



PRODUCT CATALOG



By providing a lighter, stronger,
more efficient framing system,
ViperStud® has earned the trust
of industry leaders nationwide.
Made from high-strength steel
and formed with exclusive
ViperRib technology,
ViperStud® is the flat steel
system that will be here
for the long term,
you can count on that.

The Proprietary Steel Framing System That Has Withstood The Test Of Time...



Standing Strong.™

A Track Record You Can Count On, Verified Code Compliant

Code Information

ViperStud® Drywall Framing has been verified by the following Accredited Test Agencies and/or certified by the Product Evaluation Agencies listed here.



ViperStud® Drywall Framing System is tested or conforms to these standards:

- **ASTM A1003** Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members
- **ASTM C645** Standard Specification for Nonstructural Steel Framing Members
- **ASTM C754** Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
- **ASTM E90** Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- **ASTM E119** Standard Test Methods for Fire Tests of Building construction and Materials. Fire rated for 1, 2, 3, and 4 hour rated walls.
- **ASTM E72** Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
- **ASTM C1629** Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels

Patents:

US D621,963
US D621,964
CAN 134144
CAN 134143

U.S. Patent Nos. D621,964 and D621,963 and Canadian patents 134144 and 134143 are assigned to Ware Industries, Inc. and used by Fusion BP + Imperial Group under license from Ware Industries, Inc.

"ViperStud®," "ViperTrack®," and "ViperRib®" are registered trademarks of Ware Industries, Inc., Fusion BP and Imperial Group. The ViperStud logo and "Standing Strong.™" are trademarks of Ware Industries, Inc. The "ViperStud®," "ViperTrack®," "ViperRib®," and "Standing Strong.™" trademarks are used by Fusion BP and Imperial Group under license from Ware Industries, Inc.



A High Strength, Flat Steel Drywall Framing System

The ViperStud® Drywall Framing System offers all the benefits of conventional flat steel studs with a design that performs even better. The ViperStud drywall framing system is interchangeable with conventional framing components. Since ViperStud is flat steel, it is easy to plumb and mark, make minor adjustments and use laser levels. This makes installation the same as conventional studs. No extra training or special fasteners are required for installation.

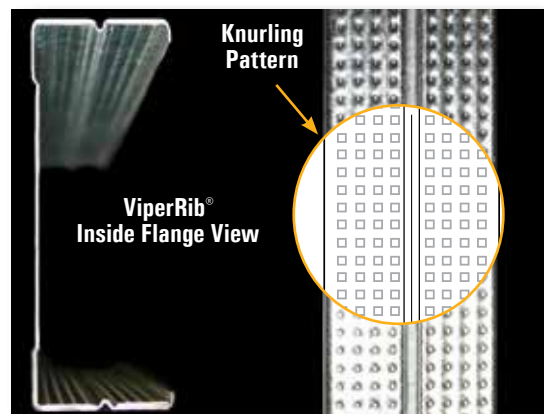
Knurl & Rib Technology

The stud and track system utilizes a knurled flange and reinforcing ribs along with a flat stud design. Knurling is the pattern of small ridges formed on the flange to prevent screws from walking. Since knurling is only formed on one side of the steel, the stud stays flat, never compromising the strength or thickness of the steel.

Flat Steel

ViperRib® technology applies a reinforced ribbing over the web and flange of ViperStud. The ribs provide added strength, are less prone to twist and creating "high-shoulders" when finishing gypsum board.

ViperRib® Technology
makes ViperStud stronger
& less prone to twist or buckle.



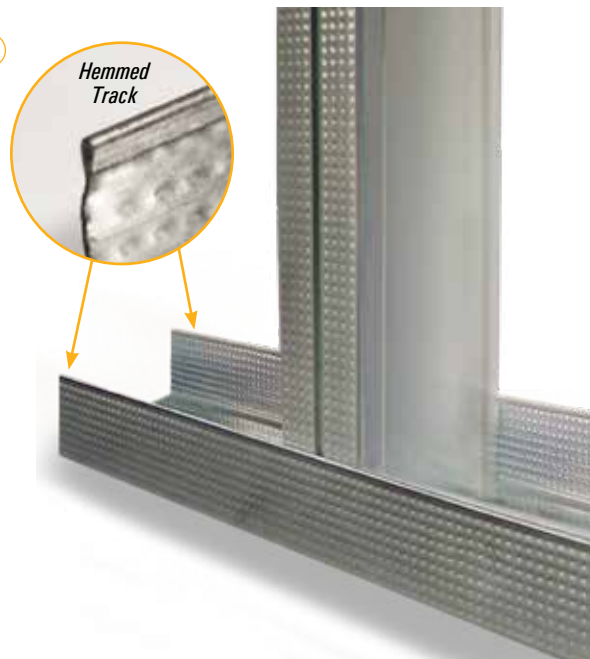
The One-Track System

We've tested ViperTrack25 extensively with Viper25 and Viper20 studs. Our third-party testing proves that it is not necessary to use the same thickness track as the stud. Now you can submit a lighter gauge track with your Viper20 studs and reduce your cost.

- Saves money
- Fewer items to inventory
- Safer, ViperTrack25 is fully hemmed
- Supported by testing

Not applicable for Impact or Abuse Rated walls. Fire rated walls should be built per specific assembly requirements.

Hemmed Track



PHYSICAL PROPERTIES



ViperStud®

MODEL NO.	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	WEB SIZES (in.)	FLANGE (in.)	RETURN LIP (in.)
VIPER25	0.0155	50	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4	1/4
VIPER20	0.0190	70	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4	various
VIPER 30mil	0.0312	33	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4	1/4
VIPER 33mil	0.0346	33	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4	1/4

ViperTrack®

MODEL NO.	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	WEB SIZES (in.)	LEG SIZE (in.)
VIPERTRACK25	0.0155	50	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4
VIPERTRACK20	0.0190	50	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4
VIPERTRACK 30mil	0.0312	33	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4
VIPERTRACK 33mil	0.0346	33	1-5/8, 2-1/2, 3-5/8, 4, 6	1-1/4

Notes:

1. Coatings per ASTM C645 & ASTM A 1003, Table 1.
2. G60 and G90 available upon request.
3. Knockout size for 1-5/8" & 2-1/2" Stud is 3/4" x 1-3/4". Knockout size for 3-5/8", 4", & 6" Stud is 1-1/2" x 2-1/2"

Viper25 (15 mil) is equivalent to conventional 25 gauge (18 mil) studs, and Viper20 (19 mil) is equivalent to conventional 20 gauge studs (30 mil).



DEEP LEG DEFLECTION TRACK

Deflection track can be required at the top of a wall to allow for anticipated downward movement of the primary structure. A gap is provided between the end of the stud and track to accommodate this movement. The studs are not fastened to the track to allow movement up or down. The bridging is required within 12" from the top to keep the stud in place and provide rotational restraint. The leg of the track must be long enough to provide the required gap, bearing surface for the studs and allow for construction tolerances.

MODEL NO.	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	WEB SIZES (in.)	LEG SIZE (in.)	GAP (in.)	LOAD (lb.)	MAX HEIGHT (5.2 psf, 16" o.c.)
VIPERTRACK25	0.0155	50	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	34	10'-4"
VIPERTRACK20	0.0190	70	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	80	24'-2"
			2-1/2, 3-5/8, 4, 6	2-1/2"	3/4"	54	16'-1"
			2-1/2, 3-5/8, 4, 6	3"	1"	40	12'-1"
VIPERTRACK 30mil	0.0312	33	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	92	27'-6"
			2-1/2, 3-5/8, 4, 6	2-1/2"	3/4"	61	18'-4"
			2-1/2, 3-5/8, 4, 6	3"	1"	46	13'-9"
VIPERTRACK	0.0346	33	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	113	33'-10"
			2-1/2, 3-5/8, 4, 6	2-1/2"	3/4"	75	22'-7"
			2-1/2, 3-5/8, 4, 6	3"	1"	56	16'-11"

Studs are secured by one of the following methods:

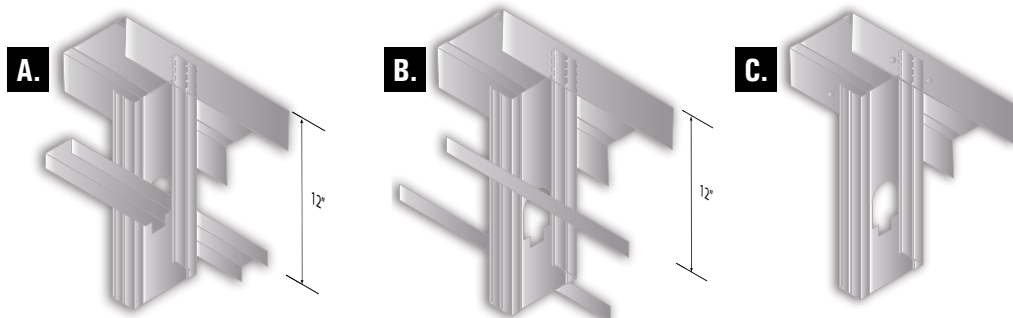
A. CR channel and BRC Clip. 12" down from the stud end.

B. Attaching flat strap at each side of the stud flange. 12" down from the stud end.

C. Attaching 2 screws at each leg of the deep leg track, near the stud flanges. (Total 4 screws)

Notes:

1. Max wall height based on stud spacing of 16" o.c. & 5.2 PSF lateral load
2. 1-5/8" deep leg track available with max 2" leg
3. Wall studs are not fastened to deep leg track.
4. G60, G90 available upon request.
5. Coating per ASTM C645 & ASTM A 1003, Table 1.





