x	2.360	
V_n	16.800	
F_{ya}	56.2	
M_{nxo}	116.0	
S_e	2.060	
I_e	6.500	
P_n at $f=F_y$	47.5	

Given & Assumptions:

1. Steel Fy = 50 Modulus of Elasticity: 29500
2. Section simply supported at ends

3. Section fully braced against lateral-torsional, flexural-torsional and distortional buckling.

K_x = 1.0; Height (L_x): 14 ft ; Contributory Width: 1.33 ft

Wind Pressure: 38.5 psf

Contributory Pressure: 51.33 p/lf or 0.0513 k/lf

Required:

Verify combined bending and compression strength of the section using ASD and LRFD methods with ASCE/SEC 7-05 load combinations.

Solution:

Calculate preliminary data for choosing member

Max Wind deflection δ L_x "/240 0.700 in

$I_{minimum} = \frac{(5 \cdot w \cdot L^4 \cdot 1728)}{(384 \cdot E \cdot \delta)}$ 2.15 in^4

ASD Contributory Pressure: 0.0513 k/lf

LRFD Contributory Pressure 1.6W: 0.0821 k/lf

$Max_{moment} = \frac{(w \cdot L^2)}{8} =$ 2.012 ft – k

$S_{required} = \frac{(M_{max})}{(.9 \cdot F_y)}$ 0.537 in^3

Select Member using $I_{minimum}$ and the $S_{required}$ from above.

Member Selection: **600S250-97**

$Area_{gross}$	1.17 in^2
I_x	6.5 in^4
S_x	2.17 in^3
r_x	2.36 in

$M_n = S_e * F_y$ 103.00 in – k

Nominal axial strength, P_n (Section C4.1)

$F_e = \frac{\pi^2 * E}{(K * L_x / r_x)^2}$ 57.45 ksi

$\lambda_c = \sqrt{(F_y / F_e)}$ 0.9329 < 1.5

$F_n = 0.658^{\lambda c^2} * F_y$ 34.736 ksi

$A_e = A_g$ – hole 1.017 in² Effective Area

$P_n = A_e * F_n$ 35.34 k

Required Strength $M = \frac{(wL^2)}{4}$

M_{dead} 48.294 in – k

M_{live} 0 in – k

ASD

$M_x = M_{dead} + M_{live}$ 48.294 in – k

$P = P_{dead} + P_{live}$ 0.112 k

LRFD

$M_{ux} = 1.2\ M_{dead} + 1.6\ M_{live}$ 57.95 in – k

$P_u = 1.2\ P_{dead} + 1.6\ P_{live}$ 0.134 k

Combined compression and bending – ASD (Section C5.2.1)

$\frac{(\Omega_c P)}{P_n} =$ 0.0057

$C_{mx} =$ 1

$P_{Ex} = \frac{(\pi^2 \cdot E \cdot I)}{(K_x . L_x)^2} =$ 67.053 k

$\alpha_x = 1 - \frac{(\Omega_c P)}{(P_{Ex})} > 0$ 1.00

$M_y = 0.0$

$\frac{(\Omega_c P)}{P_n} + \frac{(\Omega_b C_{m_x} M_x)}{(M_{nx} \alpha_x)} + \frac{(\Omega_b C_{m_y} M_y)}{(M_{n_y} \alpha_y)} < 1.0$ 0.79 WIthin Limits

$\frac{(\Omega_c P)}{(P_{no})} + \frac{(\Omega_b M_x)}{(M_{nx})} + \frac{(\Omega_b M_y)}{(M_{n_y})} < 1.0$ 0.79 WIthin Limits

Combined compression and bending – LRFD (Section C5.2.2)

$\bar{P} = P_u$ 0.134 k

$\bar{M}_x = M_{ux} =$ 57.95 in – k

$\frac{\bar{P}}{(\phi_c P_n)} =$ >0.15 therefore use Equations C5.2.2-0 1 and C5.2.2-2

C_{mx} = 1.0

P_{Ex} = 67.053 k

$\alpha_x = 1 - \frac{\bar{P}}{(P_{Ex})} > 0$ 0.998

M_y = 0.0

$\frac{\bar{P}}{(\phi_c P_n)} + \frac{(C_{mx}\bar{M}_x)}{(\phi_b M_{nx}\alpha_x)} + \frac{(C_{my}\bar{M}_y)}{(\phi_b M_{ny}\alpha_y)} < 1.0$ 0.631 WIthin Limits

$\frac{\bar{P}}{(\phi_c P_{no})} + \frac{(\bar{M}_x)}{(\phi_b M_{nx})} + \frac{(\bar{M}_y)}{(\phi_b M_{ny})} < 1.0$ 0.628 WIthin Limits

Exterior Wall
16'-8” Span

Steel F_y	50	ksi	
Steel Modulus of Elasticity	29500		
Section Height	16.67	feet	200.04 inches
Studs X inches O.C.	16	in	1.33 feet
Wind Pressure	38.5	psf	
Axial Pressure Live Load	0	psf	
Axial Pressure Dead Load	6	psf	
Studs X inches O.C.	16	in	1.33 feet
Width of Hole in Studs	1.5	in	
Member Selection	600S300-97		
Area gross	1.271	in^2	
t	0.1017	in	
I_x	7.381		
S_x	2.247		
r_x	2.410		
V_n	10.472		
F_{ya}	50.0		
M_{nxo}	116.0		
S_e	2.247		
I_e	7.303		
P_n at $f=F_y$	47.5		

Given & Assumptions:

1. Steel Fy = 50 Modulus of Elasticity: 29500
2. Section simply supported at ends

3. Section fully braced against lateral-torsional, flexural-torsional and distortional buckling.

K_x = 1.0; Height (L_x): 16.67 ft ; Contributory Width: 1.33 ft

Wind Pressure: 38.5 psf

Contributory Pressure: 51.33 p/lf or 0.0513 k/lf

Required:

Verify combined bending and compression strength of the section using ASD and LRFD methods with ASCE/SEC 7-05 load combinations.

Solution:

Calculate preliminary data for choosing member

Max Wind deflection δ L_x "/240 0.834 in

$I_{minimum} = \frac{(5 \cdot w \cdot L^4 \cdot 1728)}{(384 \cdot E \cdot \delta)}$ 3.63 in^4

ASD Contributory Pressure: 0.0513 k/lf

LRFD Contributory Pressure 1.6W: 0.0821 k/lf

$Max_{moment} = \frac{(w \cdot L^2)}{8} = 2.853$ ft – k

$S_{required} = \frac{(M_{max})}{(.9 \cdot F_y)}$ 0.761 in^3

Select Member using $I_{minimum}$ and the $S_{required}$ from above.

Member Selection: **600S300-97**

$Area_{gross}$	1.27 in^2
I_x	7.38 in^4
S_x	2.25 in^3
r_x	2.41 in

$M_n = S_e * F_y$ 112.36 in – k

Nominal axial strength, P_n (Section C4.1)

$F_e = \frac{\pi^2 * E}{(K * L_x / r_x)^2}$ 42.26 ksi

$\lambda_c = \sqrt{(F_y / F_e)}$ 1.0877 < 1.5

$F_n = 0.658^{\lambda c^2} * F_y$ 30.473 ksi

$A_e = A_g$ – hole 1.118 in² Effective Area

$P_n = A_e * F_n$ 34.07 k

Required Strength $M = \frac{(wL^2)}{4}$

M_{dead} 68.472 in – k

M_{live} 0 in – k

ASD

$M_x = M_{dead} + M_{live}$ 68.472 in – k

$P = P_{dead} + P_{live}$ 0.133 k

LRFD

$M_{ux} = 1.2\ M_{dead} + 1.6\ M_{live}$ 82.17 in – k

$P_u = 1.2\ P_{dead} + 1.6\ P_{live}$ 0.160 k

Combined compression and bending – ASD (Section C5.2.1)

$\frac{(\Omega_c P)}{P_n} =$ 0.0070

$C_{mx} =$ 1

$P_{Ex} = \frac{(\pi^2 \cdot E \cdot I)}{(K_x . L_x)^2} =$ 53.703 k

$\alpha_x = 1 - \frac{(\Omega_c P)}{(P_{Ex})} > 0$ 1.00

$M_y = 0.0$

$\frac{(\Omega_c P)}{P_n} + \frac{(\Omega_b C_{m_x} M_x)}{(M_{nx} \alpha_x)} + \frac{(\Omega_b C_{m_y} M_y)}{(M_{n_y} \alpha_y)} < 1.0$ 1.03 Out of Limits

$\frac{(\Omega_c P)}{(P_{no})} + \frac{(\Omega_b M_x)}{(M_{nx})} + \frac{(\Omega_b M_y)}{(M_{n_y})} < 1.0$ 1.02 Out of Limits

Combined compression and bending – LRFD (Section C5.2.2)

$\bar{P} = P_u$ 0.160 k

$\bar{M}_x = M_{ux} =$ 82.17 in – k

$\frac{\bar{P}}{(\phi_c P_n)} =$ 0.01 >0.15 therefore use Equations C5.2.2-1 and C5.2.2-2

C_{mx} = 1.0

P_{Ex} = 53.703 k

$\alpha_x = 1 - \frac{\bar{P}}{(P_{Ex})} > 0$ 0.997

M_y = 0.0

$\frac{\bar{P}}{(\phi_c P_n)} + \frac{(C_{mx}\bar{M}_x)}{(\phi_b M_{nx}\alpha_x)} + \frac{(C_{my}\bar{M}_y)}{(\phi_b M_{ny}\alpha_y)} < 1.0$ 0.820 WIthin Limits

$\frac{\bar{P}}{(\phi_c P_{no})} + \frac{(\bar{M}_x)}{(\phi_b M_{nx})} + \frac{(\bar{M}_y)}{(\phi_b M_{ny})} < 1.0$ 0.816 WIthin Limits

Exterior Wall
19'-3" Span

Steel F_y	50	ksi	
Steel Modulus of Elasticity	29500		
Section Height	19.25	feet	231 inches
Studs X inches O.C.	12	in	1 feet
Wind Pressure	38.5	psf	
Axial Pressure Live Load	0	psf	
Axial Pressure Dead Load	6	psf	
Studs X inches O.C.	12	in	1 feet
Width of Hole in Studs	1.5	in	
Member Selection	600S300-97		
Area gross	1.271	in^2	
t	0.1017	in	
I_x	7.381		
S_x	2.247		
r_x	2.410		
V_n	10.472		
F_{ya}	50.0		
M_{nxo}	116.0		
S_e	2.247		
I_e	7.303		
P_n at $f=F_y$	47.5		

Given & Assumptions:

1. Steel Fy = 50 Modulus of Elasticity: 29500
2. Section simply supported at ends

3. Section fully braced against lateral-torsional, flexural-torsional and distortional buckling.

K_x = 1.0; Height (L_x): 19.25 ft ; Contributory Width: 1 ft

Wind Pressure: 38.5 psf

Contributory Pressure: 38.5 p/lf or 0.0385 k/lf

Required:

Verify combined bending and compression strength of the section using ASD and LRFD methods with ASCE/SEC 7-05 load combinations.

Solution:

Calculate preliminary data for choosing member

Max Wind deflection δ L_x "/240 0.963 in

$I_{minimum} = \frac{(5 \cdot w \cdot L^4 \cdot 1728)}{(384 \cdot E \cdot \delta)}$ 4.19 in^4

ASD Contributory Pressure: 0.0385 k/lf

LRFD Contributory Pressure 1.6W: 0.0616 k/lf

$Max_{moment} = \frac{(w \cdot L^2)}{8} = 2.853$ ft – k

$S_{required} = \frac{(M_{max})}{(.9 \cdot F_y)}$ 0.761 in^3

Select Member using $I_{minimum}$ and the $S_{required}$ from above.

