



Expanding Your Solutions



# ViperStud<sup>®</sup> Product Catalog

Interior Non-Load Bearing Studs and Track

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 IAS Accredited Test Agencies and/or certified by the Product Evaluation Agencies listed here.



**Patents** ViperStud Patent #D621,964  
ViperTrack Patent #D621,963

#### IBC/IRC 2003, 2006, 2009, 2012 Compliant

The Viper25 & Viper20 values for composite limiting heights in this catalog have been submitted for recognition in our ICC-ES ESR-2620 & ATI ES CCRR-0154 reports. The physical properties, fully-braced and 48" O.C. braced limiting heights of ViperStud in this catalog are listed in our evaluation report ATI CCRR-0154. ViperStud complies with 2013 ICC-ES and SFIA code compliance certification programs. Please see the full versions of these reports at [www.cemcosteel.com](http://www.cemcosteel.com).

U.S. Patent Nos. D621,964 and D621,963 are assigned to Ware Industries, Inc. and used by CEMCO under license from Ware Industries, Inc. "ViperStud®", "ViperTrack®" and "ViperRib®" are registered trademarks of Ware Industries, Inc. The ViperStud logo and "Standing Strong.™" are trademarks of Ware Industries, Inc. The "ViperStud®", "ViperTrack®", "ViperRib®" and "Standing Strong.™" trademarks are used by CEMCO under license from Ware Industries, Inc. ©2011 Ware Industries, Inc. All rights reserved.

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

- **AISI S100-07** with S2-09 North American Specification, 2007 edition with Supplement No. 2
- **AISI S220-11** North American Standard for Cold-Formed Steel Framing—Non-Structural Members
- **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 A653/A653M** Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- **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

#### ViperStud is listed in the following:

- ATI CCRR-0154
- ICC-ES ESR-2620
- NYC Department of Buildings MEA 56-08-M, MEA 56-08-M Vol 2, MEA 235-08-M

#### Architectural Testing Approved & ICC ES Code Compliant

Viper25, Viper20, Viper 18mil, Viper 30mil, and Viper 33mil manufactured by CEMCO received an evaluation report (CCRR-0154) from ATI Evaluation Services and an evaluation report (ESR# 2620) from ICC Evaluation Service (ICC-ES), providing evidence that the ViperStud Drywall Framing System meets code requirements. Building officials, architects, contractors, specifiers, designers and others utilize these Evaluation Reports to provide a basis for using or approving metal framing in construction projects following the International Building Code.

#### LEED® v3 Information

Available LEED® points in the following categories:

- MR Credit 2 - Construction Waste Management (1-2 points)
- MR Credit 4 - Recycled Content (1-2 points)
- MR Credit 5 - Regional Materials (1-2 points)

#### Recycled Content

- Total Recycled Content: 36.9%
- Post Consumer Content: 19.8%
- Pre Consumer (Post Industrial) Content: 14.4%

## A High Strength, Flat Steel Drywall Framing System

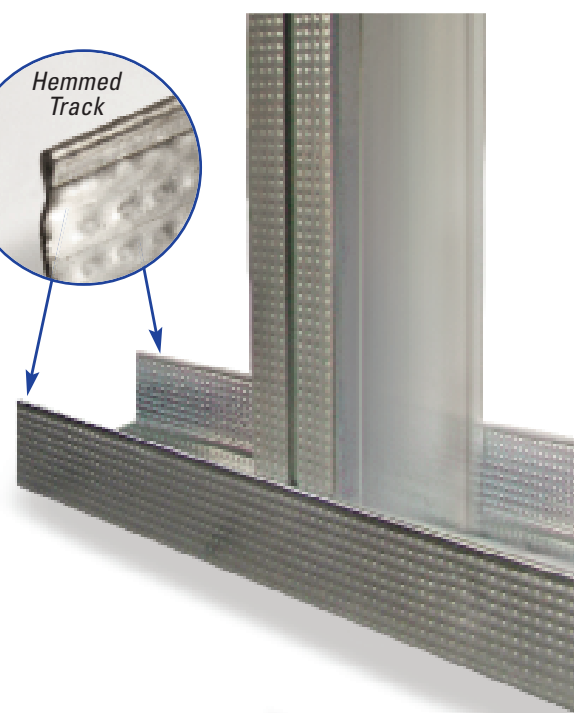
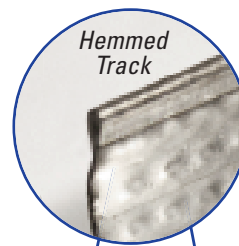
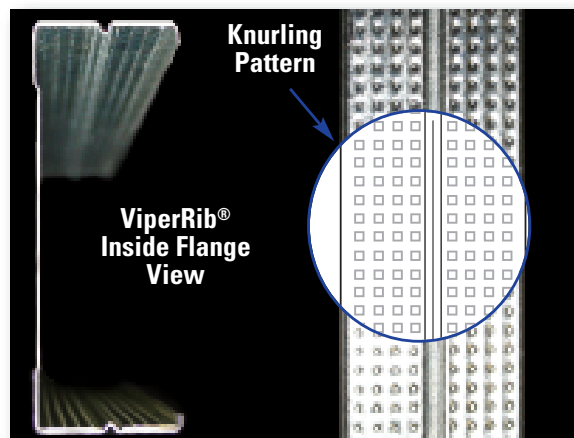
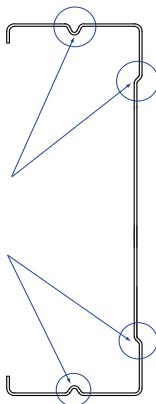
The ViperStud® Drywall Framing System offers all the benefits of conventional flat steel studs with a design that performs even better. The ViperStud® drywall framing system is interchangeable with conventional framing components. Since ViperStud® is flat steel, it is easy to plumb and mark, make minor 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.