SECTION PROPERTIES

VIPERSTUD®

MODEL NO.	GAUGE	MEMBER	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	WEIGHT (lb/ft)	GROSS PROPERTIES					EFFECTIVE PROPERTIES		MOMENTS		L _u (in.)
						AREA (in ²)	I _x (in ⁴)	r _x (in.)	I _y (in ⁴)	r _y (in.)	I _{xd} (in ⁴)	S _{xe} (in ³)	M _{rx} -LB (in-kip)	M _{rx} -DB (in-kip)	
VIPER25	25EQ	162VS125-15	0.0155	50	0.232	0.0682	0.0320	0.685	0.0145	0.461	0.0271	0.0236	1.11	0.939	24.9
		250VS125-15	0.0155	50	0.278	0.0818	0.0844	1.02	0.0169	0.455	0.0726	0.0433	1.98	1.54	24.6
		362VS125-15 ⁴	0.0155	50	0.338	0.0992	0.199	1.41	0.0190	0.438	0.161	0.0560	2.53	2.11	24.4
		400VS125-15 ⁴	0.0155	50	0.357	0.105	0.250	1.54	0.0196	0.432	0.198	0.0620	2.90	2.23	24.3
		600VS125-15 ⁵	0.0155	50	0.463	0.136	0.659	2.20	0.0217	0.399	0.470	0.104	4.30	3.11	23.6
VIPER20	20EQ	162VS125-18	0.0190	70	0.285	0.0839	0.0391	0.683	0.0179	0.462	0.0328	0.0285	1.79	1.82	21.2
		250VS125-18	0.0190	70	0.351	0.103	0.106	1.01	0.0227	0.469	0.0942	0.0581	3.66	3.14	21.9
		362VS125-18	0.0190	70	0.423	0.124	0.249	1.42	0.0256	0.454	0.213	0.0755	4.75	4.63	21.5
		400VS125-18	0.0190	70	0.449	0.132	0.315	1.55	0.0266	0.449	0.265	0.0847	5.34	5.17	21.5
		600VS125-18 ⁵	0.0190	70	0.586	0.172	0.846	2.22	0.0319	0.430	0.647	0.151	9.50	8.13	21.5
VIPER30 30mil	20DW	162VS125-30	0.0312	33	0.461	0.135	0.0623	0.679	0.0280	0.455	0.0615	0.0670	1.99	2.14	30.8
		250VS125-30	0.0312	33	0.554	0.163	0.166	1.01	0.0326	0.448	0.163	0.120	3.56	3.47	30.2
		362VS125-30	0.0312	33	0.673	0.198	0.391	1.41	0.0367	0.431	0.385	0.172	5.10	5.27	29.7
		400VS125-30	0.0312	33	0.713	0.210	0.493	1.53	0.0377	0.424	0.486	0.191	5.68	5.87	29.6
		600VS125-30	0.0312	33	0.925	0.272	1.31	2.19	0.0418	0.392	1.23	0.341	10.1	8.94	28.7
VIPER33 33mil	20STR	162VS125-33	0.0346	33	0.509	0.150	0.0686	0.677	0.0307	0.453	0.0681	0.0773	2.29	2.44	30.9
		250VS125-33	0.0346	33	0.612	0.180	0.183	1.01	0.0358	0.446	0.181	0.137	4.08	3.98	30.2
		362VS125-33	0.0346	33	0.745	0.219	0.432	1.41	0.0403	0.429	0.428	0.201	5.96	6.07	29.7
		400VS125-33	0.0346	33	0.789	0.232	0.544	1.53	0.0414	0.423	0.539	0.224	6.64	6.78	29.5
		600VS125-33	0.0346	33	1.02	0.301	1.44	2.19	0.0459	0.391	1.39	0.400	11.9	10.4	28.6

NOTES:

- Factored moment resistances for VIPER25 are based on testing and the resistance factor was established in accordance with Chapter K of CSA S136-16.
- Factored moment resistances for VIPER20, VIPER30mil and VIPER33mil are based on CSA S136-16.
- Section properties are in accordance with CSA S136-16.
- Web depth to thickness ratio, h/t, exceeds 200.
- Web depth to thickness ratio, h/t, exceeds 260.
- VIPER studs are considered fully braced when the unbraced length is less than L_u.
- K_φ assumed to be zero for distortional buckling moments.
- I_{xd} is calculated at an assumed stress of 0.6F_y.
- M_{rx}-LB = Factored local buckling moment resistance.
- M_{rx}-DB = Factored distortional buckling moment resistance.
- L_u = Critical Unbraced length.

VIPERTRACK®

MEMBER	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	WEIGHT (lb/ft)	GROSS PROPERTIES						EFFECTIVE PROPERTIES			TORSIONAL PROPERTIES				
				Area (in ²)	I _x (in ⁴)	r _x (in.)	I _y (in ⁴)	r _y (in.)	V _{rg} (kip)	I _{xd} (in ⁴)	S _{xe} (in ³)	M _r (in-kip)	J x 10 ⁻⁵ (in ⁸)	C _w (in ⁶)	x ₀ (in.)	r ₀ (in.)	β
162VT125-15	0.0155	50	0.218	0.064	0.035	0.736	0.011	0.412	0.274	0.022	0.018	0.794	0.005	0.006	0.877	1.22	0.480
250VT125-15	0.0155	50	0.264	0.078	0.086	1.05	0.012	0.400	0.175	0.054	0.027	1.20	0.006	0.015	0.768	1.36	0.683
362VT125-15 ⁴	0.0155	50	0.324	0.095	0.197	1.44	0.014	0.381	0.119	0.115	0.039	1.73	0.008	0.035	0.665	1.63	0.833
400VT125-15 ⁴	0.0155	50	0.344	0.101	0.247	1.56	0.014	0.374	0.108	0.141	0.043	1.91	0.008	0.043	0.638	1.73	0.864
600VT125-15 ⁵	0.0155	50	0.449	0.132	0.642	2.21	0.016	0.342	0.072	0.325	0.063	2.85	0.011	0.109	0.523	2.29	0.948
162VT125-18	0.0190	50	0.268	0.079	0.043	0.737	0.013	0.411	0.486	0.028	0.024	1.08	0.009	0.007	0.875	1.22	0.482
250VT125-18	0.0190	50	0.324	0.095	0.106	1.06	0.015	0.399	0.322	0.073	0.039	1.74	0.011	0.018	0.766	1.36	0.684
362VT125-18	0.0190	50	0.397	0.117	0.242	1.44	0.017	0.380	0.220	0.159	0.056	2.50	0.014	0.042	0.664	1.63	0.834
400VT125-18 ⁴	0.0190	50	0.421	0.124	0.303	1.57	0.017	0.373	0.199	0.194	0.061	2.76	0.015	0.053	0.636	1.73	0.865
600VT125-18 ⁵	0.0190	50	0.550	0.162	0.788	2.21	0.019	0.342	0.132	0.445	0.090	4.06	0.019	0.133	0.521	2.29	0.948
162VT125-30	0.0312	33	0.439	0.129	0.071	0.741	0.022	0.409	0.772	0.056	0.051	1.51	0.042	0.012	0.868	1.21	0.488
250VT125-30	0.0312	33	0.532	0.156	0.175	1.06	0.025	0.397	1.06	0.142	0.090	2.66	0.051	0.030	0.760	1.36	0.689
362VT125-30	0.0312	33	0.652	0.192	0.399	1.44	0.027	0.378	0.969	0.331	0.152	4.51	0.062	0.069	0.658	1.63	0.837
400VT125-30	0.0312	33	0.691	0.203	0.499	1.57	0.028	0.371	0.877	0.417	0.176	5.21	0.066	0.086	0.631	1.73	0.867
600VT125-30	0.0312	33	0.904	0.266	1.30	2.21	0.031	0.339	0.582	1.03	0.250	7.42	0.086	0.216	0.517	2.29	0.949
162VT125-33	0.0346	33	0.487	0.143	0.079	0.742	0.024	0.408	0.858	0.064	0.059	1.75	0.057	0.013	0.866	1.21	0.489
250VT125-33	0.0346	33	0.590	0.174	0.195	1.06	0.027	0.396	1.31	0.162	0.103	3.06	0.069	0.033	0.758	1.36	0.690
362VT125-33	0.0346	33	0.723	0.212	0.443	1.44	0.030	0.377	1.31	0.375	0.173	5.15	0.085	0.076	0.657	1.63	0.838
400VT125-33	0.0346	33	0.767	0.225	0.554	1.57	0.031	0.370	1.19	0.472	0.200	5.94	0.090	0.095	0.629	1.73	0.868
600VT125-33	0.0346	33	1.00	0.295	1.44	2.21	0.034	0.339	0.793	1.19	0.298	8.85	0.118	0.239	0.516	2.29	0.949

NOTES:

- Section properties are in accordance with CSA S136-16 and cold work of forming is not included.
- I_{xd} is calculated at an assumed stress of 0.6F_y.
- The centre line bend radius is the greater of 2 times the design thickness or 3/32.
- Web depth to thickness ratio, h/t, exceeds 200.
- Web depth to thickness ratio, h/t, exceeds 260.