Member Selection: **600S300-97**

$Area_{gross}$	1.27 in^2
I_x	7.38 in^4
S_x	2.25 in^3
r_x	2.41 in

$M_n = S_e * F_y$ 112.36 in – k

Nominal axial strength, P_n (Section C4.1)

$F_e = \frac{\pi^2 * E}{(K * L_x / r_x)^2}$ 31.69 ksi

$\lambda_c = \sqrt{(F_y / F_e)}$ 1.2560 < 1.5

$F_n = 0.658^{\lambda c^2} * F_y$ 25.834 ksi

$A_e = A_g$ – hole 1.118 in² Effective Area

$P_n = A_e * F_n$ 28.88 k

Required Strength $M = \frac{(wL^2)}{4}$

M_{dead} 68.480 in – k

M_{live} 0 in – k

ASD

$M_x = M_{dead} + M_{live}$ 68.480 in – k

$P = P_{dead} + P_{live}$ 0.116 k

LRFD

$M_{ux} = 1.2\ M_{dead} + 1.6\ M_{live}$ 82.18 in – k

$P_u = 1.2\ P_{dead} + 1.6\ P_{live}$ 0.139 k

Combined compression and bending – ASD (Section C5.2.1)

$\frac{(\Omega_c P)}{P_n} =$ 0.0072

$C_{mx} =$ 1

$P_{Ex} = \frac{(\pi^2 \cdot E \cdot I)}{(K_x \cdot L_x)^2} =$ 40.272 k

$\alpha_x = 1 - \frac{(\Omega_c P)}{(P_{Ex})} > 0$ 0.99

$M_y = 0.0$

$\frac{(\Omega_c P)}{P_n} + \frac{(\Omega_b C_{m_x} M_x)}{(M_{nx} \alpha_x)} + \frac{(\Omega_b C_{m_y} M_y)}{(M_{n_y} \alpha_y)} < 1.0$ 1.03 Out of Limits

$\frac{(\Omega_c P)}{(P_{no})} + \frac{(\Omega_b M_x)}{(M_{nx})} + \frac{(\Omega_b M_y)}{(M_{n_y})} < 1.0$ 1.02 Out of Limits

Combined compression and bending – LRFD (Section C5.2.2)

$\bar{P} = P_u$ 0.139 k

$\bar{M}_x = M_{ux} =$ 82.18 in – k

$\frac{\bar{P}}{(\phi_c P_n)} =$ 0.01 >0.15 therefore use Equations C5.2.2-1 and C5.2.2-2

$C_{mx} =$ 1.0

$P_{Ex} =$ 40.272 k

$\alpha_x = 1 - \frac{\bar{P}}{(P_{Ex})} > 0$ 0.997

$M_y = 0.0$

$\frac{\bar{P}}{(\phi_c P_n)} + \frac{(C_{mx}\bar{M}_x)}{(\phi_b M_{nx}\alpha_x)} + \frac{(C_{my}\bar{M}_y)}{(\phi_b M_{ny}\alpha_y)} < 1.0$ 0.821 WIthin Limits

$\frac{\bar{P}}{(\phi_c P_{no})} + \frac{(\bar{M}_x)}{(\phi_b M_{nx})} + \frac{(\bar{M}_y)}{(\phi_b M_{ny})} < 1.0$ 0.816 WIthin Limits

Interior Wall
20'-0" Span

Steel F_y	33	ksi	
Steel Modulus of Elasticity	29500		
Section Height	20	feet	240 inches
Studs X inches O.C.	16	in	1.33 feet
Wind Pressure	5	psf	
Axial Pressure Live Load	0	psf	
Axial Pressure Dead Load	6	psf	
Studs X inches O.C.	16	in	1.33 feet
Width of Hole in Studds	1.5	in	
Member Selection	600S162-54		
Area gross	0.556	in^2	
t	0.0566	in	
I_x	2.860		
S_x	0.954		
r_x	2.270		
V_n	3.020		
F_{ya}	37.1		
M_{nxo}	35.3		
S_e	0.954		
I_e	2.860		
P_n at $f=F_y$	11.2		

Given & Assumptions:

1. Steel Fy = 33 Modulus of Elasticity: 29500
2. Section simply supported at ends

3. Section fully braced against lateral-torsional, flexural-torsional and distortional buckling.

K_x = 1.0; Height (L_x): 20 ft ; Contributory Width: 1.33 ft

Wind Pressure: 5 psf

Contributory Pressure: 6.67 p/lf or 0.0067 k/lf

Required:

Verify combined bending and compression strength of the section using ASD and LRFD methods with ASCE/SEC 7-05 load combinations.

Solution:

Calculate preliminary data for choosing member

Max Wind deflection δ L_x "/240 1.000 in

$I_{minimum} = \frac{(5 \cdot w \cdot L^4 \cdot 1728)}{(384 \cdot E \cdot \delta)}$ 0.81 in^4

ASD Contributory Pressure: 0.0067 k/lf

LRFD Contributory Pressure 1.6W: 0.0107 k/lf

$Max_{moment} = \frac{(w \cdot L^2)}{8} =$ 0.533 $^{ft-k}$

$S_{required} = \frac{(M_{max})}{(.9 \cdot F_y)}$ 0.215 in^3

Select Member using $I_{minimum}$ and the $S_{required}$ from above.

Member Selection: **600S162-54**

$Area_{gross}$	0.56 in^2
I_x	2.86 in^4
S_x	0.95 in^3
r_x	2.27 in

$M_n = S_e * F_y$ 31.48 in – k

Nominal axial strength, P_n (Section C4.1)

$F_e = \frac{\pi^2 * E}{(K * L_x / r_x)^2}$ 26.05 ksi

$\lambda_c = \sqrt{(F_y / F_e)}$ 1.1256 < 1.5

$F_n = 0.658^{\lambda c^2} * F_y$ 19.418 ksi

$A_e = A_g$ – hole 0.471 in² Effective Area

$P_n = A_e * F_n$ 9.15 k

Required Strength $M = \frac{(wL^2)}{4}$

M_{dead} 12.800 in – k

M_{live} 0 in – k

ASD

$M_x = M_{dead} + M_{live}$ 12.800 in – k

$P = P_{dead} + P_{live}$ 0.160 k

LRFD

$M_{ux} = 1.2\ M_{dead} + 1.6\ M_{live}$ 15.36 in – k

$P_u = 1.2\ P_{dead} + 1.6\ P_{live}$ 0.192 k

Combined compression and bending – ASD (Section C5.2.1)

$\frac{(\Omega_c P)}{P_n} =$ 0.0315

$C_{mx} =$ 1

$P_{Ex} = \frac{(\pi^2 \cdot E \cdot I)}{(K_x \cdot L_x)^2} =$ 14.457 k

$\alpha_x = 1 - \frac{(\Omega_c P)}{(P_{Ex})} > 0$ 0.98

$M_y = 0.0$

$\frac{(\Omega_c P)}{P_n} + \frac{(\Omega_b C_{m_x} M_x)}{(M_{nx} \alpha_x)} + \frac{(\Omega_b C_{m_y} M_y)}{(M_{n_y} \alpha_y)} < 1.0$ 0.72 WIthin Limits

$\frac{(\Omega_c P)}{(P_{no})} + \frac{(\Omega_b M_x)}{(M_{nx})} + \frac{(\Omega_b M_y)}{(M_{n_y})} < 1.0$ 0.7 WIthin Limits

Combined compression and bending – LRFD (Section C5.2.2)

$\bar{P} = P_u$ 0.192 k

$\bar{M}_x = M_{ux} =$ 15.36 in – k

$\frac{\bar{P}}{(\phi_c P_n)} =$ 0.02 >0.15 therefore use Equations C5.2.2-1 and C5.2.2-2

C_{mx} = 1.0

P_{Ex} = 14.457 k

$\alpha_x = 1 - \frac{\bar{P}}{(P_{Ex})} > 0$ 0.987

M_y = 0.0

$\frac{\bar{P}}{(\phi_c P_n)} + \frac{(C_{mx}\bar{M}_x)}{(\phi_b M_{nx}\alpha_x)} + \frac{(C_{my}\bar{M}_y)}{(\phi_b M_{ny}\alpha_y)} < 1.0$ 0.573 WIthin Limits

$\frac{\bar{P}}{(\phi_c P_{no})} + \frac{(\bar{M}_x)}{(\phi_b M_{nx})} + \frac{(\bar{M}_y)}{(\phi_b M_{ny})} < 1.0$ 0.561 WIthin Limits

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TELLING INDUSTRIES

Product Specification

Project Information:

Information not entered.

Contractor Information:

Information not entered.

Product Specification

Structural Stud - 6" stud, 12 GA, 2-1/2" flange

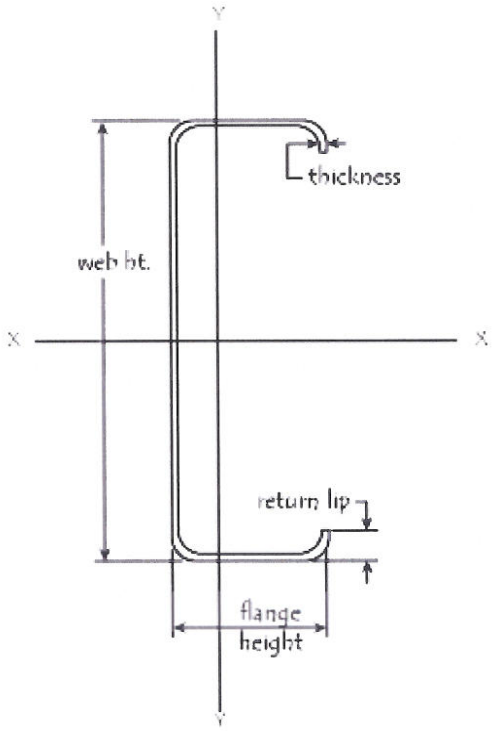
Product Code: 600S250-97
Web Height (inches): 6"
Web Height (mm): 152.4
Flange Height (inches): 2-1/2"
Flange Height (mm): 63.5

Gauge: 12
Mils: 97
Design Thickness: 0.1017
Lip: 5/8"
Yield Strength: 33 KSI/50 KSI

Weight (lbs/ft): 3.98
Weight (kg/ft): 1.8069
Product Complies With:
ASTM C955
ASTM C1007

Gross Section Properties

Area: 1.169 in.^{2}
Moment of inertia about x-x axis (Ix): 6.496 in.^{4}
Radius of gyration about x-x axis (Rx): 2.357 in.
Moment of inertia about y-y axis (Iy): 0.923 in.^{4}
Radius of gyration about y-y axis (Rx): 0.889 in.