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.*

# PHYSICAL PROPERTIES



## ViperStud®

MODEL NO.	DESIGN THICKNESS (in)	MINIMUM THICKNESS (in)	YIELD (ksi)	WEB SIZES (in)	COATING <sup>1,2</sup>	FLANGE (in)	RETURN LIP
VIPER25	0.016	0.015	50	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4
VIPER 18mil	0.019	0.018	33	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4
VIPER20	0.021	0.020	57	1-5/8, 2-1/2, 3-5/8	G40	1-1/4	1/4
VIPER20	0.022	0.021	57	4, 6	G40	1-1/4	1/4
VIPER 30mil	0.031	0.030	33	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4
VIPER 33mil	0.035	0.033	33	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4

## ViperTrack®

MODEL NO.	DESIGN THICKNESS (in)	MINIMUM THICKNESS (in)	YIELD (ksi)	WEB SIZES (in)	COATING <sup>1,2</sup>	FLANGE (in)	RETURN LIP
VIPERTRACK25	0.016	0.015	50	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4
VIPERTRACK 18mil	0.019	0.018	33	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4
VIPERTRACK20	0.021	0.020	50	1-5/8, 2-1/2, 3-5/8	G40	1-1/4	1/4
VIPERTRACK20	0.022	0.021	50	4, 6	G40	1-1/4	1/4
VIPERTRACK 30mil	0.031	0.030	33	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4
VIPERTRACK 33mil	0.035	0.033	33	1-5/8, 2-1/2, 3-5/8, 4, 6	G40	1-1/4	1/4

**Notes:**

1. Per ASTM C645 & ASTM A1003 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", and 6" stud is 1-1/2" x 2-1/2".

Viper25 (15 mil) is equivalent to conventional 25 gauge (18 mil) studs, and Viper20 (20 & 21 mil) is equivalent to conventional 20 gauge (30 mil). Both Viper25 and Viper20 meet ASTM C645. ASTM C 645 Section 5.1 allows for permissible dimensional thickness variations. Section 8.2 allows for thickness variations and exemptions from minimum section property values, if specified performance requirements are not met. The ViperStud Drywall Framing products meet and exceed these requirements.



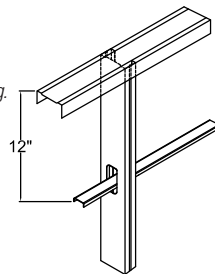
## DEEP LEG DEFLECTION TRACK

Deflection track can be required at the top of a wall to allow for anticipation 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.