DEEP LEG VIPERTRACK SECTION PROPERTIES

MEMBER	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	WEIGHT (lb/ft)	GROSS PROPERTIES						EFFECTIVE PROPERTIES			TORSIONAL PROPERTIES				
				Area (in ²)	I _x (in ⁴)	r _x (in.)	I _y (in ⁴)	r _y (in.)	V _{rg} (kip)	I _{xd} (in ⁴)	S _{xe} (in ³)	M _r (in-kip)	J x 10 ⁻⁵ (in ⁴)	C _w (in ⁶)	x ₀ (in.)	r ₀ (in.)	β
VIPERTRACK 2.00" LEG																	
162VT200-15	0.0155	50	0.297	0.087	0.052	0.773	0.038	0.663	0.274	0.025	0.017	0.754	0.007	0.021	1.57	1.87	0.295
250VT200-15	0.0155	50	0.344	0.101	0.126	1.12	0.044	0.662	0.175	0.060	0.026	1.18	0.008	0.053	1.43	1.93	0.453
362VT200-15 ⁴	0.0155	50	0.403	0.118	0.278	1.53	0.050	0.648	0.119	0.127	0.039	1.74	0.009	0.122	1.28	2.10	0.629
400VT200-15 ⁴	0.0155	50	0.423	0.124	0.345	1.67	0.051	0.642	0.108	0.155	0.043	1.92	0.010	0.152	1.24	2.17	0.676
600VT200-15 ⁵	0.0155	50	0.528	0.155	0.859	2.35	0.057	0.608	0.072	0.357	0.065	2.90	0.012	0.384	1.06	2.65	0.841
162VT200-18	0.0190	70	0.365	0.107	0.064	0.774	0.047	0.662	0.503	0.032	0.021	1.33	0.013	0.026	1.57	1.87	0.296
250VT200-18	0.0190	70	0.421	0.124	0.155	1.12	0.054	0.661	0.322	0.075	0.033	2.09	0.015	0.066	1.43	1.93	0.454
362VT200-18	0.0190	70	0.494	0.145	0.341	1.53	0.061	0.647	0.220	0.159	0.049	3.06	0.017	0.150	1.28	2.10	0.630
400VT200-18 ⁴	0.0190	70	0.518	0.152	0.423	1.67	0.063	0.641	0.199	0.194	0.054	3.39	0.018	0.187	1.24	2.17	0.677
600VT200-18 ⁵	0.0190	70	0.647	0.190	1.05	2.35	0.070	0.607	0.132	0.447	0.081	5.12	0.023	0.470	1.05	2.65	0.842
162VT200-30	0.0312	33	0.599	0.176	0.107	0.779	0.077	0.660	0.772	0.069	0.055	1.64	0.057	0.043	1.56	1.87	0.299
250VT200-30	0.0312	33	0.691	0.203	0.256	1.12	0.088	0.659	1.06	0.174	0.098	2.91	0.066	0.108	1.42	1.92	0.457
362VT200-30	0.0312	33	0.811	0.238	0.563	1.54	0.099	0.645	0.969	0.400	0.166	4.94	0.077	0.246	1.27	2.10	0.633
400VT200-30	0.0312	33	0.851	0.250	0.698	1.67	0.102	0.639	0.877	0.502	0.188	5.57	0.081	0.306	1.23	2.17	0.680
600VT200-30	0.0312	33	1.06	0.312	1.74	2.36	0.114	0.605	0.582	1.26	0.276	8.19	0.101	0.769	1.05	2.65	0.843
162VT200-33	0.0346	33	0.664	0.195	0.119	0.780	0.085	0.660	0.858	0.080	0.064	1.91	0.078	0.048	1.56	1.87	0.300
250VT200-33	0.0346	33	0.767	0.225	0.284	1.12	0.098	0.658	1.31	0.199	0.113	3.36	0.090	0.120	1.42	1.92	0.458
362VT200-33	0.0346	33	0.899	0.264	0.626	1.54	0.110	0.644	1.31	0.455	0.190	5.66	0.105	0.272	1.27	2.10	0.634
400VT200-33	0.0346	33	0.943	0.277	0.775	1.67	0.113	0.638	1.19	0.570	0.220	6.53	0.111	0.340	1.23	2.17	0.680
600VT200-33	0.0346	33	1.18	0.347	1.93	2.36	0.126	0.604	0.793	1.48	0.338	10.0	0.138	0.852	1.05	2.65	0.844
VIPERTRACK 2.50" LEG																	
250VT250-18	0.0190	70	0.486	0.143	0.187	1.15	0.098	0.830	0.322	0.079	0.033	2.08	0.017	0.121	1.89	2.36	0.360
362VT250-18	0.0190	70	0.558	0.164	0.408	1.58	0.111	0.822	0.220	0.166	0.049	3.06	0.020	0.273	1.71	2.47	0.518
400VT250-18 ⁴	0.0190	70	0.583	0.171	0.504	1.72	0.115	0.818	0.199	0.203	0.054	3.39	0.021	0.341	1.67	2.53	0.566
600VT250-18 ⁵	0.0190	70	0.712	0.209	1.23	2.43	0.129	0.786	0.132	0.466	0.082	5.14	0.025	0.855	1.45	2.93	0.756
162VT250-30	0.0312	33	0.705	0.207	0.131	0.794	0.140	0.822	0.772	0.076	0.057	1.69	0.067	0.080	2.04	2.34	0.239
250VT250-30	0.0312	33	0.798	0.234	0.310	1.15	0.161	0.828	1.06	0.190	0.102	3.02	0.076	0.199	1.88	2.35	0.363
362VT250-30	0.0312	33	0.917	0.270	0.673	1.58	0.181	0.820	0.969	0.437	0.167	4.95	0.087	0.449	1.71	2.47	0.521
400VT250-30	0.0312	33	0.957	0.281	0.831	1.72	0.187	0.816	0.877	0.547	0.185	5.49	0.091	0.560	1.66	2.52	0.568
600VT250-30	0.0312	33	1.17	0.344	2.03	2.43	0.211	0.784	0.582	1.33	0.275	8.16	0.112	1.40	1.44	2.93	0.758
162VT250-33	0.0346	33	0.782	0.230	0.145	0.796	0.155	0.821	0.858	0.088	0.066	1.97	0.092	0.089	2.04	2.34	0.239
250VT250-33	0.0346	33	0.885	0.260	0.344	1.15	0.178	0.827	1.31	0.218	0.117	3.48	0.104	0.221	1.88	2.35	0.363
362VT250-33	0.0346	33	1.02	0.299	0.748	1.58	0.201	0.820	1.31	0.498	0.198	5.88	0.119	0.498	1.71	2.47	0.522
400VT250-33	0.0346	33	1.06	0.312	0.923	1.72	0.207	0.815	1.19	0.623	0.225	6.69	0.124	0.621	1.66	2.52	0.569
600VT250-33	0.0346	33	1.30	0.381	2.25	2.43	0.234	0.783	0.793	1.58	0.336	9.97	0.152	1.553	1.44	2.93	0.759
VIPERTRACK 3.00" LEG																	
250VT300-18	0.0190	70	0.550	0.162	0.220	1.17	0.160	0.995	0.322	0.081	0.034	2.15	0.019	0.200	2.36	2.81	0.297
362VT300-18	0.0190	70	0.623	0.183	0.474	1.61	0.181	0.994	0.220	0.172	0.050	3.12	0.022	0.449	2.17	2.88	0.433
400VT300-18 ⁴	0.0190	70	0.647	0.190	0.584	1.75	0.187	0.991	0.199	0.210	0.055	3.45	0.023	0.558	2.11	2.92	0.477
600VT300-18 ⁵	0.0190	70	0.777	0.228	1.41	2.48	0.212	0.964	0.132	0.481	0.082	5.19	0.027	1.39	1.86	3.25	0.672
162VT300-30	0.0312	33	0.811	0.238	0.155	0.805	0.229	0.980	0.772	0.081	0.058	1.73	0.077	0.134	2.53	2.83	0.201
250VT300-30	0.0312	33	0.904	0.266	0.363	1.17	0.262	0.993	1.06	0.204	0.104	3.10	0.086	0.329	2.35	2.80	0.299
362VT300-30	0.0312	33	1.02	0.301	0.783	1.61	0.296	0.992	0.969	0.468	0.165	4.89	0.098	0.738	2.16	2.87	0.435
400VT300-30	0.0312	33	1.06	0.312	0.964	1.76	0.306	0.989	0.877	0.587	0.183	5.43	0.101	0.918	2.10	2.91	0.479
600VT300-30	0.0312	33	1.28	0.375	2.32	2.49	0.347	0.962	0.582	1.37	0.274	8.13	0.122	2.29	1.85	3.25	0.674
162VT300-33	0.0346	33	0.899	0.264	0.172	0.807	0.254	0.979	0.858	0.094	0.068	2.01	0.105	0.149	2.52	2.82	0.202
250VT300-33	0.0346	33	1.00	0.295	0.404	1.17	0.290	0.993	1.31	0.234	0.120	3.57	0.118	0.366	2.35	2.80	0.300
362VT300-33	0.0346	33	1.14	0.334	0.869	1.62	0.328	0.992	1.31	0.535	0.200	5.95	0.133	0.819	2.16	2.87	0.436
400VT300-33	0.0346	33	1.18	0.347	1.07	1.76	0.339	0.988	1.19	0.669	0.223	6.61	0.138	1.019	2.10	2.91	0.480
600VT300-33	0.0346	33	1.41	0.416	2.58	2.49	0.384	0.961	0.793	1.64	0.334	9.91	0.166	2.536	1.85	3.25	0.675

NOTES:

1. Section properties are in accordance with CSA S136-16 and cold work of forming is not included.
2. I_{xd} is calculated at an assumed stress of 0.6F_y.
3. The centre line bend radius is the greater of 2 times the design thickness or 3/32.
4. Web depth to thickness ratio, h/t, exceeds 200.
5. Web depth to thickness ratio, h/t, exceeds 260.