Effective Section Properties

Yield Strength: 33 KSI
Allowable Bending Moment (Ma): 48.81 in.-k.
Moment of Inertia about x-x axis (Ix): 6.496 in.^{4}
Effective Section Modulus about x-x axis (Sx): 2.161 in.^{3}

Yield Strength: 50 KSI
Allowable Bending Moment (Ma): 69.38 in.-k.
Moment of Inertia about x-x axis (Ix): 6.496 in.^{4}
Effective Section Modulus about x-x axis (Sx): 2.063 in.^{3}

Torsional Section Properties

Distance between shear center and centroid (Xo): -1.857 in.
St. Venant torsional constant (J^{x1000}): 4.03 in.^{4}
Warping torsional constant (Cw): 6.798 in.^{6}
Polar radius of gyration about principal axis (Ro): 3.13 in.
Beta Equals 1-(Xo/Ro)^2: 0.648

Allowable Floor Joist Spans

Single Span

KSI

(S) Stud Member	(S) Stud Member	Spacing (in.)	Allowable Floor Joist Spans											
			10-20 psf		10-30 psf		10-40 psf		10-50 psf		15-125 psf		40-125 psf	
			Defl. Limit		Defl. Limit		Defl. Limit		Defl. Limit		Defl. Limit		Defl. Limit	
			L/360	L/480	L/360	L/480	L/360	L/480	L/360	L/480	L/360	L/480	L/360	L/480
600S250-97	33 KSI	12	24' 2"	21' 11"	21' 1"	19' 2"	19' 2"	17' 5"	17' 10"	16' 2"	13' 1"	11' 11"	13' 1"	11' 11"
600S250-97	33 KSI	16	21' 11"	19' 11"	19' 2"	17' 5"	17' 5"	15' 10"	16' 2"	14' 8"	11' 11"	10' 10"	11' 11"	10' 10"

600S250-97	33 KSI	24	19' 2"	17' 5"	16' 9"	15' 3"	15' 3"	13' 10"	14' 1"	12' 10"	10' 5"	9' 5"	9' 11"	9' 5"
600S250-97	50 KSI	12	24' 2"	21' 11"	21' 1"	19' 2"	19' 2"	17' 5"	17' 10"	16' 2"	13' 1"	11' 11"	13' 1"	11' 11"
600S250-97	50 KSI	16	21' 11"	19' 11"	19' 2"	17' 5"	17' 5"	15' 10"	16' 2"	14' 8"	11' 11"	10' 10"	11' 11"	10' 10"
600S250-97	50 KSI	24	19' 2"	17' 5"	16' 9"	15' 3"	15' 3"	13' 10"	14' 1"	12' 10"	10' 5"	9' 5"	10' 5"	9' 5"

Two Equal Spans

KSI

(S) Stud Member	(S) Stud Member	Spacing (in.)	Allowable Floor Joist Spans											
			10-20 psf		10-30 psf		10-40 psf		10-50 psf		15-125 psf		40-125 psf	
			Defl. Limit		Defl. Limit		Defl. Limit		Defl. Limit		Defl. Limit		Defl. Limit	
			L/360	L/480	L/360	L/480	L/360	L/480	L/360	L/480	L/360	L/480	L/360	L/480
600S250-97	33 KSI	12	27' 2"	24' 8"	23' 8"	21' 6"	21' 6"	19' 7"	20' 0"	18' 2"	14' 9" [i]	13' 4" [i]	14' 0" [i]	13' 4" [i]
600S250-97	33 KSI	16	24' 8"	22' 5"	21' 6"	19' 7"	19' 7"	17' 9"	18' 2"	16' 6"	13' 2" [i]	12' 2" [i]	12' 1" [i]	12' 1" [i]
600S250-97	33 KSI	24	21' 6"	19' 7"	10' 9" [i]	10' 7" [i]	15' 10" [i]	14' 5" [i]	17' 1" [i]	15' 6"	18' 10" [i]	17' 1"	9' 11" [i]	9' 11" [i]
600S250-97	50 KSI	12	27' 2"	24' 8"	23' 8"	21' 6"	21' 6"	19' 7"	20' 0"	18' 2"	14' 9"	13' 4"	14' 9" [i]	13' 4"
600S250-97	50 KSI	16	24' 8"	22' 5"	21' 6"	19' 7"	19' 7"	17' 9"	18' 2"	16' 6"	13' 4"	12' 2"	13' 4" [i]	12' 2" [i]
600S250-97	50 KSI	24	21' 6"	19' 7"	11' 8" [i]	10' 7" [i]	15' 10"	14' 5"	17' 1"	15' 6"	18' 10"	17' 1"	11' 8" [i]	10' 7" [i]

Table Notes

1. Spans based on Total Load deflection = L/240, Live Load deflection = L/360 or L/480 as listed.
2. For Two Equal Spans, listed span is the distance from end to interior support.
3. Alternate span live loading considered for Two Equal Span condition.
4. Where spans are noted "e", web stiffeners are required at end reactions; "i" stiffeners required at interior.
5. Web crippling checks based on end and interior bearing length = 3.5 inches.
6. Web crippling and shear capacity have not been reduced for punchouts. If web punchouts occur near supports members must be checked for reduced shear and web crippling in accordance with the 2001 NASPEC.
7. Joists are assumed to be adequately braced to develop full allowable moment, Ma.
8. At interior supports of two-span conditions, joists must be braced to resist rotation.

[e] Web stiffeners required at end reactions

[i] Web stiffeners required at interior reactions

[a] Web stiffeners required at all supports

TELLING
BUILDSTRONG

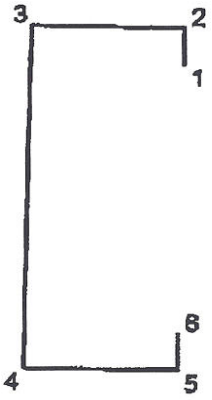
Telling Industries

2007 North American Specification ASD
DATE: 3/8/2010

SECTION DESIGNATION: 600S300-97 [50] Single

Section Dimensions:

Web Height =	6.000 in
Top Flange =	3.000 in
Bottom Flange =	3.000 in
Stiffening Lip =	0.625 in
Inside Corner Radius =	0.1526 in
Punchout Width =	1.500 in
Punchout Length =	4.000 in
Design Thickness =	0.1017 in



Steel Properties:

Fy =	50.000 ksi
Fu =	65.000 ksi
Fya =	50.000 ksi

Gross Properties

A(gross) (in^2)	Weight (lb/ft)	A(net) (in^2)	Sxx (in^3)	Ixx (in^4)	Rx (in)	Iyy (in^4)	Ry (in)
1.2706	4.3237	1.1181	2.4603	7.3809	2.4101	1.4535	1.0695

Effective Properties

Ixx(defl) (in^4)	Sxx (in^3)	Ma-xx (Ft-Lb)	Ma-x(dist) (Ft-Lb)	Vag (lb)	Vanet (lb)	Syy (in^3)	Ma-y (Ft-Lb)
7.3032	2.2472	5606.7	5389.2	10472	3805	0.6568	1638.8

K-phi for Distortional Buckling = 0.00 lb*in/in

Torsional Properties

Jx1000 (in^4)	Cw (in^6)	Xo (in)	m (in)	Ro (in)	Beta
4.3807	10.7758	-2.241	1.343	3.461	0.581

Warping Torsional Properties

a (in^3)	Sxx(lip) (in^3)	Wn(1) (in^2)	Wn(2) (in^2)	Wn(3) (in^2)	Wn(4) (in^2)	Wn(5) (in^2)	Wn(6) (in^2)
80.1	2.8118	7.0221	4.5870	-3.9605	3.9605	-4.5870	-7.0221

Web Crippling - Allowable Loads, Pa (lb)

End Bearing Length = 1.00 (in)
Interior Bearing Length = 3.50 (in)

Cond. 1 (E1F)	Cond. 2 (I1F)	Cond. 3 (E2F)	Cond. 4 (I2F)
1752	4939	1781	5885

Punchout Reduction Factor Cond. 1, Rc(E1F) = 0.921 + 0.083x/h <= 1.0
Punchout Reduction Factor Cond. 2, Rc(I1F) = 0.887 + 0.053x/h <= 1.0

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TELLING INDUSTRIES

Product Specification

Project Information:

Information not entered.

Contractor Information:

Information not entered.

Product Specification

Structural Stud - 3-5/8" stud, 16 GA, 1-5/8" flange

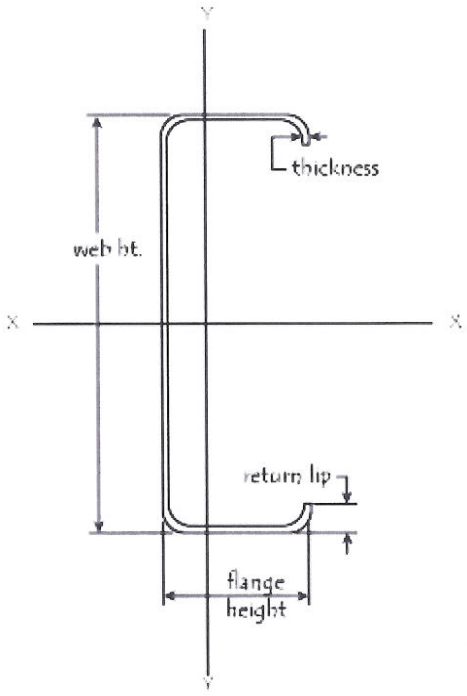
Product Code: 362S162-54
Web Height (inches): 3-5/8"
Web Height (mm): 92.1
Flange Height (inches): 1-5/8"
Flange Height (mm): 41.3

Gauge: 16
Mils: 54
Design Thickness: 0.0566
Lip: 1/2"
Yield Strength: 33 KSI/50 KSI

Weight (lbs/ft): 1.44
Weight (kg/ft): 0.6538
Product Complies With:
ASTM C955
ASTM C1007

Gross Section Properties

Area: 0.422 in.^{2}
Moment of inertia about x-x axis (Ix): 0.873 in.^{4}
Radius of gyration about x-x axis (Rx): 1.438 in.
Moment of inertia about y-y axis (Iy): 0.154 in.^{4}
Radius of gyration about y-y axis (Rx): 0.604 in.



Effective Section Properties

Yield Strength: 33 KSI
Allowable Bending Moment (Ma): 9.22 in.-k.
Moment of Inertia about x-x axis (Ix): 0.873 in.^{4}
Effective Section Modulus about x-x axis (Sx): 0.466 in.^{3}

Yield Strength: 50 KSI
Allowable Bending Moment (Ma): 13.28 in.-k.
Moment of Inertia about x-x axis (Ix): 0.873 in.^{4}
Effective Section Modulus about x-x axis (Sx): 0.444 in.^{3}

Torsional Section Properties

Distance between shear center and centroid (Xo): -1.314 in.
St. Venant torsional constant (J^{x1000}): 0.451 in.^{4}
Warping torsional constant (Cw): 0.449 in.^{6}
Polar radius of gyration about principal axis (Ro): 2.04 in.
Beta Equals 1-(Xo/Ro)^2: 0.585

Limiting Wall Heights - Curtain Wall

33 KSI

(S) Stud Member	Spacing (in.)	Lateral Load																							
		5 psf			15 psf			20 psf			25 psf			30 psf			35 psf			10 psf			50 psf		
		Deflection Limit			Deflection Limit			Deflection Limit			Deflection Limit			Deflection Limit			Deflection Limit			Deflection Limit			Deflection Limit		
		L/120	L/240	L/360	L/240	L/360	L/600	L/240	L/360	L/600	L/240	L/360	L/600	L/240	L/360	L/600	L/240	L/360	L/600	L/240	L/360	L/600	L/240	L/360	L/600
362S162-54	12	28' 4"	22' 6"	19' 8"	17' 7"	15' 4"	12' 11"	15' 11"	13' 11"	11' 9"	14' 10"	12' 11"	10' 11"	13' 11"	12' 2"	10' 3"	13' 3"	11' 7"	9' 9"	12' 4"	11' 1"	9' 4"	11' 1"	10' 3"	8' 8"
362S162-54	16	25' 9"	20' 5"	17' 10"	15' 11"	13' 11"	11' 9"	14' 6"	12' 8"	10' 8"	13' 5"	11' 9"	9' 11"	12' 4"	11' 1"	9' 4"	11' 5"	10' 6"	8' 10"	10' 8"	10' 0"	8' 5"	9' 7"	9' 4"	7' 10"
362S162-54	24	22' 6"	17' 10"	15' 7"	13' 11"	12' 2"	10' 3"	12' 4"	11' 1"	9' 4"	11' 1"	10' 3"	8' 8"	10' 1"	9' 8"	8' 2"	9' 4"	9' 2"	7' 9"	8' 9"	8' 9"	7' 5"	7' 10"	7' 10"	6' 10"

Table Notes

1. Lateral loads multiplied by 0.75 for strength determination per AISI A5. 1.3.
2. Check end reactions for web crippling.
3. Limiting heights based on continuous support of each flange over the full length of the stud.
4. Heights based on steel properties only.
5. Values based on F_y = 33 ksi.

f: denotes stress controlled section, all other sections are deflection controlled.