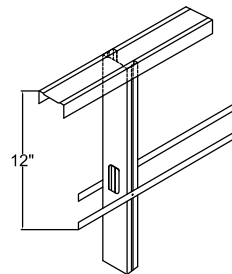
MODEL NO.	DESIGN THICKNESS (in)	MINIMUM THICKNESS (in)	YIELD (ksi)	COATING <sup>4,5</sup>	WEB SIZES (in) <sup>2</sup>	LEG SIZE (in)	GAP (in)	LOAD (lb.)	MAX HEIGHT <sup>1</sup> 5 psf, 16" o.c.
VIPERTRACK25	0.016	0.015	50	G40	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	34	10'-3"
VIPERTRACK18mil	0.019	0.018	33	G40	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	33	9' 11"
VIPERTRACK20	0.021	0.020	50	G40	1-5/8, 2-1/2, 3-5/8	2"	1/2"	68	20'-6"
	0.021	0.020			2-1/2, 3-5/8	2-1/2"	3/4"	45	13'-8"
	0.021	0.020			2-1/2, 3-5/8	3"	1"	34	10'-3"
VIPERTRACK20	0.022	0.021	50	G40	4, 6	2"	1/2"	78	23'-8"
	0.022	0.021			4, 6	2-1/2"	3/4"	52	15'-9"
	0.022	0.021			4, 6	3"	1"	39	11'-10"
VIPERTRACK 30mil	0.031	0.030	33	G40	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	91	27'-6"
	0.031	0.030			2-1/2, 3-5/8, 4, 6	2-1/2"	3/4"	61	18'-4"
	0.031	0.030			2-1/2, 3-5/8, 4, 6	3"	1"	45	13'-9"
VIPERTRACK 33mil	0.035	0.033	33	G40	1-5/8, 2-1/2, 3-5/8, 4, 6	2"	1/2"	112	33'-10"
	0.035	0.033			2-1/2, 3-5/8, 4, 6	2-1/2"	3/4"	75	22'-7"
	0.035	0.033			2-1/2, 3-5/8, 4, 6	3"	1"	56	16'-11"

**Notes:**

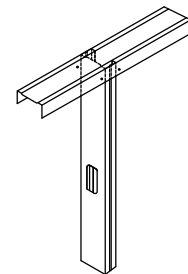
1. Max wall height based on stud spacing of 16" o.c. & 5 PSF lateral load.
2. 1-5/8" deep leg track available with max 2" leg.
3. Wall studs are not fastened to deep leg track.
4. G60, G90 available upon request.
5. Per ASTM C645 & ASTM A1003, Table 1



**A. ALTERNATIVE 1**  
WITH CRC CHANNEL AND BRC CLIP. 12" DOWN FROM THE STUD END.



**B. ALTERNATIVE 2**  
ATTACHING FLAT STRAP AT EACH SIDE OF THE STUD FLANGE. 12" DOWN FROM THE STUD END.



**C. ALTERNATIVE 3**  
ATTACHING 2 SCREWS AT EACH LEG OF THE DEEP LEG TRACK, NEAR THE STUD FLANGES. (TOTAL 4 SCREWS)

**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)







COMPOSITE LIMITING HEIGHTS – 5/8" TYPE X<sup>3</sup>



Main table with columns for Model No., Depth, Gauge, Member, Design, Min. (in), Yield (ksi), Spacing O.C. (in), and limiting heights for 5 PSF, 7.5 PSF, and 10 PSF across various stud spacings (1/2, 2/4, 3/6).

Notes:

- 1. Viper composite limiting heights are based on testing in accordance with ICC-ES acceptance criteria AC86-2012.
2. No screws are required between stud and track, except as required by ASTM C754. Composite heights are based on using standard top track. Screw fastening of stud to track is not required. Mechanically fastening of gypsum panel to the stud and track is required.

3. Viper composite limiting heights based on a single layer of 5/8" type X gypsum board applied vertically to both sides of the wall over full height 5/8" Type X wallboard from the following manufacturers are acceptable: USG, National, Georgia-Pacific, Temple Inland, CertainTeed, American, & LaFarge.





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



Table with columns: MODEL NO., DEPTH, GAUGE, MEMBER, DESIGN, MIN. (in), YIELD (ksi), SPACING O.C. (in), and limiting heights for 5 PSF, 7.5 PSF, and 10 PSF loads across various stud depths and gauges.

"f"-flexure controls; "s"-shear controls; "w"-web crippling controls. No letter next to the number means deflection controls.

Notes: 1. Limiting heights are in accordance with AISI S100-07 using all steel non-composite design. 2. Limiting heights are established by considering flexure, shear, web crippling, and deflection. The web crippling values are based on testing with a bearing length of 1". 3. For bending, studs are assumed to be adequately braced to develop full

allowable moment. 4. Viper25 and Viper20 distortional, local buckling moments and stiffness are based on testing. 5. For web crippling, when h/t <= 200, the web crippling values are computed based on section C3.4.2 of AISI S100-07. 6. No web stiffeners are required for studs with h/t > 200, web crippling and shear values have

been confirmed by testing. Fully braced when unbraced length is less than Lu. See section properties table on pg. 5 for Lu values. 7. The factory punchouts are in accordance with section C5 of AISI S201-07. The distance from the center of the last punchout to the end of the stud is 12".