COMPOSITE LIMITING WALL HEIGHTS - 5/8" TYPE X²

MODEL NO.	DEPTH	GAUGE	MEMBER	SPACING (in. o.c.)	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	5.2 psf (0.25 kPa)			7.8 psf (0.375 kPa)			10.4 psf (0.5 kPa)		
							L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
VIPER25	1-5/8"	25EQ	162VS125-15	12	0.0155	50	13' 7"	11' 2"	9' 7"	11' 10"	9' 9"	8' 1"	10' 9"	8' 8"	-
				16	0.0155	50	12' 4"	10' 2"	8' 6"	10' 9"	8' 8"	-	9' 9"	7' 9"	-
				24	0.0155	50	10' 9"	8' 8"	-	9' 2"	-	-	7' 11"	-	-
	2-1/2"	25EQ	250VS125-15	12	0.0155	50	17' 0"	14' 3"	12' 6"	14' 10"	12' 5"	10' 11"	13' 5"	11' 3"	9' 11"
				16	0.0155	50	15' 5"	12' 11"	11' 4"	13' 5"	11' 3"	9' 11"	12' 0"	10' 3"	8' 6"
				24	0.0155	50	13' 5"	11' 3"	9' 11"	11' 3"	9' 10"	7' 11"	9' 9"	8' 5"	-
	3-5/8"	25EQ	362VS125-15	12	0.0155	50	20' 6"	17' 0"	14' 11"	17' 11"	14' 10"	13' 0"	15' 6"	13' 6"	11' 10"
				16	0.0155	50	18' 8"	15' 6"	13' 6"	15' 6"	13' 6"	11' 10"	13' 5"	12' 3"	10' 9"
				24	0.0155	50	15' 6"	13' 6"	11' 10"	12' 8"	11' 10"	10' 4"	11' 0"	10' 9"	9' 3"
	4"	25EQ	400VS125-15	12	0.0155	50	21' 9"	18' 0"	16' 0"	18' 10"	15' 8"	14' 0"	16' 4"	14' 3"	12' 8"
				16	0.0155	50	19' 9"	16' 4"	14' 6"	16' 4"	14' 3"	12' 8"	14' 2"	13' 0"	11' 6"
				24	0.0155	50	16' 4"	14' 3"	12' 8"	13' 4"	12' 6"	11' 1"	11' 6"	11' 4"	9' 10"
	6"	25EQ	600VS125-15	12	0.0155	50	24' 5"	23' 5"	20' 10"	22' 0"	20' 6"	18' 2"	19' 8"	18' 7"	16' 6"
				16	0.0155	50	22' 8"	21' 3"	18' 11"	19' 8"	16' 6"	16' 6"	17' 0"	16' 11"	15' 0"
				24	0.0155	50	19' 8"	18' 7"	16' 6"	16' 1"	16' 1"	14' 5"	13' 11"	13' 11"	12' 9"
VIPER20	1-5/8"	20EQ	162VS125-18	12	0.0190	70	13' 7"	10' 10"	9' 5"	11' 11"	9' 5"	8' 3"	10' 10"	8' 7"	-
				16	0.0190	70	12' 4"	9' 10"	8' 7"	10' 10"	8' 7"	-	9' 10"	7' 9"	-
				24	0.0190	70	10' 10"	8' 7"	-	9' 5"	-	-	8' 7"	-	-
	2-1/2"	20EQ	250VS125-18	12	0.0190	70	17' 10"	14' 2"	12' 4"	15' 7"	12' 4"	10' 10"	14' 2"	11' 3"	9' 8"
				16	0.0190	70	16' 3"	12' 10"	11' 3"	14' 2"	11' 3"	9' 8"	12' 10"	10' 1"	8' 8"
				24	0.0190	70	14' 2"	11' 3"	9' 8"	12' 4"	9' 8"	8' 3"	11' 3"	8' 8"	-
	3-5/8"	20EQ	362VS125-18	12	0.0190	70	21' 7"	17' 9"	15' 7"	18' 10"	15' 6"	13' 7"	17' 1"	14' 1"	12' 4"
				16	0.0190	70	19' 7"	16' 1"	14' 2"	17' 1"	14' 1"	12' 4"	15' 6"	12' 9"	11' 2"
				24	0.0190	70	17' 1"	14' 1"	12' 4"	14' 11"	12' 3"	10' 8"	13' 7"	11' 0"	9' 7"
	4"	20EQ	400VS125-18	12	0.0190	70	22' 7"	18' 8"	16' 5"	19' 8"	16' 4"	14' 4"	17' 11"	14' 10"	13' 1"
				16	0.0190	70	20' 6"	16' 11"	14' 11"	17' 11"	14' 10"	13' 1"	16' 3"	13' 5"	11' 10"
				24	0.0190	70	17' 11"	14' 10"	13' 1"	15' 7"	12' 11"	11' 4"	14' 2"	11' 9"	10' 2"
	6"	20EQ	600VS125-18	12	0.0190	70	30' 0"	25' 7"	22' 8"	26' 3"	22' 5"	19' 10"	23' 10"	20' 4"	18' 0"
				16	0.0190	70	27' 3"	23' 3"	20' 7"	23' 10"	20' 4"	18' 0"	21' 8"	18' 6"	16' 5"
				24	0.0190	70	23' 10"	20' 4"	18' 0"	20' 6"	17' 9"	15' 9"	17' 9"	16' 2"	14' 4"
VIPER 30mil	1-5/8"	20DW	162VS125-30	12	0.0312	33	14' 4"	11' 3"	9' 10"	12' 7"	9' 10"	8' 3"	11' 5"	8' 9"	-
				16	0.0312	33	13' 1"	10' 3"	8' 9"	11' 5"	8' 9"	-	10' 4"	-	-
				24	0.0312	33	11' 5"	8' 9"	-	9' 11"	-	-	8' 8"	-	-
	2-1/2"	20DW	250VS125-30	12	0.0312	33	18' 5"	14' 8"	12' 9"	16' 1"	12' 9"	11' 2"	14' 8"	11' 7"	10' 2"
				16	0.0312	33	16' 9"	13' 3"	11' 7"	14' 8"	11' 7"	10' 2"	13' 3"	10' 6"	9' 1"
				24	0.0312	33	14' 8"	11' 7"	10' 2"	12' 6"	10' 2"	8' 8"	10' 9"	9' 1"	-
	3-5/8"	20DW	362VS125-30	12	0.0312	33	22' 11"	18' 2"	15' 11"	20' 0"	15' 11"	13' 11"	18' 2"	14' 5"	12' 7"
				16	0.0312	33	20' 10"	16' 6"	14' 5"	18' 2"	14' 5"	12' 7"	16' 0"	13' 1"	11' 4"
				24	0.0312	33	18' 2"	14' 5"	12' 7"	15' 1"	12' 7"	10' 10"	13' 0"	11' 4"	9' 9"
	4"	20DW	400VS125-30	12	0.0312	33	24' 10"	19' 8"	17' 3"	21' 8"	17' 3"	15' 0"	19' 0"	15' 8"	13' 8"
				16	0.0312	33	22' 7"	17' 11"	15' 8"	19' 0"	15' 8"	13' 8"	16' 6"	14' 2"	12' 5"
				24	0.0312	33	19' 0"	15' 8"	13' 8"	15' 6"	13' 8"	11' 11"	13' 5"	12' 5"	10' 9"
	6"	20DW	600VS125-30	12	0.0312	33	31' 3"	26' 4"	23' 0"	25' 6"	23' 0"	20' 1"	22' 1"	20' 11"	18' 3"
				16	0.0312	33	27' 1"	23' 11"	20' 11"	22' 1"	20' 11"	18' 3"	19' 2"	19' 0"	16' 7"
				24	0.0312	33	22' 1"	20' 11"	18' 3"	18' 0"	18' 0"	15' 11"	15' 7"	15' 7"	14' 5"
VIPER 33mil	1-5/8"	20TR	162VS125-33	12	0.0346	33	14' 8"	11' 7"	10' 2"	12' 9"	10' 2"	8' 8"	11' 7"	9' 1"	7' 9"
				16	0.0346	33	13' 4"	10' 7"	9' 1"	11' 7"	9' 1"	7' 9"	10' 7"	8' 2"	-
				24	0.0346	33	11' 7"	9' 1"	7' 9"	10' 2"	7' 9"	-	9' 1"	-	-
	2-1/2"	20TR	250VS125-33	12	0.0346	33	19' 0"	15' 1"	13' 2"	16' 7"	13' 2"	11' 6"	15' 1"	12' 0"	10' 5"
				16	0.0346	33	17' 3"	13' 9"	12' 0"	15' 1"	12' 0"	10' 5"	13' 9"	10' 10"	9' 5"
				24	0.0346	33	15' 1"	12' 0"	10' 5"	13' 2"	10' 5"	9' 0"	11' 9"	9' 5"	8' 0"
	3-5/8"	20TR	362VS125-33	12	0.0346	33	23' 6"	18' 8"	16' 3"	20' 6"	16' 3"	14' 3"	18' 8"	14' 9"	12' 11"
				16	0.0346	33	21' 4"	16' 11"	14' 9"	18' 8"	14' 9"	12' 11"	16' 11"	13' 5"	11' 8"
				24	0.0346	33	18' 8"	14' 9"	12' 11"	16' 2"	12' 11"	11' 2"	14' 0"	11' 8"	10' 1"
	4"	20TR	400VS125-33	12	0.0346	33	25' 3"	20' 1"	17' 6"	22' 1"	17' 6"	15' 4"	20' 1"	15' 11"	13' 11"
				16	0.0346	33	23' 0"	18' 3"	15' 11"	20' 1"	15' 11"	13' 11"	18' 0"	14' 6"	12' 7"
				24	0.0346	33	20' 1"	15' 11"	13' 11"	16' 11"	13' 11"	12' 2"	14' 8"	12' 7"	11' 0"
	6"	20TR	600VS125-33	12	0.0346	33	33' 9"	27' 2"	23' 9"	27' 7"	23' 9"	20' 9"	23' 10"	21' 7"	18' 10"
				16	0.0346	33	29' 3"	24' 9"	21' 7"	23' 10"	21' 7"	18' 10"	20' 8"	19' 7"	17' 2"
				24	0.0346	33	23' 10"	21' 7"	18' 10"	19' 6"	18' 10"	16' 6"	16' 10"	16' 10"	15' 0"

NOTES:

- Limiting wall heights are based on testing in accordance with ICC AC86-2012, using a single layer of 5/8" Type X gypsum board applied vertically on each side of the wall over the full height.
- 5/8" Type X wall board from the following manufacturers are acceptable: USG/CGC, National, Georgia Pacific, CertainTeed, American and Continental.