Axial Loads

33 KSI

(S) Stud Member	psf	Axial Load																	
		12" Wall Height						16" Wall Height						24" Wall Height					
		8'	9'	10'	12'	14'	16'	8'	9'	10'	12'	14'	16'	8'	9'	10'	12'	14'	16'
362S162-54	5	3.46	3.25	3	2.46	1.92	1.43	3.38	3.14	2.88	2.3	1.74	1.26^{7}	3.22	2.95	2.64	2.01	1.43^{7}	0.95^{6}
362S162-54	15	2.99	2.66	2.31	1.62	1.03^{6}	0.57^{3}	2.77	2.39	2.01	1.27^{6}	0.68^{3}	0.23^{2}	2.34	1.89	1.45^{7}	0.66^{6}	0.07^{2}	0^{2}
362S162-54	20	2.77	2.39	2.01	1.27^{6}	0.68^{3}	0.23^{2}	2.48	2.05	1.63	0.86^{6}	0.26^{3}	0^{2}	1.94	1.43^{7}	0.95^{6}	0.13^{3}	0^{2}	0^{2}
362S162-54	25	2.55	2.14	1.72	0.96^{6}	0.36^{3}	0^{2}	2.2	1.74	1.28^{6}	0.48^{3}	0^{2}	0^{2}	1.56	1^{6}	0.49^{6}	0^{2}	0^{2}	0^{1}
362S162-54	30	2.34	1.89	1.45^{7}	0.66^{6}	0.07^{2}	0^{2}	1.94	1.43^{7}	0.95^{6}	0.13^{3}	0^{2}	0^{2}	1.19^{7}	0.6^{6}	0.06^{3}	0^{2}	0^{1}	0^{1}
362S162-54	35	2.14	1.66	1.19^{6}	0.39^{3}	0^{2}	0^{2}	1.68	1.14^{6}	0.64^{6}	0^{3}	0^{2}	0^{1}	0.84^{6}	0.21^{6}	0^{3}	0^{2}	0^{1}	0^{1}
362S162-54	40	1.94	1.43^{7}	0.95^{6}	0.13^{3}	0^{2}	0^{2}	1.43^{7}	0.86^{6}	0.34^{6}	0^{2}	0^{2}	0^{1}	0.51^{6}	0^{3}	0^{3}	0^{2}	0^{1}	0^{1}
362S162-54	50	1.56	1^{6}	0.49^{6}	0^{2}	0^{2}	0^{1}	0.96^{6}	0.34^{6}	0^{3}	0^{2}	0^{1}	0^{1}	0^{6}	0^{3}	0^{2}	0^{1}	0^{1}	0^{1}

50 KSI

(S) Stud Member	psf	Axial Load																	
		12" Wall Height						16" Wall Height						24" Wall Height					
		8'	9'	10'	12'	14'	16'	8'	9'	10'	12'	14'	16'	8'	9'	10'	12'	14'	16'
362S162-54	5	4.06	3.77	3.45	2.74	2.11	1.61	3.99	3.69	3.35	2.61	1.97	1.47^{7}	3.86	3.52	3.15	2.37	1.72^{7}	1.23^{6}
362S162-54	15	3.66	3.28	2.88	2.06	1.4^{6}	0.92^{3}	3.47	3.05	2.62	1.77^{6}	1.12^{3}	0.65^{2}	3.11	2.62	2.14^{7}	1.27^{6}	0.62^{2}	0.18^{2}
362S162-54	20	3.47	3.05	2.62	1.77^{6}	1.12^{3}	0.65^{2}	3.23	2.76	2.29	1.42^{6}	0.78^{3}	0.33^{2}	2.76	2.23^{7}	1.71^{6}	0.82^{3}	0.2^{2}	0^{2}
362S162-54	25	3.29	2.83	2.37	1.51^{6}	0.86^{3}	0.41^{2}	2.99	2.49	1.99^{6}	1.11^{3}	0.47^{2}	0.05^{2}	2.43	1.86^{6}	1.31^{6}	0.42^{2}	0^{2}	0^{1}
362S162-54	30	3.11	2.62	2.14^{7}	1.27^{6}	0.62^{2}	0.18^{2}	2.76	2.23^{7}	1.71^{6}	0.82^{3}	0.2^{2}	0^{2}	2.12^{7}	1.5^{6}	0.94^{3}	0.05^{2}	0^{1}	0^{1}
362S162-54	35	2.93	2.42	1.92^{6}	1.04^{3}	0.4^{2}	0^{2}	2.54	1.98^{6}	1.44^{6}	0.55^{3}	0^{2}	0^{1}	1.82^{6}	1.17^{6}	0.59^{3}	0^{2}	0^{1}	0^{1}
362S162-54	40	2.76	2.23^{7}	1.71^{6}	0.82^{3}	0.2^{2}	0^{2}	2.33^{7}	1.74^{6}	1.19^{6}	0.29^{2}	0^{2}	0^{1}	1.52^{6}	0.85^{3}	0.26^{3}	0^{2}	0^{1}	0^{1}
362S162-54	50	2.43	1.86^{6}	1.31^{6}	0.42^{2}	0^{2}	0^{1}	1.92^{6}	1.28^{6}	0.71^{3}	0^{2}	0^{1}	0^{1}	0.97^{6}	0.26^{3}	0^{2}	0^{1}	0^{1}	0^{1}

Table Notes

1. Allowable axial loads listed in kips (1 kip = 1000 lb).
2. Allowable axial loads determined in accordance with section C5 of the 2001 NASPEC, with section D4 used for treatment of punchouts.
3. Listed lateral pressures and axial loads have not been modified for strength checks based on wind/earthquake or multiple transient loads.
4. Allowable axial loads based on bracing KyLy = KtLt = 48 inches.
5. Superscripts represent exceeded deflection: 1 = L/120 exceeded; 2 = L/240 exceeded; 3 = L/360 exceeded; 6 = L/600 exceeded; 7 = L/720 exceeded.
6. Lateral pressures have been multiplied by 0.7 for deflection checks per 2000 IBC Table 1604.3
7. Studs are assumed to be adequately braced to develop full allowable moment, Ma.
8. Check end reactions for web crippling.

[1] Deflection L/120 Exceeded
[2] Deflection L/240 Exceeded
[3] Deflection L/360 Exceeded
[6] Deflection L/600 Exceeded
[7] Deflection L/720 Exceeded

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Product Specification

Project Information:

Information not entered.

Contractor Information:

Information not entered.

Product Specification

Track - 6" track, 16 GA, 1-1/4" leg

Product Code: 600T125-54
Web Height (inches): 6"
Web Height (mm): 152.4
Leg Height (inches): 1-1/4"
Leg Height (mm): 31.8

Gauge: 16
Mils: 54
Design Thickness: 0.0566
Yield Strength: 33 KSI/50 KSI

Weight (lbs/ft): 1.63
Weight (kg/ft): 0.7400
Product Complies With:
ASTM C955
ASTM C1007

Gross Section Properties

Area: 0.48 in.^{2}
Moment of inertia about x-x axis (Ix): 2.344 in.^{4}
Radius of gyration about x-x axis (Rx): 2.209 in.
Moment of inertia about y-y axis (Iy): 0.054 in.^{4}
Radius of gyration about y-y axis (Rx): 0.335 in.

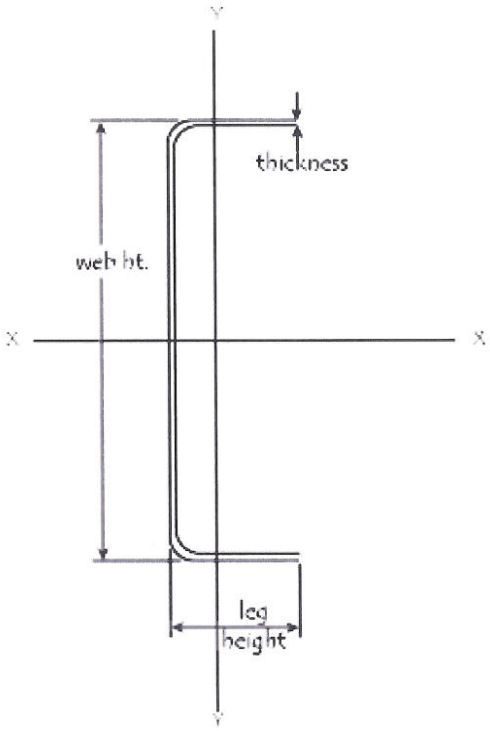
Effective Section Properties

Yield Strength: 33 KSI
Allowable Bending Moment (Ma): 13.15 in.-k.
Moment of Inertia about x-x axis (Ix): 2.299 in.^{4}
Effective Section Modulus about x-x axis (Sx): 0.666 in.^{3}

Yield Strength: 50 KSI
Allowable Bending Moment (Ma): 17.73 in.-k.
Moment of Inertia about x-x axis (Ix): 2.241 in.^{4}
Effective Section Modulus about x-x axis (Sx): 0.592 in.^{3}

Torsional Section Properties

Distance between shear center and centroid (Xo): -0.516 in.
St. Venant torsional constant (J^{x1000}): 0.513 in.^{4}
Warping torsional constant (Cw): 0.383 in.^{6}
Polar radius of gyration about principal axis (Ro): 2.293 in.
Beta Equals 1-(Xo/Ro)^2: 0.949



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TELLING INDUSTRIES

Product Specification

Project Information:

Information not entered.

Contractor Information:

Information not entered.

Product Specification

Track - 3-5/8" track, 20 GA, 1-1/4" leg

Product Code: 362T125-30
Web Height (inches): 3-5/8"
Web Height (mm): 92.1
Leg Height (inches): 1-1/4"
Leg Height (mm): 31.8

Gauge: 20
Mils: 30
Design Thickness: 0.0312
Yield Strength: 33 KSI

Weight (lbs/ft): 0.65
Weight (kg/ft): 0.2951
Product Complies With:
ASTM C955
ASTM C1007

Gross Section Properties

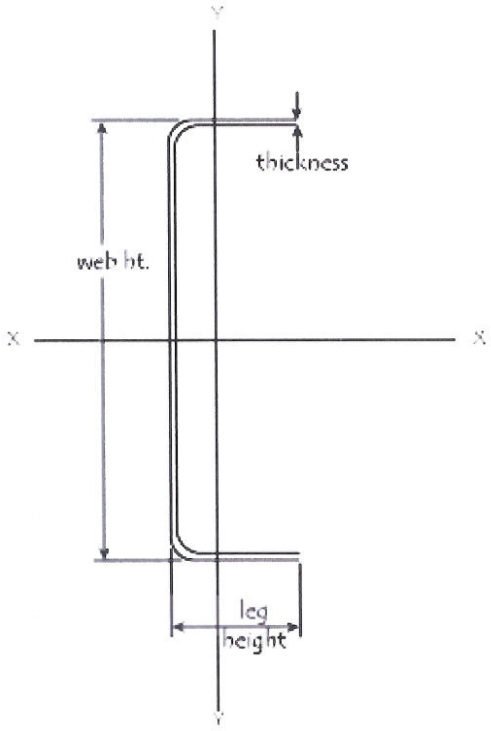
Area: 0.191 in.^{2}
Moment of inertia about x-x axis (Ix): 0.395 in.^{4}
Radius of gyration about x-x axis (Rx): 1.438 in.
Moment of inertia about y-y axis (Iy): 0.027 in.^{4}
Radius of gyration about y-y axis (Rx): 0.378 in.