# ALLOWABLE CEILING SPANS

L/240			4 PSF LATERAL SUPPORT OF COMPRESSION FLANGE						6 PSF LATERAL SUPPORT OF COMPRESSION FLANGE					
MODEL NO.	MEMBER	Fy ksi	Unsupported Joist Spacing (in) O.C.			Midspan Joist Spacing (in) O.C.			Unsupported Joist Spacing (in) O.C.			Midspan Joist Spacing (in) O.C.		
			12	16	24	12	16	24	12	16	24	12	16	24
VIPER25	162VS125-15	50	7'-3" F	6'-9" F	6'-0" F	8'-1"	7'-4"	6'-5"	6'-6" F	6'-0" F	5'-5" F	7'-1"	6'-5"	5'-7"
	250VS125-15	50	8'-2" F	7'-7" F	6'-10" F	11'-3" F	10'-4"	9'-0" F	7'-4" F	6'-10" F	6'-2" F	10'-0"	9'-0" F	7'-8" F
	362VS125-15	50	9'-1" F	8'-6" F	7'-8" F	12'-0" F	11'-0" F	9'-9" F	8'-3" F	7'-8" F	6'-11" F	10'-8" F	9'-9" F	8'-5" F
	400VS125-15	50	9'-5" F	8'-9" F	7'-10" F	12'-5" F	11'-4" F	10'-0" F	8'-6" F	7'-10" F	7'-1" F	11'-0" F	10'-0" F	8'-9" F
	600VS125-15	50	10'-8" F	9'-11" F	8'-11" F	14'-4" F	13'-2" F	11'-8" F	9'-7" F	8'-11" F	8'-1" F	12'-9" F	11'-8" F	8'-10" W
VIPER20	162VS125-20	57	7'-10" F	7'-3" F	6'-6" F	9'-4"	8'-6"	7'-5"	7'-1" F	6'-6" F	5'-10" F	8'-2"	7'-5"	6'-6"
	250VS125-20	57	8'-10" F	8'-2" F	7'-4" F	12'-4" F	11'-4" F	10'-2" F	7'-11" F	7'-4" F	6'-7" F	11'-0" F	10'-2" F	8'-11"
	362VS125-20	57	9'-10" F	9'-1" F	8'-2" F	13'-6" F	12'-4" F	10'-11" F	8'-10" F	8'-2" F	7'-5" F	11'-11" F	10'-11" F	9'-8" F
	400VS125-21	57	10'-4" F	9'-7" F	8'-7" F	14'-4" F	13'-2" F	11'-7" F	9'-3" F	8'-7" F	7'-9" F	12'-8" F	11'-7" F	10'-3" F
	600VS125-21	57	11'-8" F	10'-10" F	9'-9" F	16'-6" F	15'-3" F	13'-7" F	10'-6" F	9'-9" F	8'-9" F	14'-9" F	13'-7" F	12'-0" F
VIPER 30MIL	162VS125-30	33	9'-4" F	8'-7" F	7'-8" F	10'-1"	9'-2"	8'-0"	8'-4" F	7'-8" F	6'-10" F	8'-10"	8'-0"	7'-0"
	250VS125-30	33	10'-4" F	9'-6" F	8'-6" F	13'-11"	12'-8"	11'-1"	9'-2" F	8'-6" F	7'-7" F	12'-2"	11'-1"	9'-8"
	362VS125-30	33	11'-4" F	10'-6" F	9'-5" F	16'-0" F	14'-10" F	13'-3" F	10'-2" F	9'-5" F	8'-6" F	14'-4" F	13'-3" F	11'-9" F
	400VS125-30	33	11'-8" F	10'-10" F	9'-8" F	16'-5" F	15'-2" F	13'-7"	10'-6" F	9'-8" F	8'-9" F	14'-9" F	13'-7" F	12'-1" F
	600VS125-30	33	13'-1" F	12'-2" F	10'-11" F	18'-10" F	17'-6" F	15'-8" F	11'-9" F	10'-11" F	9'-10" F	16'-11" F	15'-8" F	14'-1" F
VIPER 33MIL	162VS125-33	33	9'-9" F	8'-11" F	7'-11" F	10'-5"	9'-5"	8'-3"	8'-8" F	7'-11" F	7'-1" F	9'-1"	8'-3"	7'-3"
	250VS125-33	33	10'-9" F	9'-10" F	8'-10" F	14'-5"	13'-1"	11'-5"	9'-7" F	8'-10" F	7'-11" F	12'-7"	11'-5"	10'-0"
	362VS125-33	33	11'-9" F	10'-11" F	9'-9" F	16'-7" F	15'-4" F	13'-9" F	10'-7" F	9'-9" F	8'-9" F	14'-10" F	13'-9" F	12'-2" F
	400VS125-33	33	12'-1" F	11'-2" F	10'-0" F	17'-0" F	15'-8" F	14'-1" F	10'-10" F	10'-0" F	9'-0" F	15'-3" F	14'-1" F	12'-7" F
	600VS125-33	33	13'-6" F	12'-6" F	11'-3" F	19'-5" F	18'-0" F	16'-3" F	12'-2" F	11'-3" F	10'-1" F	17'-6" F	16'-3" F	14'-6" F