NON-COMPOSITE LIMITING WALL HEIGHTS - FULLY BRACED

MODEL NO.	DEPTH	GAUGE	MEMBER	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	SPACING (in. o.c.)	5.2 psf (0.25 kPa)			7.8 psf (0.375 kPa)			10.4 psf (0.5 kPa)		
							L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
VIPER25	1-5/8"	25EQ	162VS125-15	0.0155	50	12	8' 9"	7' 0"	6' 1"	7' 7"	6' 1"	5' 3"	6' 7"	5' 6"	4' 9"
				0.0155	50	16	8' 0"	6' 3"	5' 6"	6' 7"	5' 6"	4' 9"	5' 8"	5' 0"	4' 4"
				0.0155	50	24	6' 7"	5' 6"	4' 9"	5' 4"	4' 9"	4' 2"	4' 7"	4' 4"	3' 9"
	2-1/2"	25EQ	250VS125-15	0.0155	50	12	11' 10"	9' 8"	8' 6"	9' 8"	8' 6"	7' 4"	8' 4"	7' 8"	6' 8"
				0.0155	50	16	10' 3"	8' 9"	7' 8"	8' 4"	7' 8"	6' 8"	7' 3"	7' 0"	6' 1"
				0.0155	50	24	8' 4"	7' 8"	6' 8"	6' 10"	6' 8"	5' 10"	5' 10"	5' 10"	5' 3"
	3-5/8"	25EQ	362VS125-15	0.0155	50	12	14' 4"	12' 8"	11' 1"	11' 8"	11' 1"	9' 8"	10' 2"	10' 0"	8' 9"
				0.0155	50	16	12' 4"	11' 6"	10' 0"	10' 2"	10' 0"	8' 9"	8' 3"	8' 3"	8' 0"
				0.0155	50	24	10' 2"	10' 0"	8' 9"	7' 4"	7' 4"	5' 7"	5' 7"	5' 7"	5' 7"
	4"	25EQ	400VS125-15	0.0155	50	12	14' 3"	13' 7"	11' 9"	11' 8"	11' 8"	10' 3"	10' 1"	10' 1"	9' 4"
				0.0155	50	16	12' 4"	12' 3"	10' 9"	10' 1"	10' 1"	9' 4"	8' 1"	8' 1"	8' 1"
				0.0155	50	24	10' 1"	10' 1"	9' 4"	7' 2"	7' 2"	5' 4"	5' 4"	5' 4"	5' 4"
	6"	25EQ	600VS125-15	0.0155	50	12	16' 10"	16' 10"	15' 9"	12' 3"	12' 3"	12' 3"	9' 2"	9' 2"	9' 2"
				0.0155	50	16	13' 9"	13' 9"	13' 9"	9' 2"	9' 2"	6' 10"	6' 10"	6' 10"	6' 10"
				0.0155	50	24	9' 2"	9' 2"	9' 2"	6' 1"	6' 1"	4' 7"	4' 7"	4' 7"	4' 7"
VIPER20	1-5/8"	20EQ	162VS125-18	0.0190	70	12	9' 4"	7' 4"	6' 6"	8' 2"	6' 6"	5' 8"	7' 4"	5' 10"	5' 2"
				0.0190	70	16	8' 6"	6' 9"	5' 10"	7' 4"	5' 10"	5' 2"	6' 9"	5' 4"	4' 8"
				0.0190	70	24	7' 4"	5' 10"	5' 2"	6' 6"	5' 2"	4' 6"	5' 10"	4' 8"	4' 1"
	2-1/2"	20EQ	250VS125-18	0.0190	70	12	13' 3"	10' 7"	9' 2"	11' 7"	9' 2"	8' 1"	10' 7"	8' 4"	7' 3"
				0.0190	70	16	12' 1"	9' 7"	8' 4"	10' 7"	8' 4"	7' 3"	9' 7"	7' 7"	6' 8"
				0.0190	70	24	10' 7"	8' 4"	7' 3"	9' 2"	7' 3"	6' 4"	8' 4"	6' 8"	5' 9"
	3-5/8"	20EQ	362VS125-18	0.0190	70	12	17' 6"	13' 10"	12' 1"	15' 3"	12' 1"	10' 7"	13' 10"	11' 0"	9' 7"
				0.0190	70	16	15' 10"	12' 7"	11' 0"	13' 10"	11' 0"	9' 7"	12' 7"	10' 0"	8' 8"
				0.0190	70	24	13' 10"	11' 0"	9' 7"	11' 10"	9' 7"	8' 4"	10' 3"	8' 8"	7' 7"
	4"	20EQ	400VS125-18	0.0190	70	12	18' 9"	14' 10"	13' 0"	16' 4"	13' 0"	11' 4"	14' 10"	11' 10"	10' 4"
				0.0190	70	16	17' 1"	13' 7"	11' 10"	14' 10"	11' 10"	10' 4"	13' 3"	10' 9"	9' 4"
				0.0190	70	24	14' 10"	11' 10"	10' 4"	12' 7"	10' 4"	9' 0"	10' 10"	9' 4"	8' 2"
	6"	20EQ	600VS125-18	0.0190	70	12	25' 3"	20' 1"	17' 7"	22' 1"	17' 7"	15' 3"	18' 6"	16' 0"	13' 10"
				0.0190	70	16	23' 0"	18' 3"	16' 0"	18' 6"	16' 0"	13' 10"	13' 10"	13' 10"	12' 8"
				0.0190	70	24	18' 6"	16' 0"	13' 10"	12' 3"	12' 3"	12' 2"	9' 2"	9' 2"	9' 2"
VIPER 30mil	1-5/8"	20DW	162VS125-30	0.0312	33	12	11' 7"	9' 2"	8' 0"	10' 1"	8' 0"	7' 0"	9' 2"	7' 3"	6' 4"
				0.0312	33	16	10' 6"	8' 3"	7' 3"	9' 2"	7' 3"	6' 4"	8' 3"	6' 7"	5' 9"
				0.0312	33	24	9' 2"	7' 3"	6' 4"	7' 9"	6' 4"	5' 7"	6' 8"	5' 9"	5' 1"
	2-1/2"	20DW	250VS125-30	0.0312	33	12	16' 0"	12' 8"	11' 1"	14' 0"	11' 1"	9' 8"	12' 7"	10' 1"	8' 9"
				0.0312	33	16	14' 6"	11' 6"	10' 1"	12' 7"	10' 1"	8' 9"	10' 10"	9' 2"	8' 0"
				0.0312	33	24	12' 7"	10' 1"	8' 9"	10' 3"	8' 9"	7' 8"	8' 10"	8' 0"	7' 0"
	3-5/8"	20DW	362VS125-30	0.0312	33	12	21' 3"	16' 10"	14' 9"	17' 7"	14' 9"	12' 10"	15' 3"	13' 4"	11' 8"
				0.0312	33	16	18' 8"	15' 4"	13' 4"	15' 3"	13' 4"	11' 8"	13' 2"	12' 2"	10' 8"
				0.0312	33	24	15' 3"	13' 4"	11' 8"	12' 6"	11' 8"	10' 2"	10' 8"	10' 8"	9' 3"
	4"	20DW	400VS125-30	0.0312	33	12	22' 9"	18' 3"	16' 0"	18' 7"	16' 0"	13' 10"	16' 1"	14' 6"	12' 8"
				0.0312	33	16	19' 8"	16' 7"	14' 6"	16' 1"	14' 6"	12' 8"	14' 0"	13' 2"	11' 6"
				0.0312	33	24	16' 1"	14' 6"	12' 8"	13' 2"	12' 8"	11' 1"	11' 4"	11' 4"	10' 1"
	6"	20DW	600VS125-30	0.0312	33	12	28' 7"	24' 10"	21' 9"	23' 3"	21' 9"	19' 0"	20' 2"	19' 9"	17' 3"
				0.0312	33	16	24' 9"	22' 7"	19' 9"	20' 2"	19' 9"	17' 3"	17' 6"	17' 6"	15' 8"
				0.0312	33	24	20' 2"	19' 9"	17' 3"	16' 6"	16' 6"	15' 1"	14' 3"	14' 3"	13' 8"
VIPER 33mil	1-5/8"	20STR	162VS125-33	0.0346	33	12	12' 0"	9' 6"	8' 3"	10' 4"	8' 3"	7' 2"	9' 6"	7' 6"	6' 7"
				0.0346	33	16	10' 10"	8' 7"	7' 6"	9' 6"	7' 6"	6' 7"	8' 7"	6' 9"	6' 0"
				0.0346	33	24	9' 6"	7' 6"	6' 7"	8' 3"	6' 7"	5' 9"	7' 2"	6' 0"	5' 2"
	2-1/2"	20STR	250VS125-33	0.0346	33	12	16' 7"	13' 1"	11' 6"	14' 6"	11' 6"	10' 0"	13' 1"	10' 4"	9' 1"
				0.0346	33	16	15' 1"	11' 10"	10' 4"	13' 1"	10' 4"	9' 1"	11' 8"	9' 6"	8' 3"
				0.0346	33	24	13' 1"	10' 4"	9' 1"	11' 0"	9' 1"	8' 0"	9' 6"	8' 3"	7' 2"
	3-5/8"	20STR	362VS125-33	0.0346	33	12	22' 1"	17' 6"	15' 3"	19' 1"	15' 3"	13' 4"	16' 6"	13' 10"	12' 1"
				0.0346	33	16	20' 1"	15' 10"	13' 10"	16' 6"	13' 10"	12' 1"	14' 3"	12' 7"	11' 0"
				0.0346	33	24	16' 6"	13' 10"	12' 1"	13' 6"	12' 1"	10' 7"	11' 8"	11' 0"	9' 7"
	4"	20STR	400VS125-33	0.0346	33	12	23' 9"	18' 10"	16' 6"	20' 1"	16' 6"	14' 4"	17' 4"	15' 0"	13' 1"
				0.0346	33	16	21' 4"	17' 2"	15' 0"	17' 4"	15' 0"	13' 1"	15' 1"	13' 7"	11' 10"
				0.0346	33	24	17' 4"	15' 0"	13' 1"	14' 2"	13' 1"	11' 6"	12' 3"	11' 10"	10' 4"
	6"	20STR	600VS125-33	0.0346	33	12	30' 10"	25' 10"	22' 7"	25' 2"	22' 7"	19' 9"	21' 9"	20' 7"	18' 0"
				0.0346	33	16	26' 8"	23' 7"	20' 7"	21' 9"	20' 7"	18' 0"	18' 10"	18' 8"	16' 3"
				0.0346	33	24	21' 9"	20' 7"	18' 0"	17' 9"	17' 9"	15' 8"	15' 4"	15' 4"	14' 3"

NOTES:

1. Limiting heights are based on CSA S136-16 by considering flexure, shear, web crippling and deflection.
2. For web crippling when $h/t \leq 200$, values are computed based on Section G6 of CSA S136-16 with a bearing length of 1". When $h/t > 200$, the web crippling values are based on testing with a bearing length of 1".
3. Web stiffeners are not required when $h/t > 200$ since web crippling and shear have been confirmed by testing.
4. The factory punchouts are in accordance with Section C5 of AISI S201-12.
5. The distance from the centre of the last punchout to the end of the member shall not be less than 12".

NON-COMPOSITE LIMITING WALL HEIGHTS - BRACED 48" O.C.