Effective Section Properties

Yield Strength: 33 KSI
Allowable Bending Moment (Ma): 3.01 in.-k.
Moment of Inertia about x-x axis (Ix): 0.339 in.^{4}
Effective Section Modulus about x-x axis (Sx): 0.152 in.^{3}

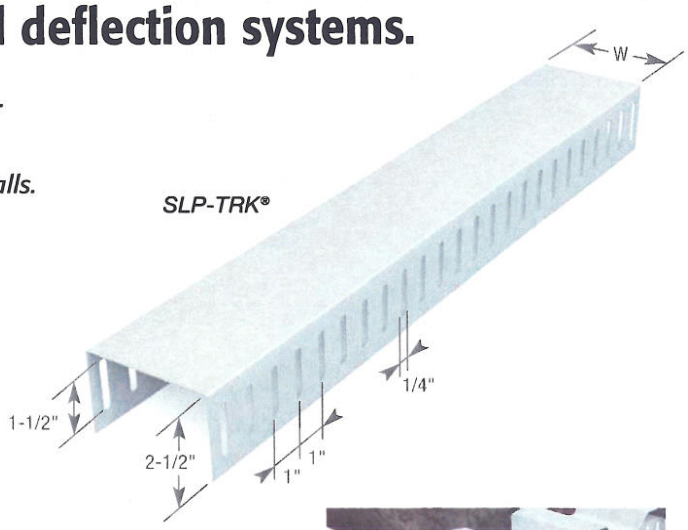
Torsional Section Properties

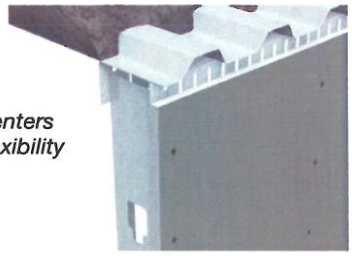
Distance between shear center and centroid (Xo): -0.669 in.
St. Venant torsional constant (J^{x1000}): 0.062 in.^{4}
Warping torsional constant (Cw): 0.068 in.^{6}
Polar radius of gyration about principal axis (Ro): 1.63 in.
Beta Equals 1-(Xo/Ro)^2: 0.832



The SLP-TRK® Slotted Track is one of the most cost-effective, positively attached fire-rated deflection systems.

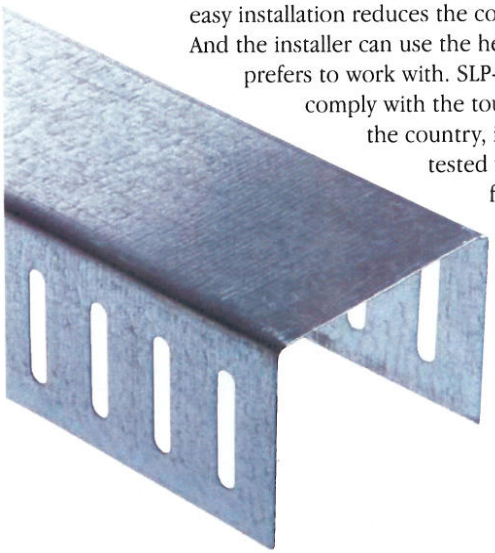
- *Allows up to 1" (25.4mm) of vertical deflection.*
- *Absorbs building movement.*
- *Protects the integrity of interior and exteroir walls.*
- *Provides easy code compliance.*
- *Offers simple installation.*
- *Reduces labor time and saves material costs.*
- *Allows easier building inspection approvals.*
- *Offers over 200 UL and IBCO approval designs.*
- *Eliminates friction held assemblies.*
- *Eliminates temporary fastening that may not get removed.*
- *Custom leg and slot sizes up to 4" (101.6mm) for larger deflection requirements.*





Vertical slots on 1" centers allow for complete flexibility of stud installation.

It's a real challenge these days meeting head-of-wall codes for fire stop and life safety issues while maintaining the ability to absorb vertical movement in low-, mid- and high-rise buildings. SLP-TRK* slotted track is the solution. SLP-TRK® slotted track provides a positive attachment for overall strength and allows for vertical movement caused by normal head-of-wall and floor extension or compression. SLP-TRK® slotted track smoothly integrates with a variety of wall installation systems and is extremely user-friendly as well as economical. The simple design and easy installation reduces the cost of materials and labor. And the installer can use the head-of wall systems he prefers to work with. SLP-TRK® slotted track systems comply with the toughest code requirements in the country, if not the world. It has been tested with a variety of leading fire-stop products and has outperformed the requirements of stringent fire and hose stream testing of ASTM E 119 and ASTM E 814. SLP-TRK® Slotted Track has also met and exceeded the latest seismic cycling standards found in UL 2079 and ASTM E 1966.



U.S. Patent No. 5, 127, 760
** SLP-TRK is a registered trademark of SlipTrack Systems, Inc.;*
*** Tapcon is a registered trademark of Illinois Tool Works Inc.;*
**** UL and UL Classified are trademarks of Underwriters Laboratories, Inc.*

Alternative Products

Spazzer® 9200, Spazzer® 5400, Fast Top™ Clip

Product Dimensions

2-1/2" x W x 2-1/2" (63.5mm x W x 63.5mm)
W available in 2-1/2", 3-5/8", 4", 6" and 8" widths (63.5mm, 92.1mm, 102mm, 152mm and 203mm)

Material Specifications

Gauge: 25 gauge (18 mils)
Design Thickness: 0.0188 inches (0.478mm)
Gauge: 20 gauge (33 mils)
Design Thickness: 0.0346 inches (0.879mm)
Coating: G40 (Z120) hot-dipped galvanized coating
Yield Strength: 33 ksi (230 MPa)
ASTM: A 653/A 653M, C 645, C 754, E 1966

Gauge: 18 gauge, (43 mils)
Design Thickness: 0.0451 inches (1.146mm)
Gauge: 16 gauge (54 mils)
Design Thickness: 0.0566 inches (1.438mm)
Gauge: 14 gauge (68 mils)
Design Thickness: 0.0713 inches (1.811mm)
Coating: G60 (Z180) hot-dipped galvanized coating
Yield Strength: Mill-certified SS Grade 50 ksi (340 MPa),
ASTM: A 653/ A 653M, C 955, C 1007, E 1966

Code Approvals

The SLP-TRK® slotted track has achieved or meets the following building code approvals and requirements:

- ICBO – ER 5344
- UL Classified R19236
- UL Certified for Canada XHL17
- LA City RR25344
- OSHPD R#0371
- NY City MEA 285-01-M
- National Build Code of Canada.

Installation

Install slotted track at the head of wall. Secure studs to slotted top track with #8 wafer-head screws. Be sure to secure the studs to the track by screwing through the track slots for a positive connection. Maintain a minimum deflection gap of 5/8" (16.5mm) between top of stud and top of slotted track. For fire-rated construction joints, using the approved system, install the drywall and other fire-rated materials to the wall and complete the assembly.

NOTE: No mixing of approved brand name components in the assembly is allowed.

SLP-TRK® Slotted Track (BDTK)

DMF Product Code	Thickness				Size***		Weight		Packaging	
	Gauge	Mils	Design Thickness Inches	Design Thickness mm	Inches	mm	lbs/ft	kg/m	Pcs/ Bundle	Pcs/ Skid
BDTK	25	18	0.0188	0.478	2-1/2	63.5	0.484	0.718	N/A	112
					3-5/8	92.1	0.556	0.826		100
					4	101.6	0.580	0.859		90
					6	152.4	0.708	1.050		60
					8	203.2	0.836	1.240		50
BDTK	20	33	0.0346	0.879	2-1/2	63.5	0.882	1.309		112
					3-5/8	92.1	1.015	1.505		100
					4	101.6	1.059	1.571		90
					6	152.4	1.294	1.922		60
					8	203.2	1.529	2.270		50
BDTK	18	43	0.0451	1.146	2-1/2	63.5	1.150	1.706		112
					3-5/8	92.1	1.323	1.965		100
					4	101.6	1.380	2.047		90
					6	152.4	1.687	2.503		60
					8	203.2	1.993	2.959		50
BDTK	16	54	0.0566	1.438	2-1/2	63.5	1.443	2.142		112
					3-5/8	92.1	1.660	2.463		100
					4	101.6	1.732	2.571		90
					6	152.4	2.117	3.142		60
					8	203.2	2.502	3.713		50
BDTK	14	68	0.0713	1.811	2-1/2	63.5	1.818	2.699		112
					3-5/8	92.1	2.091	3.103		100
					4	101.6	2.182	3.237		90
					6	152.4	2.667	3.959		60
					8	203.2	3.152	4.677		50

* SLP-TRK is a registered trademark of SlipTrack Systems, Inc.
*** Custom sizes available upon request.

** UL and UL Classified are trademarks of Underwriters Laboratories, Inc.
Δ This product is not delivered via the Dietrich Clip Express Service

SLP-TRK® Slotted Track Allowable Loads

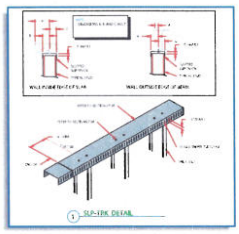
20 Gauge SLP-TRK* P = 166 lbs	16 Gauge SLP-TRK* P = 314 lbs
18 Gauge SLP-TRK* P = 196 lbs	14 Gauge SLP-TRK* P = 314+ lbs

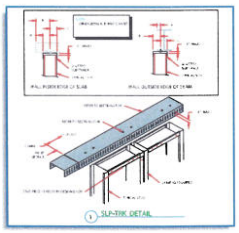
...aximum horizontal force allowed at the top of the stud for all cases.
...lease note that the seismic load for the weight of the wall itself and equipment attached to the wall is not required to be additive with 5 psf interior partition wall lateral load (they are separate load cases).

Table Notes

1) Fire-rated assemblies shall comply to UL 2079 Test Standard
2) Load data based on Twining Laboratories Load Test #95-9080 / 9/11/1995
3) Sliptrack Systems Slotted Track – SLP-TRK® Patent 5,127,760
4) Track is 14, 16, 18 & 20 Gauge
5) Fy = 50 ksi for 14 and 16 gauge members; Fy = 33 ksi for 18 and 20 gauge members
6) SLP-TRK® Single Track Systems: A second top track is not required
7) The connection of the track to the structure is a minimum standard. The engineer of record for a site-specific project is responsible for the design of the connection to the structure.
8) Minimum 5/8" (16.5mm) space requirement for deflection
9) Partition studs at 12", 16", or 24" o/c typically. Studs attached to tracks with #8 x 9/16" wafer head screws
10) For larger details or CAD downloads visit www.dietrichmetalframing.com
11) One- and two-hour fire rated designs are tested perpendicular to the fluted deck per UL-2079 test standard. For various fire-rated installation conditions, reference www.bradyinnovations.com and obtain site-specific approval from the Project Architect and Building Official having jurisdiction. Submit data and installation details via the project submittal process prior to field installations.