MODEL NO.	DEPTH	GAUGE	MEMBER	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	SPACING (in. o.c.)	5.2 psf (0.25 kPa)			7.8 psf (0.375 kPa)			10.4 psf (0.5 kPa)		
							L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
VIPER25	1-5/8"	25EQ	162VS125-15	0.0155	50	12	7' 10"	7' 0"	6' 1"	6' 4"	6' 1"	5' 3"	5' 7"	5' 6"	4' 9"
				0.0155	50	16	6' 9"	6' 3"	5' 6"	5' 7"	5' 6"	4' 9"	4' 9"	4' 9"	4' 4"
				0.0155	50	24	5' 7"	5' 6"	4' 9"	4' 6"	4' 6"	4' 2"	3' 10"	3' 10"	3' 9"
	2-1/2"	25EQ	250VS125-15	0.0155	50	12	10' 9"	9' 8"	8' 6"	8' 9"	8' 6"	7' 4"	7' 7"	7' 7"	6' 8"
				0.0155	50	16	9' 3"	8' 9"	7' 8"	7' 7"	7' 7"	6' 8"	6' 7"	6' 7"	6' 1"
				0.0155	50	24	7' 7"	7' 7"	6' 8"	6' 2"	6' 2"	5' 10"	5' 4"	5' 4"	5' 3"
	3-5/8"	25EQ	362VS125-15	0.0155	50	12	12' 0"	12' 0"	11' 1"	9' 9"	9' 9"	9' 8"	8' 6"	8' 6"	8' 6"
				0.0155	50	16	10' 4"	10' 4"	10' 0"	8' 6"	8' 6"	8' 6"	7' 4"	7' 4"	7' 4"
				0.0155	50	24	8' 6"	8' 6"	8' 6"	6' 10"	6' 10"	6' 10"	5' 7"	5' 7"	5' 7"
	4"	25EQ	400VS125-15	0.0155	50	12	12' 7"	12' 7"	11' 9"	10' 3"	10' 3"	10' 3"	8' 10"	8' 10"	8' 10"
				0.0155	50	16	10' 10"	10' 10"	10' 9"	8' 10"	8' 10"	8' 10"	7' 8"	7' 8"	7' 8"
				0.0155	50	24	8' 10"	8' 10"	8' 10"	7' 2"	7' 2"	7' 2"	5' 4"	5' 4"	5' 4"
	6"	25EQ	600VS125-15	0.0155	50	12	16' 2"	16' 2"	15' 9"	12' 3"	12' 3"	12' 3"	9' 2"	9' 2"	9' 2"
				0.0155	50	16	13' 9"	13' 9"	13' 9"	9' 2"	9' 2"	9' 2"	6' 10"	6' 10"	6' 10"
				0.0155	50	24	9' 2"	9' 2"	9' 2"	6' 1"	6' 1"	6' 1"	4' 7"	4' 7"	4' 7"
VIPER20	1-5/8"	20EQ	162VS125-18	0.0190	70	12	9' 4"	7' 4"	6' 6"	8' 2"	6' 6"	5' 8"	7' 4"	5' 10"	5' 2"
				0.0190	70	16	8' 6"	6' 9"	5' 10"	7' 4"	5' 10"	5' 2"	6' 4"	5' 4"	4' 8"
				0.0190	70	24	7' 4"	5' 10"	5' 2"	6' 1"	5' 2"	4' 6"	5' 2"	4' 8"	4' 1"
	2-1/2"	20EQ	250VS125-18	0.0190	70	12	13' 3"	10' 7"	9' 2"	11' 7"	9' 2"	8' 1"	10' 7"	8' 4"	7' 3"
				0.0190	70	16	12' 1"	9' 7"	8' 4"	10' 7"	8' 4"	7' 3"	9' 4"	7' 7"	6' 8"
				0.0190	70	24	10' 7"	8' 4"	7' 3"	8' 10"	7' 3"	6' 4"	7' 8"	6' 8"	5' 9"
	3-5/8"	20EQ	362VS125-18	0.0190	70	12	17' 4"	13' 10"	12' 1"	14' 2"	12' 1"	10' 3"	12' 3"	11' 0"	9' 7"
				0.0190	70	16	15' 0"	12' 7"	11' 0"	12' 3"	11' 0"	9' 7"	10' 7"	10' 0"	8' 8"
				0.0190	70	24	12' 3"	11' 0"	9' 7"	10' 0"	9' 7"	8' 4"	8' 8"	8' 8"	7' 7"
	4"	20EQ	400VS125-18	0.0190	70	12	18' 4"	14' 10"	13' 0"	15' 0"	13' 0"	11' 4"	13' 0"	11' 10"	10' 4"
				0.0190	70	16	15' 10"	13' 7"	11' 10"	13' 0"	11' 10"	10' 4"	11' 3"	10' 9"	9' 4"
				0.0190	70	24	13' 0"	11' 10"	10' 4"	10' 7"	10' 4"	9' 0"	9' 2"	9' 2"	8' 2"
	6"	20EQ	600VS125-18	0.0190	70	12	24' 2"	20' 1"	17' 7"	19' 9"	17' 7"	15' 3"	17' 1"	16' 0"	13' 10"
				0.0190	70	16	21' 0"	18' 3"	16' 0"	17' 1"	16' 0"	13' 10"	13' 10"	12' 8"	12' 8"
				0.0190	70	24	17' 1"	16' 0"	13' 10"	12' 3"	12' 3"	12' 2"	9' 2"	9' 2"	9' 2"
VIPER 30mil	1-5/8"	20DW	162VS125-30	0.0312	33	12	11' 7"	9' 2"	8' 0"	10' 1"	8' 0"	7' 0"	9' 1"	7' 3"	6' 4"
				0.0312	33	16	10' 6"	8' 3"	7' 3"	9' 1"	7' 3"	6' 4"	7' 9"	6' 7"	5' 9"
				0.0312	33	24	9' 1"	7' 3"	6' 4"	7' 4"	6' 4"	5' 7"	6' 4"	5' 9"	5' 1"
	2-1/2"	20DW	250VS125-30	0.0312	33	12	16' 0"	12' 8"	11' 1"	13' 9"	11' 1"	9' 8"	12' 0"	10' 1"	8' 9"
				0.0312	33	16	14' 6"	11' 6"	10' 1"	12' 0"	10' 1"	8' 9"	10' 4"	9' 2"	8' 0"
				0.0312	33	24	12' 0"	10' 1"	8' 9"	9' 9"	8' 9"	7' 8"	8' 6"	8' 0"	7' 0"
	3-5/8"	20DW	362VS125-30	0.0312	33	12	20' 3"	16' 10"	14' 9"	16' 7"	14' 9"	12' 10"	14' 4"	13' 4"	11' 8"
				0.0312	33	16	17' 7"	15' 4"	13' 4"	14' 4"	13' 4"	11' 8"	12' 4"	12' 2"	10' 8"
				0.0312	33	24	14' 4"	13' 4"	11' 8"	11' 8"	11' 8"	10' 2"	10' 2"	10' 2"	9' 3"
	4"	20DW	400VS125-30	0.0312	33	12	21' 4"	18' 3"	16' 0"	17' 6"	16' 0"	13' 10"	15' 2"	14' 6"	12' 8"
				0.0312	33	16	18' 7"	16' 7"	14' 6"	15' 2"	14' 6"	12' 8"	13' 1"	13' 1"	11' 6"
				0.0312	33	24	15' 2"	14' 6"	12' 8"	12' 4"	12' 4"	11' 1"	10' 8"	10' 8"	10' 1"
	6"	20DW	600VS125-30	0.0312	33	12	28' 4"	24' 10"	21' 9"	23' 2"	21' 9"	19' 0"	20' 1"	19' 9"	17' 3"
				0.0312	33	16	24' 7"	22' 7"	19' 9"	20' 1"	19' 9"	17' 3"	17' 4"	17' 4"	15' 8"
				0.0312	33	24	20' 1"	19' 9"	17' 3"	16' 4"	16' 4"	15' 1"	14' 2"	14' 2"	13' 8"
VIPER 33mil	1-5/8"	20STR	162VS125-33	0.0346	33	12	12' 0"	9' 6"	8' 3"	10' 4"	8' 3"	7' 2"	9' 6"	7' 6"	6' 7"
				0.0346	33	16	10' 10"	8' 7"	7' 6"	9' 6"	7' 6"	6' 7"	8' 3"	6' 9"	6' 0"
				0.0346	33	24	9' 6"	7' 6"	6' 7"	7' 10"	6' 7"	5' 9"	6' 9"	6' 0"	5' 2"
	2-1/2"	20STR	250VS125-33	0.0346	33	12	16' 7"	13' 1"	11' 6"	14' 6"	11' 6"	10' 0"	12' 8"	10' 4"	9' 1"
				0.0346	33	16	15' 1"	11' 10"	10' 4"	12' 8"	10' 4"	9' 1"	11' 0"	9' 6"	8' 3"
				0.0346	33	24	12' 8"	10' 4"	9' 1"	10' 3"	9' 1"	8' 0"	8' 10"	8' 3"	7' 2"
	3-5/8"	20STR	362VS125-33	0.0346	33	12	21' 7"	17' 6"	15' 3"	17' 8"	15' 3"	13' 4"	15' 3"	13' 10"	12' 1"
				0.0346	33	16	18' 8"	15' 10"	13' 10"	15' 3"	13' 10"	12' 1"	13' 2"	12' 7"	11' 0"
				0.0346	33	24	15' 3"	13' 10"	12' 1"	12' 6"	12' 1"	10' 7"	10' 9"	10' 9"	9' 7"
	4"	20STR	400VS125-33	0.0346	33	12	22' 9"	18' 10"	16' 6"	18' 7"	16' 6"	14' 4"	16' 1"	15' 0"	13' 1"
				0.0346	33	16	19' 9"	17' 2"	15' 0"	16' 1"	15' 0"	13' 1"	14' 0"	13' 7"	11' 10"
				0.0346	33	24	16' 1"	15' 0"	13' 1"	13' 2"	13' 1"	11' 6"	11' 4"	11' 4"	10' 4"
	6"	20STR	600VS125-33	0.0346	33	12	30' 3"	25' 10"	22' 7"	24' 8"	22' 7"	19' 9"	21' 4"	20' 7"	18' 0"
				0.0346	33	16	26' 2"	23' 7"	20' 7"	21' 4"	20' 7"	18' 0"	18' 6"	18' 6"	16' 3"
				0.0346	33	24	21' 4"	20' 7"	18' 0"	17' 6"	17' 6"	15' 8"	15' 1"	15' 1"	14' 3"

NOTES:

- Limiting heights are based on CSA S136-16 by considering flexure, shear, web crippling and deflection.
- For web crippling when $h/t \leq 200$, values are computed based on Section G6 of CSA S136-16 with a bearing length of 1". When $h/t > 200$, the web crippling values are based on testing with a bearing length of 1".
- Web stiffeners are not required when $h/t > 200$ since web crippling and shear have been confirmed by testing.
- The factory punchouts are in accordance with Section C5 of AISI S201-12.
- The distance from the centre of the last punchout to the end of the member shall not be less than 12".



LIMITING CEILING SPANS

L/240			4 PSF LATERAL SUPPORT OF COMPRESSION FLANGE						6 PSF LATERAL SUPPORT OF COMPRESSION FLANGE					
MODEL NO.	MEMBER	YIELD STRESS (ksi)	UNSUPPORTED			MIDSPAN			UNSUPPORTED			MIDSPAN		
			Joist Spacing (in.) o.c.			Joist Spacing (in.) o.c.			Joist Spacing (in.) o.c.			Joist Spacing (in.) o.c.		
			12	16	24	12	16	24	12	16	24	12	16	24
VIPER25	162VS125-15	50	7' 8"	7' 1"	6' 4"	7' 9"	7' 0"	6' 1"	6' 11"	6' 4"	5' 6"	6' 9"	6' 1"	5' 3"
	250VS125-15	50	8' 8"	8' 0"	7' 3"	10' 11"	9' 10"	8' 6"	7' 10"	7' 3"	6' 6"	9' 6"	8' 6"	7' 5"
	362VS125-15	50	9' 8"	9' 0"	8' 1"	13' 0"	11' 11"	10' 6"	8' 9"	8' 1"	7' 4"	11' 6"	10' 6"	9' 3"
	400VS125-15	50	10' 0"	9' 3"	8' 4"	13' 4"	12' 3"	10' 10"	9' 0"	8' 4"	7' 6"	11' 10"	10' 10"	9' 6"
	600VS125-15	50	11' 4"	10' 6"	9' 6"	15' 6"	14' 3"	12' 7"	10' 3"	9' 6"	8' 7"	13' 9"	12' 7"	8' 11"
VIPER20	162VS125-18	70	8' 2"	7' 7"	6' 10"	8' 5"	7' 7"	6' 7"	7' 4"	6' 10"	5' 11"	7' 4"	6' 7"	5' 8"
	250VS125-18	70	9' 6"	8' 9"	7' 11"	12' 0"	10' 10"	9' 6"	8' 6"	7' 11"	7' 1"	10' 5"	9' 6"	8' 2"
	362VS125-18	70	10' 3"	9' 7"	8' 7"	14' 2"	13' 0"	11' 6"	9' 3"	8' 7"	7' 9"	12' 7"	11' 6"	10' 3"
	400VS125-18	70	10' 11"	10' 1"	9' 1"	15' 3"	14' 1"	12' 6"	9' 10"	9' 1"	8' 3"	13' 7"	12' 6"	11' 2"
	600VS125-18	70	12' 6"	11' 8"	10' 6"	17' 8"	16' 5"	14' 8"	11' 4"	10' 6"	9' 6"	15' 11"	14' 8"	13' 0"
VIPER 30mil	162VS125-30	33	9' 10"	9' 0"	7' 11"	10' 0"	9' 1"	7' 11"	8' 9"	7' 11"	6' 11"	8' 9"	7' 11"	6' 11"
	250VS125-30	33	10' 10"	10' 0"	8' 11"	13' 11"	12' 7"	11' 0"	9' 8"	8' 11"	8' 0"	12' 2"	11' 0"	9' 7"
	362VS125-30	33	11' 11"	11' 0"	9' 10"	16' 9"	15' 6"	13' 11"	10' 8"	9' 10"	8' 10"	15' 0"	13' 11"	12' 4"
	400VS125-30	33	12' 3"	11' 4"	10' 2"	17' 3"	15' 11"	14' 3"	10' 11"	10' 2"	9' 1"	15' 5"	14' 3"	12' 9"
	600VS125-30	33	13' 8"	12' 8"	11' 5"	19' 9"	18' 4"	16' 5"	12' 4"	11' 5"	10' 3"	17' 9"	16' 5"	14' 9"
VIPER 33mil	162VS125-33	33	10' 3"	9' 5"	8' 3"	10' 4"	9' 5"	8' 3"	9' 0"	8' 3"	7' 2"	9' 0"	8' 3"	7' 2"
	250VS125-33	33	11' 3"	10' 5"	9' 3"	14' 4"	13' 0"	11' 5"	10' 0"	9' 3"	8' 3"	12' 6"	11' 5"	9' 11"
	362VS125-33	33	12' 4"	11' 5"	10' 2"	17' 4"	16' 1"	14' 5"	11' 0"	10' 2"	9' 2"	15' 7"	14' 5"	12' 10"
	400VS125-33	33	12' 8"	11' 9"	10' 6"	17' 10"	16' 6"	14' 9"	11' 4"	10' 6"	9' 5"	15' 11"	14' 9"	13' 3"
	600VS125-33	33	14' 2"	13' 1"	11' 9"	20' 4"	18' 10"	16' 11"	12' 8"	11' 9"	10' 7"	18' 3"	16' 11"	15' 3"

L/360			4 PSF LATERAL SUPPORT OF COMPRESSION FLANGE						6 PSF LATERAL SUPPORT OF COMPRESSION FLANGE					
MODEL NO.	MEMBER	YIELD STRESS (ksi)	UNSUPPORTED			MIDSPAN			UNSUPPORTED			MIDSPAN		
			Joist Spacing (in.) o.c.			Joist Spacing (in.) o.c.			Joist Spacing (in.) o.c.			Joist Spacing (in.) o.c.		
			12	16	24	12	16	24	12	16	24	12	16	24
VIPER25	162VS125-15	50	7' 0"	6' 4"	5' 6"	6' 9"	6' 1"	5' 4"	6' 1"	5' 6"	4' 9"	5' 10"	5' 4"	4' 7"
	250VS125-15	50	8' 8"	8' 0"	7' 3"	9' 6"	8' 7"	7' 5"	7' 10"	7' 3"	6' 6"	8' 3"	7' 5"	6' 5"
	362VS125-15	50	9' 8"	9' 0"	8' 1"	12' 9"	11' 7"	10' 0"	8' 9"	8' 1"	7' 4"	11' 1"	10' 0"	8' 7"
	400VS125-15	50	10' 0"	9' 3"	8' 4"	13' 4"	12' 3"	10' 10"	9' 0"	8' 4"	7' 6"	11' 10"	10' 10"	9' 3"
	600VS125-15	50	11' 4"	10' 6"	9' 6"	15' 6"	14' 3"	12' 7"	10' 3"	9' 6"	8' 7"	13' 9"	12' 7"	8' 11"
VIPER20	162VS125-18	70	7' 6"	6' 10"	5' 11"	7' 5"	6' 8"	5' 9"	6' 6"	5' 11"	5' 2"	6' 5"	5' 9"	5' 0"
	250VS125-18	70	9' 6"	8' 9"	7' 11"	10' 5"	9' 6"	8' 3"	8' 6"	7' 11"	7' 1"	9' 1"	8' 3"	7' 2"
	362VS125-18	70	10' 3"	9' 7"	8' 7"	13' 10"	12' 6"	10' 11"	9' 3"	8' 7"	7' 9"	12' 0"	10' 11"	9' 5"
	400VS125-18	70	10' 11"	10' 1"	9' 1"	15' 0"	13' 8"	11' 11"	9' 10"	9' 1"	8' 3"	13' 2"	11' 11"	10' 5"
	600VS125-18	70	12' 6"	11' 8"	10' 6"	17' 8"	16' 5"	14' 8"	11' 4"	10' 6"	9' 6"	15' 11"	14' 8"	13' 0"
VIPER 30mil	162VS125-30	33	8' 9"	7' 11"	6' 11"	8' 9"	7' 11"	6' 11"	7' 8"	6' 11"	6' 1"	7' 8"	6' 11"	6' 0"
	250VS125-30	33	10' 10"	10' 0"	8' 11"	12' 2"	11' 0"	9' 7"	9' 8"	8' 11"	8' 0"	10' 7"	9' 7"	8' 5"
	362VS125-30	33	11' 11"	11' 0"	9' 10"	16' 2"	14' 8"	12' 10"	10' 8"	9' 10"	8' 10"	14' 2"	12' 10"	11' 2"
	400VS125-30	33	12' 3"	11' 4"	10' 2"	17' 3"	15' 11"	13' 10"	10' 11"	10' 2"	9' 1"	15' 3"	13' 10"	12' 1"
	600VS125-30	33	13' 8"	12' 8"	11' 5"	19' 9"	18' 4"	16' 5"	12' 4"	11' 5"	10' 3"	17' 9"	16' 5"	14' 9"
VIPER 33mil	162VS125-33	33	9' 0"	8' 3"	7' 2"	9' 0"	8' 3"	7' 2"	7' 11"	7' 2"	6' 3"	7' 11"	7' 2"	6' 3"
	250VS125-33	33	11' 3"	10' 5"	9' 3"	12' 6"	11' 5"	9' 11"	10' 0"	9' 3"	8' 3"	10' 11"	9' 11"	8' 8"
	362VS125-33	33	12' 4"	11' 5"	10' 2"	16' 9"	15' 2"	13' 3"	11' 0"	10' 2"	9' 2"	14' 7"	13' 3"	11' 7"
	400VS125-33	33	12' 8"	11' 9"	10' 6"	17' 10"	16' 5"	14' 4"	11' 4"	10' 6"	9' 5"	15' 9"	14' 4"	12' 6"
	600VS125-33	33	14' 2"	13' 1"	11' 9"	20' 4"	18' 10"	16' 11"	12' 8"	11' 9"	10' 7"	18' 3"	16' 11"	15' 3"

NOTES:

- Ceiling spans are based on CSA S136-16 by considering flexure, shear, web crippling and deflection.
- Web crippling is based on a rational analysis/tests with a bearing length of 1".
- Web stiffeners are not required when $h/t > 200$ since web crippling and shear was confirmed by testing.
- Span values are for simple spans, with compression flange either unbraced or braced at midspan.
- Loads are considered ceiling assembly dead loads, not including storage or any live load for accessible ceilings.
- The factory punchouts are in accordance with Section C5 of AISI S201-12.
- The distance from the centre of the last punchout to the end of the member shall not be less than 12".

FACTORED SCREW CONNECTION RESISTANCES (lbs.)

MODEL NO.	DESIGN THICKNESS (in.)	YIELD STRESS (ksi)	ULTIMATE STRESS (ksi)	#6 SCREW (Pss = 643 lbs, 7 Pts = 419 lbs) 0.138" dia, 0.25" Head			#8 SCREW (Pss = 1278 lbs, 7 Pts = 586 lbs) 0.164" dia, 0.3125" Head			#10 SCREW (Pss = 1644 lbs, 7 Pts = 1158 lbs) 0.190" dia, 0.340" Head		
				Shear	Pull-Out	Pull-Over	Shear	Pull-Out	Pull-Over	Shear	Pull-Out	Pull-Over
Viper25	0.0155	50	50	90*	36	116	108*	43	145	112*	50	158
Viper20	0.0190	70	70	114	62	168	125	74	234	134	86	271
Conventional (25ga)	0.0188	33	33	53	29	93	58	35	116	62	40	127
Conventional (20ga DW) or Viper30 mil	0.0312	33	33	113	48	154	124	57	193	133	67	210
Conventional (20ga STR) or Viper33 mil	0.0346	33	45	181	73	168	197	87	234	212	101	318

NOTES:

- Factored screw connection resistances are based on Section J5 of CSA S136-16 using limit states design (LSD).
- Screw pull-out resistances are based on the listed respective head diameter.
- Two sheets of equal thickness and tensile strength are assumed in tabulated values.
- When materials of different steel thickness and tensile strength are connected, use the lowest for shear resistance (tilting and bearing). For pull-out resistance use sheet closest to screw tip and for pull-over resistance use sheet closest to screw head.
- Where multiple fasteners are used, screws are assumed to have a centre-to-centre spacing of at least 3 times the nominal diameter.
- Screws are assumed to have a centre-of-screw to edge-of-steel dimension of at least 1.5 times the nominal screw diameter.
- When screws are subjected to a combination of shear and tension, interaction equations in Section J4.5 of CSA S136-16 shall be used.
- VIPER25* screw shear values are tested based on CSA S136-16 and AISI S905 - tests conducted by Structural Testing and Research Inc.
- All other values are calculated based on CSA S136-16.

SCREW PENETRATION TESTING (ASTM C 645, ASTM C 1002)

To pass screw penetration tests, studs must be capable of pulling the head of the screw below surface of gypsum board in less than 2 seconds without spin out.