Typical Construction Details





Over 60 SLP-TRK CAD Details Available on
dietrichmetalframing.com
view or download construction details in .dwg, .dxf, and .pdf formats.

DIETRICH CLIP EXPRESS℠ *Available for Overnight Delivery, call 866-638-1908*

DIETRICH METAL FRAMING
A Worthington Industries Company

Sliptrack™ System

Sliptrack has been designed to be used with multiple fire-proof materials. Below is a sequence of photographs illustrating a typical installation using chemical fire-resistive sealants (courtesy of Specified Technologies Inc.)

Mineral wool is placed in the fluted metal deck after the drywall is installed

The deflection gag is filled with mineral wool.

The head-of-wall construction joint is sprayed with fire resistive sealant.

SLP-TRK® Systems — Fire-Rated Assemblies

System 1–6 Warnok Hersey/ITS ICBO ESER-5344

System 1 – W.R. Grace
WHI-495-PSV-1201
System 2 – W.R. Grace
WHI-495-PSV-1333

System 7
STI
UL-HW-D-0003
UL-HW-D-0034
UL-HW-D-0043
UL-HW-D-0044
UL-HW-D-0054
UL-HW-D-0079
UL-HW-D-0088
UL-HW-D-0099
UL-HW-D-0102
UL-HW-D-0136
UL-HW-D-0137
UL-HW-D-0152
UL-HW-D-0153
UL-HW-D-0194
UL-HW-D-0210
UL-HW-D-0241
UL-HW-D-0242
UL-HW-D-0243
UL-HW-D-0260
UL-HW-D-0363
UL-HW-D-0365
UL-HW-D-0371

System 8
PFPP
UL-HW-D-0024
UL-HW-D-0025
UL-HW-D-0036
UL-HW-D-0062
UL-HW-D-0063
UL-HW-D-0071
UL-HW-D-0072
UL-HW-D-0073
UL-HW-D-0162
UL-HW-D-0185
UL-HW-D-0191
UL-HW-D-0271
UL-HW-D-0272
UL-HW-D-0263
UL-HW-D-0278

System 9
3M
UL-HW-D-0020
UL-HW-D-0021
UL-HW-D-0029
UL-HW-D-0031
UL-HW-D-0101
UL-HW-D-0111
UL-HW-D-0134
UL-HW-D-0170
UL-HW-D-0173
UL-HW-D-0205
UL-HW-D-0265

System 10
HILTI
UL-HW-D-0042
UL-HW-D-0045
UL-HW-D-0046
UL-HW-D-0049
UL-HW-D-0076
UL-HW-D-0077
UL-HW-D-0082
UL-HW-D-0083
UL-HW-D-0084
UL-HW-D-0085
UL-HW-D-0087
UL-HW-D-0089
UL-HW-D-0106
UL-HW-D-0154
UL-HW-D-0184
UL-HW-D-0190
UL-HW-D-0218
UL-HW-D-0259
UL-HW-D-0313
UL-HW-D-0321
UL-HW-D-0322
UL-HW-D-0324

System 3 – Isolatek
WHI-495-PSV-1333
System 4 – Isolatek
WHI-495-PSV-1334

System 11
Johns-Manville
UL-HW-D-0047
UL-HW-D-0048
UL-HW-D-0067
UL-HW-D-0068
UL-HW-D-0069
UL-HW-D-0167
UL-HW-D-0186
UL-HW-D-0193
UL-HW-D-0195
UL-HW-D-0275
UL-HW-D-0277

System 12
Rectorseal
UL-HW-D-0032
UL-HW-D-0033
UL-HW-D-0058
UL-HW-D-0059
UL-HW-D-0104
UL-HW-D-0105
UL-HW-D-0127
UL-HW-D-0128
UL-HW-D-0129
UL-HW-D-0130
UL-HW-D-0179
UL-HW-D-0180
UL-HW-D-0221
UL-HW-D-0222
UL-HW-D-0297
UL-HW-D-0298

System 5 – Isolatek
WHI-495-PSV-1333
System 6 – W.R. Grace
WHI-495-PSV-1338

System 13
GRACE-Flamesafe
UL-HW-D-0107
UL-HW-D-0108
UL-HW-D-0124
UL-HW-D-0144
UL-HW-D-0146
UL-HW-D-0147
UL-HW-D-0148
UL-HW-D-0165
UL-HW-D-0213
UL-HW-D-0217
UL-HW-D-0219
UL-HW-D-0257
UL-HW-D-0299

System 14
EGS Nelson
UL-HW-D-0223
UL-HW-D-0224
UL-HW-D-0227
UL-HW-D-0228
UL-HW-D-0238
UL-HW-D-0239
UL-HW-D-0283
UL-HW-D-0288
UL-HW-D-0304
UL-HW-D-0305
UL-HW-D-0309
UL-HW-D-0310

System 15
Tremco
UL-HW-D-0016
UL-HW-D-0091
UL-HW-D-0255
UL-HW-D-0256
UL-HW-D-0291

System 16
JohnWagner Assoc.
UL-HW-D-0353
UL-HW-D-0356
UL-HW-D-0357
UL-HW-D-0358
UL-HW-D-0368
UL-HW-D-0370

System 17
A/D Fire Protection Systems
UL-HW-D-0247
UL-HW-D-0249
UL-HW-D-0314
UL-HW-D-0315
UL-HW-D-0316
UL-HW-D-0317
UL-HW-D-0320

System 18
OSI Sealants Inc.
UL-HW-D-0183
UL-HW-D-0341

System 19
USG
UL-HW-D-0160

= Shaftwall System

EASY-SET *Pin Drive Expansion Anchor*

SIMPSON Strong-Tie ANCHOR SYSTEMS

The Easy-Set is a pin drive expansion anchor for medium and heavy duty fastening applications into concrete and grout-filled block. Integrated nut and washer helps keep track of parts.

MATERIAL: Anchor body – Hot-rolled steel; Pin – Hot-wrought carbon steel

FINISH: Yellow zinc dichromate coating

INSTALLATION:

Note: Hole in fixture to be mounted must be at least 1/16" greater than the anchor diameter.

Caution: Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity.

- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth plus 1/4" to allow for pin extension and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling.
- Adjust the nut for required embedment. Place the anchor through the fixture and into the hole.
- Hammer the center pin until the bottom of the head is flush with top of anchor.

Easy-Set (EZAC)

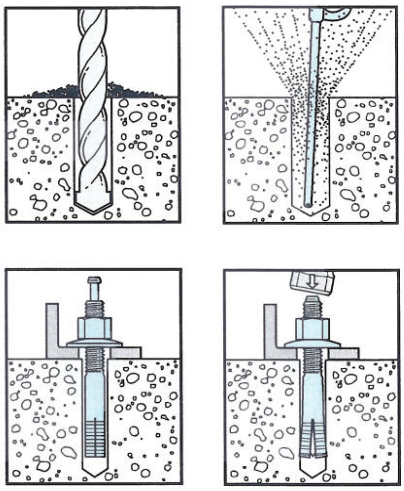
EZAC Product Data

Size (in.)	Model No.	Min. Thread Length (in.)	Box Qty.	Carton Qty.
1/4 x 1 3/4	EZAC25134	5/8	100	500
1/4 x 2 3/8	EZAC25238	3/4	100	500
5/16 x 2 3/4	EZAC31234	1	50	250
3/8 x 2 3/8	EZAC37238	1	50	250
3/8 x 3 1/2	EZAC37312	1 1/8	50	250
3/8 x 4 3/4	EZAC37434	1 1/8	50	200
1/2 x 2 3/4	EZAC50234	1	25	125
1/2 x 3 1/2	EZAC50312	1 1/8	25	125
1/2 x 4 3/4	EZAC50434	2	25	100
1/2 x 6	EZAC50600	2	25	100
5/8 x 4	EZAC62400	1 5/8	15	60
5/8 x 4 3/4	EZAC62434	1 5/8	15	60
5/8 x 6	EZAC62600	2	15	60
3/4 x 5	EZAC75500	2	10	40
3/4 x 6	EZAC75600	2	10	40
3/4 x 7 1/2	EZAC75712	2	10	20

Int.

Ext.

Installation Sequence



EZAC Tension and Shear Load Values in Normal-Weight Concrete

Size in.	Embed. Depth in. (mm)	Drill Bit Dia. in.	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load f'c ≥ 2000 psi (13.8 MPa) Concrete Allowable lbs. (kN)	Shear Load f'c ≥ 2000 psi (13.8 MPa) Concrete Allowable lbs. (kN)
1/4	1 1/8 (29)	1/4	1 3/4 (44)	3 1/2 (89)	190 (0.8)	250 (1.1)
5/16	1 1/2 (38)	5/16	2 1/4 (57)	4 1/2 (114)	530 (2.4)	330 (1.5)
3/8	1 3/4 (44)	3/8	2 3/4 (70)	5 1/4 (133)	630 (2.8)	645 (2.9)
1/2	2 1/2 (64)	1/2	3 3/8 (86)	6 3/4 (171)	1,005 (4.5)	1,230 (5.5)
5/8	3 (76)	5/8	4 1/4 (108)	9 (229)	1,515 (6.7)	1,325 (5.9)
3/4	3 3/4 (95)	3/4	5 1/4 (133)	10 1/2 (267)	1,615 (7.2)	1,750 (7.8)

Int.

Ext.

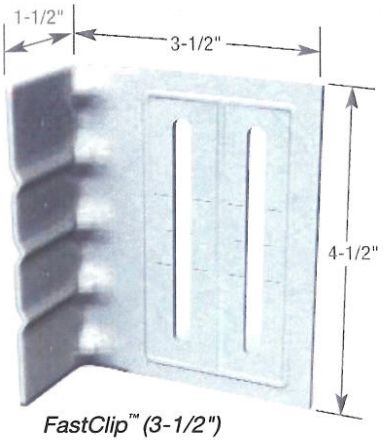
*See page 10 for an explanation of the load table icons

1. The allowable loads listed are based on a safety factor of 4.0.
2. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
3. [illegible] of the allowable load is permitted at critical spacing and critical edge distance. Allowable loads at lesser spacings and edge distances have not been determined.
4. The minimum concrete thickness is 1 1/2 times the embedment depth.
5. Tension and Shear loads for the EZAC Anchor may be combined using the straight-line interaction equation (n = 1).

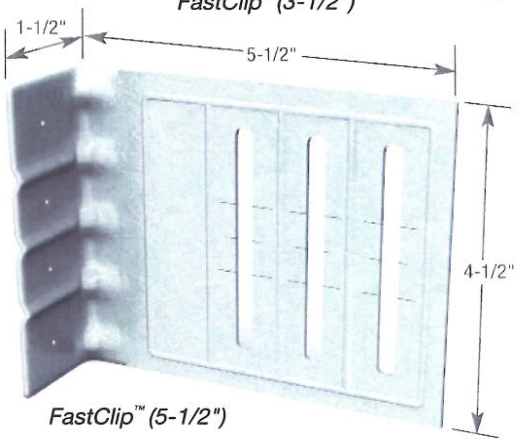
FastClip™ Slide Clips provide for vertical building movement up to 3" (76.2mm).

- *Vertical movement up to 3" (1-1/2" up and 1-1/2" down).*
- *Rapid, one-piece installation.*
- *3-1/2" FastClip™ permits up to 1" of standoff from the primary frame.*
- *5-1/2" FastClip™ permits up to 2" of standoff from the primary frame.*
- *FastClip™ Deflection Screws (included) provide frictionless slip connection.*
- *Stiffened corners result in superior design values.*
- *Embossed fastening patterns to ensure accurate placement of fasteners.*
- *Eliminates shims and scabs.*

FastClip™ Deflection Screw



FastClip™ (3-1/2")



FastClip™ (5-1/2")

Dietrich FastClip™ Slide Clip™ deflection clips are used to attach exterior curtain wall studs to the building structure and provide for vertical building movement independent of the cold-formed steel framing. A Dietrich™ FastClip™ deflection clip installs quickly with screws or powder-actuated fasteners, and provides adjustable standoff to ensure a plumb wall plane. FastClip™ Deflection Screws are provided with each clip to ensure friction-free sliding. Each clip is also embossed with fastening patterns to ensure accurate placement of fasteners.

Alternative Products

Fast Strut™, QuickClip™, Slide Clip

Product Dimensions

The 3-1/2" (88.9mm) Fast Clip™ is 1-1/2" x 3-1/2" x 4-1/2" (38.1mm x 88.9mm x 114.5mm) long.
The 5-1/2" (139.7mm) Fast Clip™ is 1-1/2" x 5-1/2" x 4-1/2" (38.1mm x 139.7mm x 114.5mm) long.

U.S. Patent No. 6, 688, 069

Material Specifications

Gauge: 14 gauge (68 mils)
Design Thickness: 0.0713 inches (1.811mm)
Coating: G90 (Z275) hot-dipped galvanized coating
Yield Strength: Mill-certified SS Grade 50 ksi (340 MPa)
ASTM: A 653/A 653M

Installation

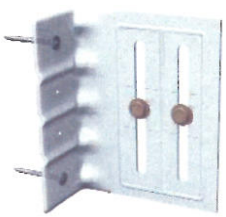
Connections to the building can be made with screws, powder-actuated fasteners or drill-in concrete anchors. Mechanical fasteners shall be located on the embossed marks given on the scored line of the 1.5" flange. Two or three FastClip™ Deflection Screws (based upon clip size) are used to attach the clip to the cold-formed steel framing. Screws shall be driven through the slotted holes and positioned to allow for the appropriate building deflection.

FastClip™ (FCSC) Deflection Clips

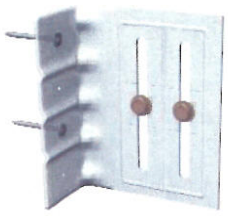
DMF Product Code	Thickness				Size		Weight/Piece		Packaging*
	Gauge	Mils	Design Thickness		Inches	mm	lbs	kg	Pcs/ Box
			Inches	mm					
FCSC	14	68	0.0713	1.811	1-1/2 x 3-1/2 x 4-1/2	38.1 x 88.9 x 114.5	0.550	0.249	25
FCSC	14	68	0.0713	1.811	1-1/2 x 5-1/2 x 4-1/2	38.1 x 139.7 x 114.5	0.636	0.287	25

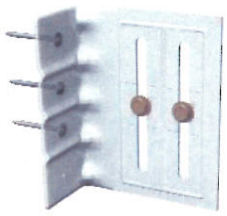
3-1/2" FCSC Includes 55 FastClip™ deflection screws per box.

5-1/2" FCSC Includes 80 FastClip™ deflection screws per box.

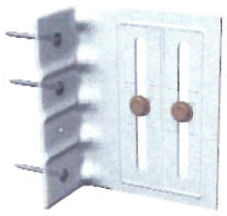


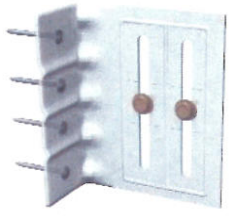
Location Options with (2) Anchors



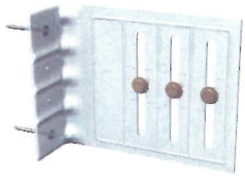


Location Options with (3) Anchors

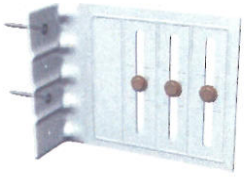


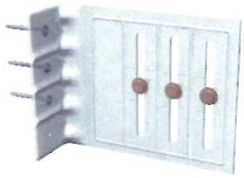


(4) Anchors

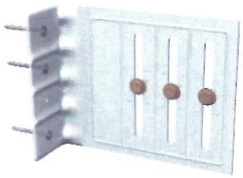


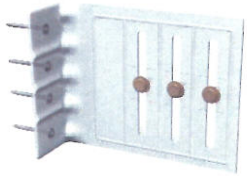
Location Options with (2) Anchors





Location Options with (3) Anchors





(4) Anchors

3-1/2" (88.9mm) FastClip™ Allowable Loads (lbs)

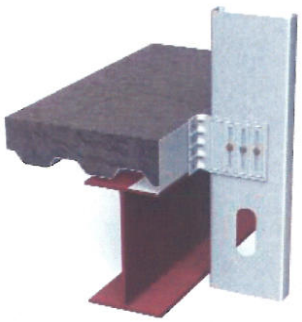
Anchor Type	Stud Thickness and Yield Strength	No. Anchors to Structure	Allowable Load (lb)
Buildex #12-24 Tek 5 Self-Drilling Screws to 3/16" Steel	20 ga. (33 mil) 33 ksi	2	587
		3	587
		4	587
	18 ga. (43 mil) 33 ksi	2	852
		3	852
		4	852
	16 ga. (54 mil) 50 ksi	2	852
		3	852
		4	852
	14 ga. (68 mil) 50 ksi	2	852
		3	852
		4	852
	12 ga. (97 mil) 50 ksi	2	852
		3	852
		4	852
Hilti 0.145" X-EDNI Powder-Actuated Fasteners to 3/16" Steel	20 ga. (33 mil) 33 ksi	2	511
		3	587
		4	587
	18 ga. (43 mil) 33 ksi	2	511
		3	767
		4	852
	16 ga. (54 mil) 50 ksi	2	852
		3	852
		4	852
	14 ga. (68 mil) 50 ksi	2	852
		3	852
		4	852
	12 ga. (97 mil) 50 ksi	2	852
		3	852
		4	852

5-1/2" (139.7 mm) FastClip™ Allowable Loads (lbs)

Anchor Type	Stud Thickness and Yield Strength	No. Anchors to Structure	Allowable Load (lb)
Buildex #12-24 Tek 5 Self-Drilling Screws to 3/16" Steel	20 ga. (33 mil) 33 ksi	2	689
		3	689
		4	689
	18 ga. (43 mil) 33 ksi	2	852
		3	852
		4	852
	16 ga. (54 mil) 50 ksi	2	852
		3	852
		4	852
	14 ga. (68 mil) 50 ksi	2	852
		3	852
		4	852
	12 ga. (97 mil) 50 ksi	2	852
		3	852
		4	852
Hilti 0.145" X-EDNI Powder-Actuated Fasteners to 3/16" Steel	20 ga. (33 mil) 33 ksi	2	510
		3	689
		4	689
	18 ga. (43 mil) 33 ksi	2	510
		3	765
		4	852
	16 ga. (54 mil) 50 ksi	2	852
		3	852
		4	852
	14 ga. (68 mil) 50 ksi	2	852
		3	852
		4	852
	12 ga. (97 mil) 50 ksi	2	852
		3	852
		4	852

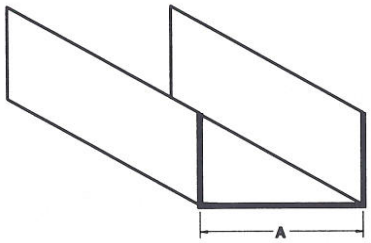
Table Notes

1) The 1/3 stress increase for wind shall not be used.
2) Attach building anchors to the structure according to the manufacture's instructions. Anchors shall be installed through the embossments on the scored line of the clip as shown on the attached drawings. In no case shall anchors be installed more than 3/4" from the bend on the short leg of the clip. In cases of discrepancy between this information and the Design Engineer's details, the Design Engineer's details shall be followed.
3) It is the responsibility of the design professional to detail the project drawings for proper clip installation.
4) For connections to concrete, or other technical assistance, contact Dietrich Design Group at 1-800-873-2443.
5) Buildex is a trademark of Illinois Tool Works Inc.
6) Hilti is a registered trademark of Hilti Aktiengeseilschaft Corporation.



CHANNEL PROPERTIES

(CRC) Cold-Rolled Channel



Notes:

1. Fy = 33 ksi for all sections
2. Multiple span indicates two or more equal spans with channel continuous over interior supports
3. Bearing Lengths = 1.0
4. Table values based on the compression flange laterally unbraced
5. Multiple spans are two or more equal spans with member continuous over interior supports
6. Based on minimum 1 bearing length interior and ends

PHYSICAL/STRUCTURAL PROPERTIES FOR COLD ROLED (U) CHANNEL (CRC)

Section	Design Thickness (in)	Gross Area (in2)	Gross Weight (lb/ft)	Gross Ix (in4)	Gross Rx (in)	Gross Iy (in4)	Gross Ry (in)	Effective Properties 33 ksi Ix (in4)	Sx (in3)	Ma (in-k)	Va (lb)
75U050-54	0.056	0.087	0.30	0.007	0.288	0.002	0.155	0.007	0.019	0.45	315
150U050-54	0.056	0.129	0.44	0.039	0.547	0.003	0.144	0.039	0.052	1.22	840
200U050-54	0.056	0.157	0.54	0.079	0.709	0.003	0.136	0.079	0.079	1.87	1190
250U050-54	0.056	0.186	0.63	0.139	0.866	0.003	0.128	0.139	0.111	2.64	1540

ALLOWABLE U-CHANNEL CEILING SPANS - L/240

Section		4 psf Channel Spacing (in) o.c. 24	36	48	60	72	6 psf Channel Spacing (in) o.c. 24	36	48	60	72	13 psf Channel Spacing (in) o.c. 24	36	48	60	72	15 psf Channel Spacing (in) o.c. 24	36	48	60	72
75U050-54	Single	3' 11"	3' 5"	3' 1"	2' 10"	2' 8"	3' 5"	3' 0"	2' 8"	2' 6"	2' 4"	2' 7"	2' 4"	2' 1"	1' 11"	1' 9"	2' 6"	2' 2"	2' 0"	1' 10"	1' 8"
	Multiple	4' 10"	4' 2"	3' 10"	3' 7"	3' 4"	4' 2"	3' 8"	3' 4"	3' 1"	2' 10"	3' 3"	2' 9"	2' 4"	2' 1"	1' 11"	3' 1"	2' 7"	2' 2"	2' 0"	1' 9"
150U050-54	Single	5' 6"	4' 10"	4' 5"	4' 1"	3' 10"	4' 10"	4' 3"	3' 10"	3' 7"	3' 5"	3' 9"	3' 3"	3' 0"	2' 9"	2' 7"	3' 7"	3' 2"	2' 10"	2' 7"	2' 5"
	Multiple	7' 1"	6' 2"	5' 8"	5' 3"	4' 11"	6' 2"	5' 5"	4' 11"	4' 7"	4' 4"	4' 10"	4' 2"	3' 9"	3' 4"	3' 0"	4' 7"	4' 0"	3' 6"	3' 1"	2' 9"
200U050-54	Single	5' 10"	5' 1"	4' 8"	4' 4"	4' 1"	5' 1"	4' 6"	4' 1"	3' 10"	3' 7"	4' 0"	3' 6"	3' 2"	3' 0"	2' 10"	3' 10"	3' 4"	3' 1"	2' 10"	2' 8"
	Multiple	7' 5"	6' 6"	5' 11"	5' 6"	5' 2"	6' 6"	5' 8"	5' 2"	4' 10"	4' 7"	5' 1"	4' 5"	4' 0"	3' 9"	3' 6"	4' 10"	4' 3"	3' 10"	3' 7"	3' 2"
250U050-54	Single	6' 1"	5' 4"	4' 10"	4' 6"	4' 3"	5' 4"	4' 8"	4' 3"	4' 0"	3' 9"	4' 2"	3' 8"	3' 4"	3' 1"	2' 11"	4' 0"	3' 6"	3' 2"	3' 0"	2' 10"
	Multiple	7' 9"	6' 9"	6' 2"	5' 9"	5' 5"	6' 9"	5' 11"	5' 5"	5' 0"	4' 9"	5' 3"	4' 7"	4' 3"	3' 11"	3' 9"	5' 0"	4' 5"	4' 0"	3' 9"	3' 7"