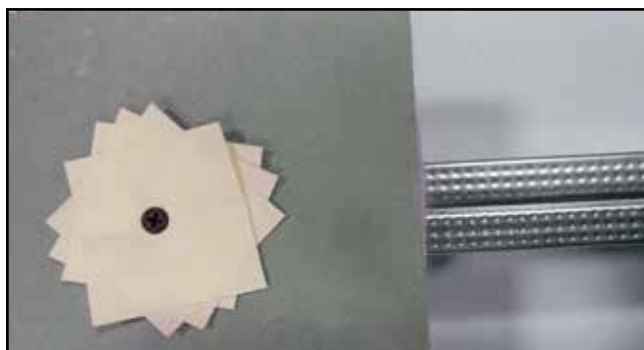
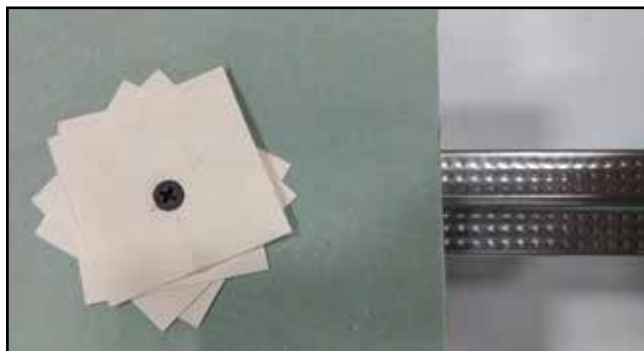
GYPSUM BOARD – VIPER25 & VIPER20

1/2" Type C	Viper25	#6 x1-1/4"	2500	PASS
5/8" Type X	Viper25	Type S sharp pt	2500	PASS

HI-ABUSE/HI-IMPACT – VIPER20

SHEATHING TYPE AND THICKNESS	STEEL FRAMING	SCREW TYPE	DRILL SPEED (RPM)	C645 PASS/ FAIL ASTM
USG 5/8" High Impact	3-5/8" Viper20	#6 x 1-1/4" Type S sharp pt	4000	PASS
National Gypsum 5/8" High Impact	3-5/8" Viper20	#6 x 1-1/4" Type S sharp pt	4000	PASS
Georgia Pacific 5/8" High Impact	3-5/8" Viper20	#6 x 1-1/4" Type S sharp pt	4000	PASS
CertainTeed 5/8" High Impact	3-5/8" Viper20	#6 x 1-1/4" Type S sharp pt	4000	PASS
Continental 5/8" High Impact	3-5/8" Viper20	#6 x 1-1/4" Type S sharp pt	4000	PASS

*Testing conducted by Structural Testing & Research, Inc.



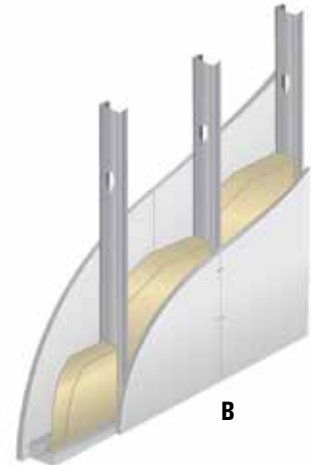
ACOUSTIC PERFORMANCE (ASTM E 90)

The ViperStud® drywall framing system has been tested to determine the transmission of sound through walls. Acoustic tests were performed using 3-5/8" ViperStud steel studs. The tests were performed according to ASTM E 90 in different configurations.

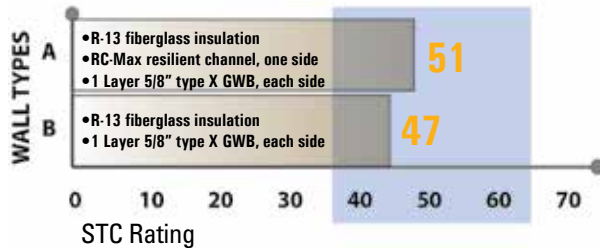
Sound testing performed by Western Electro-Acoustic Laboratory and Architectural Testing, Inc.

WALL TYPES

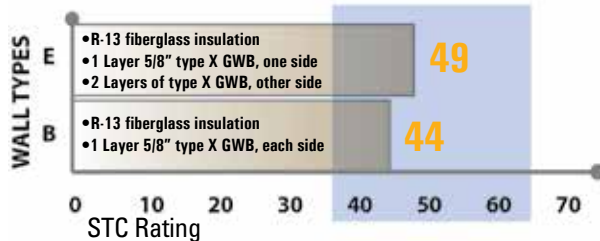
VIPER25 24" O.C.



VIPER25 16" O.C.



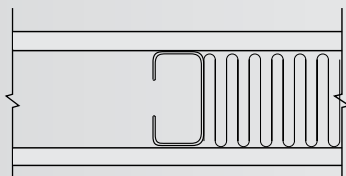
VIPER20 16" O.C.



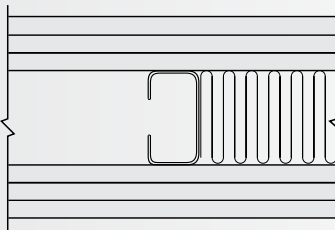
FIRE TESTING DATA (ASTM E 119)

TYPICAL ASSEMBLIES (see specific design for requirements)

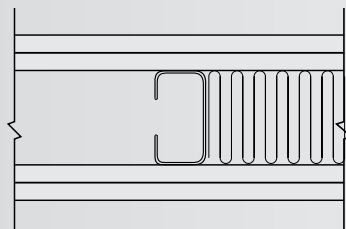
1-Hour Wall Assembly



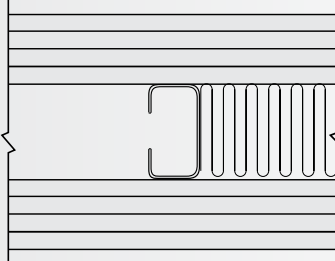
3-Hour Wall Assembly



2-Hour Wall Assembly



4-Hour Wall Assembly



Insulation shown is optional in most assemblies.
Check UL Design Guide for rated assembly requirements.

VIPERSTUD® IS FIRE TESTED



VIPERSTUD® FIRE TESTING DATA (ASTM E119)

UL Design No.	ViperStud Min. Thickness	Wall Rating:	UL Design No.	ViperStud Min. Thickness	Wall Rating:
U375	Viper25	2 HR	V412	Viper20	2 HR
U403	Viper20	2 HR	V416	Viper20	1 HR
U407	Viper25	1/2 or 1 HR	V417	Viper25	1 HR
U408	Viper20	2 HR	V418	Viper20	2 HR
U411	Viper20	2 HR	V419	Viper20	2 HR
U412	Viper20	2 HR	V425	Viper20	1 HR
U419	Viper25	1, 2, 3 or 4 HR	V435	Viper25	1 HR
U421	Viper20	2 HR	V437	Viper20	1 HR Chase
U431	Viper20	4 HR	V438	Viper25	1, 2, 3 or 4 HR
U435	Viper20	3 HR or 4 HR	V443	Viper20	4 HR
U436	Viper20	1, 2 or 3 HR	V444	Viper20	1 HR
U450	Viper20	1, 3 or 4 HR	V448	Viper25	1 HR
U451	Viper20	1 HR	V449	Viper20	2 HR
U454	Viper20	2 HR	V452	Viper25	1 or 2 HR
U463	Viper20	3 or 4 HR	V469	Viper25	1 or 2 HR Chase
U465	Viper20	1 HR	V476	Viper20	1, 3 or 4 HR
U466	Viper20	1 HR Chase	V486	Viper25	1, 2, or 2-1/2 HR
U471	Viper20	1-1/2 HR	V488	Viper25	1 or 2 HR Chase
U475	Viper20	1, 2, 3 or 4 HR	V489	Viper25	1, 2, 3, or 4 HR
U478	Viper20	3 HR	V496	Viper20	1 or 2 HR Chase
U491	Viper20	2 HR	V498	Viper25	1, 2, 3 or 4 HR
U493	Viper25	1, 2 HR Chase	W411	Viper25	1/2 or 1 HR
U494	Viper20	1 HR	W415	Viper20	1 or 2 HR
U495	Viper20	1 or 2 HR	W423	Viper25	1/2 or 1 HR
U496	Viper20	1 HR	W424	Viper25	1/2 or 1 HR
V410	Viper20	2 HR	W432	Viper25	2 HR
			W433	Viper25	1/2 HR
			W440	Viper25	1, 2, 3 or 4 HR
			W442	Viper20	2 HR
			W443	Viper25	1, 1-1/2 HR

Note: Check UL Design assembly for minimum stud web width and other requirements.
Visit www.MarinoWare.com for more information on fire rated assemblies.

IMPACT TESTING (ASTM C 1629)**Test Summary:**

All tests were conducted to ASTM C 1629 standard using Test Method ASTM E 695 for Soft Body Impact Tests.

Test Materials:

Steel Studs – Viper20 Stud and track spaced 16" o.c., do not use ViperTrack25 on Viper20 studs for impact resistant walls.

Testing conducted by IAS Certified 3rd party testing lab Progressive Engineering.

TESTS CONDUCTED	SOFT BODY IMPACT CLASSIFICATION
-----------------	---------------------------------

USG

Board Type: Mold Tough® VHI Firecode® X Panels

Level 3

CERTAINTEED

Board Type: Extreme Impact

Level 3

AMERICAN

Board Type: M-Bloc® IR 5/8" Type X Impact Resistant

Level 3

GEORGIA PACIFIC

Board Type: DensArmor Plus® Impact-Resistant Interior Panel

Level 3

CONTINENTAL™

Board Type: Protecta® HIR 300

Level 3

PABCO®

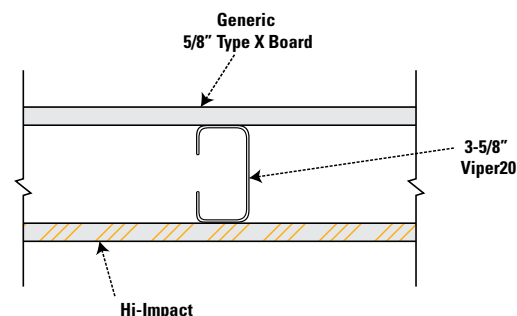
Board Type: PABCO® High Impact

Level 3

NATIONAL GYPSUM

Board Type: Hi-Impact® XP® Gypsum Board

Level 3



Soft body impact test using ViperStud.



Viper20 was tested to ASTM C1629 by Progressive Engineering, Inc with High-Impact wallboard from 7 manufacturers. All boards earned a Level 3 Classification (highest possible) on Viper20.

Mold Tough® is a registered trademark of USG

Extreme Impact® is a registered trademark of CertainTeed

M-Bloc® is a registered trademark of American Gypsum

DensArmor Plus® is a registered trademark of Georgia-Pacific

Protecta® is a registered trademark of Continental Building Products

PABCO High Impact® is a registered trademark of PABCO Gypsum

Hi-Impact® XP® is a registered trademark of National Gypsum



QUÉBEC

4500 rue Bernard-Lefebvre
Laval, Québec, H7C 0A5

ONTARIO

10 Auction Lane,
Brampton, Ontario, L6T 4P6

Toll Free: 855-728-4500
Tel: 450-728-4500
Fax: 450-665-4500
www.fusionbp.ca

Standing Strong.™