ALLOWABLE U-CHANNEL CEILING SPANS - L/360

Section		4 psf Channel Spacing (in) o.c. 24	36	48	60	72	6 psf Channel Spacing (in) o.c. 24	36	48	60	72	13 psf Channel Spacing (in) o.c. 24	36	48	60	72	15 psf Channel Spacing (in) o.c. 24	36	48	60	72
75U050-54	Single	3' 5"	3' 0"	2' 8"	2' 6"	2' 4"	3' 0"	2' 7"	2' 4"	2' 2"	2' 1"	2' 4"	2' 0"	1' 10"	1' 8"	1' 7"	2' 2"	1' 11"	1' 9"	1' 7"	1' 6"
	Multiple	4' 2"	3' 8"	3' 4"	3' 1"	2' 11"	3' 8"	3' 2"	2' 11"	2' 8"	2' 7"	2' 10"	2' 6"	2' 3"	2' 1"	1' 11"	2' 8"	2' 4"	2' 2"	2' 0"	1' 9"
150U050-54	Single	5' 6"	4' 10"	4' 5"	4' 1"	3' 10"	4' 10"	4' 3"	3' 10"	3' 7"	3' 5"	3' 9"	3' 3"	3' 0"	2' 9"	2' 7"	3' 7"	3' 2"	2' 10"	2' 7"	2' 5"
	Multiple	7' 1"	6' 2"	5' 8"	5' 3"	4' 11"	6' 2"	5' 5"	4' 11"	4' 7"	4' 4"	4' 10"	4' 2"	3' 9"	3' 4"	3' 0"	4' 7"	4' 0"	3' 6"	3' 1"	2' 9"
200U050-54	Single	5' 10"	5' 1"	4' 8"	4' 4"	4' 1"	5' 1"	4' 6"	4' 1"	3' 10"	3' 7"	4' 0"	3' 6"	3' 2"	3' 0"	2' 10"	3' 10"	3' 4"	3' 1"	2' 10"	2' 8"
	Multiple	7' 5"	6' 6"	5' 11"	5' 6"	5' 2"	6' 6"	5' 8"	5' 2"	4' 10"	4' 7"	5' 1"	4' 5"	4' 0"	3' 9"	3' 6"	4' 10"	4' 3"	3' 10"	3' 7"	3' 2"
250U050-54	Single	6' 1"	5' 4"	4' 10"	4' 6"	4' 3"	5' 4"	4' 8"	4' 3"	4' 0"	3' 9"	4' 2"	3' 8"	3' 4"	3' 1"	2' 11"	4' 0"	3' 6"	3' 2"	3' 0"	2' 10"
	Multiple	7' 9"	6' 9"	6' 2"	5' 9"	5' 5"	6' 9"	5' 11"	5' 5"	5' 0"	4' 9"	5' 3"	4' 7"	4' 3"	3' 11"	3' 9"	5' 0"	4' 5"	4' 0"	3' 9"	3' 7"

Property Notes:

1. For Deflection calculations, use effective Ixx

Span Notes:

1. Fy = 33 ksi for all sections
2. Multiple span indicates two or more equal spans with channel continuous over interior supports
3. Bearing Lengths = 0.75"
4. Allowable spans based on the compression flange laterally unbraced

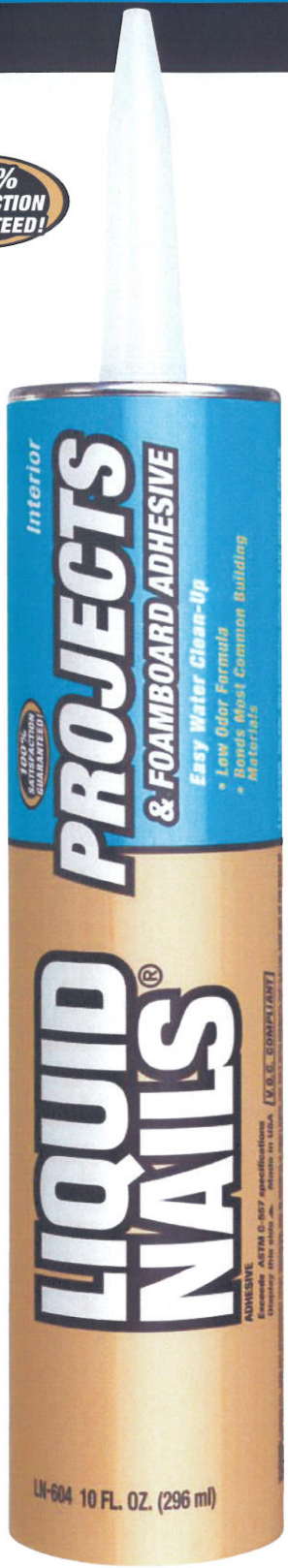
LIQUID NAILS® ADHESIVE

PROJECTS
& Foamboard Adhesive

LN-604 **Interior**

A high-strength, low-odor, latex construction adhesive for safer indoor use.

100% SATISFACTION GUARANTEED!



PRODUCT DESCRIPTION

LIQUID NAILS® Projects & Foamboard Adhesive, LN-604, offers water clean-up when wet, bridges gaps up to 3/8", and has excellent water resistance and long-term holding power when set.

RECOMMENDED FOR interior installations and all common building materials, including:

- Paneling
- Molding
- Drywall
- Plywood/hardboard
- Foamboard
- 1/8" thick medium density fiberboard paneling
- Corkboard
- Foamback tub surrounds
- Furring strips
- Masonry/concrete
- Ceramic tile repairs

NOT RECOMMENDED FOR exterior use or for application of ceiling tile, finished floors, mirrors, plastic & vinyl, or foamboard to foamboard.

LN-604 should not be used in basement applications. We recommend LN-901, LIQUID NAILS® Heavy Duty Construction Adhesive.

Please research all installation instructions and read entire label for safety, health & environmental information prior to use.

Look for other LIQUID NAILS products which are right for your specific project.

PRODUCT ADVANTAGES

- Easy water clean-up
- Low odor formula
- Bonds most common building materials
- Safer for indoor use
- High-strength bond
- Up to 30 minutes open time
- Non-staining
- Will not attack foam insulation
- Bridges gaps up to 3/8"
- VOC compliant
- 100% Satisfaction Guaranteed

Read Label and Material Safety Data Sheet Prior to Use.
See other cautions on last page. MDSF1-0292

LIQUID NAILS® ADHESIVE

PROJECTS
& Foamboard Adhesive

SURFACE PREPARATION
Surfaces must be clean, dry, and structurally sound. Cut and pre-fit materials prior to installation.

APPLYING THE PRODUCT
Insert tube into caulking gun. Cut nozzle to desired bead size marked on nozzle. Puncture inner seal with nail or wire. Apply adhesive in temperature of 60°F or higher. Press material into place. Lift off for 2-4 minutes, then press back into place. Material should not be applied to skinned adhesive. Do not apply to moist concrete or masonry.

Note: One surface must be porous.

Bonding material to furring strips or studs: Apply a zigzag 1/4" bead of adhesive to each strip or stud to be covered by material. Position materials so edges meet at stud center. Press firmly into place. Finishing nails required at top and bottom.

Bonding foamboard, foamback tub surrounds, paneling, corkboard, brick veneer, etc. to flat surfaces: Cover entire substrate with 1/4" vertical zig-zag bead a maximum of 12" apart and within 1-1/2" of all edges.

CLEAN-UP
Use water for wet adhesive. Use mineral spirits or an adhesive remover for dry adhesive.

DISPOSAL
Place empty containers in normal refuse for disposal. Remove residual product from the container, allow product to dry, and dispose of in conjunction with normal household waste. Contact your sanitation department or household hazardous waste coordinator for information concerning possible re-use of unused caulks and sealants. EAD-C8

LIMITED WARRANTY
Macco warrants satisfaction with this product when handled and applied according to label instructions. If this product is not as warranted, please call 1-800-634-0015 for refund or product replacement details. This warranty excludes labor or the cost of labor and is given as the exclusive warranty and remedy. **No warranty of merchantability, fitness for purpose or other warranty, express or implied, is made.** Macco shall not be liable for any special, incidental or consequential damages. Some states do not allow the exclusion of incidental or consequential damages, so the limitations may not apply. This warranty gives specific legal rights. You may also have other rights that vary from state to state.

WARNING!
CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION. MAY BE HARMFUL IF SWALLOWED. USE ONLY WITH ADEQUATE VENTILATION. KEEP OUT OF THE REACH OF CHILDREN.
Contains Crystalline Silica. If sanding, wear a dust mask to avoid breathing of sanding dust. Avoid contact with eyes and skin. **FIRST AID:** For skin contact, wash thoroughly with soap and water. If any product remains, gently rub with petroleum jelly, vegetable or mineral/baby oil, then wash again with soap and water. Repeat as needed. Remove contaminated clothing. For eye contact, flush immediately with plenty of water for at least 15 minutes. **Get medical attention.** If swallowed, **get medical attention immediately.** If inhalation causes discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, **get medical attention.** ***For emergency information, customer service, MSDS or additional safety and chronic hazard information, call 1-800-634-0015.*** **KEEP FROM FREEZING.** MDS19-0705

LN-604 TECHNICAL INFORMATION
Base: Latex emulsion
Color: Off-white
Appearance: Smooth gunnable paste
Application Temperature: 40° to 100°F (5° to 38°C)
Service Temperature: up to 120°F (49°C)
Adhesion: Excellent to most common building materials
Consistency: Good
Bridging Ability: Good; bridges gaps to 1/4" (.64cm)
Extrudability: Good
Shear Strength: 24 hours – 300 psi
48 hours – 350 psi
28 days – 400 psi
R.T. Static Load in Shear:
10 lbs. No failure in 72 hours.
Tensile Strength:
24 hours – 60 psi avg.
7 days – 75 psi avg.
Durability: Resistant to oxidation, 20 year life
Flexibility: Good
Water Resistance: Good
Aging: Good
Freeze-Thaw Stable: Passes 5 cycles
Bleed: None
Staining: None
Odor: Mild Acrylic
Working Time: 30 minutes
Weight Per Gallon: 12.08 pounds (1.45 kg/l)
Viscosity: 260,000 CPS
Volatiles: 38%
Solids: 62%
Flammability: Nonflammable
Flash Point: Exceeds 200°F (93°C)
Coverage: 30 lineal feet
Shelf Life: 12 months from date of purchase
VOC: 32 GPL

ICI Paints
15885 West Sprague Rd.
Strongsville, OH 44136
www.liquidnails.com
Customer Service 1-800-634-0015

NO. 99409/LN-604 0607