L/360			4 PSF LATERAL SUPPORT OF COMPRESSION FLANGE						6 PSF LATERAL SUPPORT OF COMPRESSION FLANGE					
MODEL NO.	MEMBER	Fy ksi	Unsupported Joist Spacing (in) O.C.			Midspan Joist Spacing (in) O.C.			Unsupported Joist Spacing (in) O.C.			Midspan Joist Spacing (in) O.C.		
			12	16	24	12	16	24	12	16	24	12	16	24
VIPER25	162VS125-15	50	7'-1"	6'-5"	5'-7"	7'-1"	6'-5"	5'-7"	6'-2"	5'-7"	4'-11"	6'-2"	5'-7"	4'-11"
	250VS125-15	50	8'-2" F	7'-7" F	6'-10" F	10'-0"	9'-0"	7'-11"	7'-4" F	6'-10" F	6'-2" F	8'-8"	7'-11"	6'-11"
	362VS125-15	50	9'-1" F	8'-6" F	7'-8" F	12'-0" F	11'-0" F	9'-9" F	8'-3" F	7'-8" F	6'-11" F	10'-7" F	9'-9"	8'-5" F
	400VS125-15	50	9'-5" F	8'-9" F	7'-10" F	12'-5" F	11'-4" F	10'-0" F	8'-6" F	7'-10" F	7'-1" F	11-0" F	10'-0" F	8'-9" F
	600VS125-15	50	10'-8" F	9'-11" F	8'-11" F	14'-4" F	13'-2" F	11'-8" F	9'-7" F	8'-11" F	8'-1" F	12'-9" F	11'-8" F	8'-10" W
VIPER20	162VS125-20	57	7'-10" F	7'-3" F	6'-6"	8'-2"	7'-5"	6'-6"	7'-1" F	6'-6"	5'-8"	7'-2"	6'-6"	5'-8"
	250VS125-20	57	8'-10" F	8'-2" F	7'-4" F	11'-3"	10'-2"	8'-11"	7'-11" F	7'-4" F	6'-7" F	9'-9"	8'-11"	7'-9"
	362VS125-20	57	9'-10" F	9'-1" F	8'-2" F	13'-6" F	12'-4" F	10'-11" F	8'-10" F	8'-2" F	7'-5" F	11'-11" F	10'-11" F	9'-8" F
	400VS125-21	57	10'-4" F	9'-7" F	8'-7" F	14'-4" F	13'-2" F	11'-7" F	9'-3" F	8'-7" F	7'-9" F	12'-8" F	11'-7" F	10'-3" F
	600VS125-21	57	11'-8" F	10'-10" F	9'-9" F	16'-6" F	15'-3" F	13'-7" F	10'-6" F	9'-9" F	8'-9" F	14'-9" F	13'-7" F	12'-0" F
VIPER 30MIL	162VS125-30	33	8'-10"	8'-0"	7'-0"	8'-10"	8'-0"	7'-0"	7'-8"	7'-0"	6'-1"	7'-8"	7'-0"	6'-1"
	250VS125-30	33	10'-4" F	9'-6" F	8'-6" F	12'-2"	11'-1"	9'-8"	9'-2" F	8'-6" F	7'-7" F	10'-8"	9'-8"	8'-5"
	362VS125-30	33	11'-4" F	10'-6" F	9'-5" F	16'-0" F	14'-9"	12'-11"	10'-2" F	9'-5" F	8'-6" F	14'-2"	12'-11"	11'-3"
	400VS125-30	33	11'-8" F	10'-10" F	9'-8" F	16'-5" F	15'-2" F	13'-7" F	10'-6" F	9'-8" F	8'-9" F	14'-9" F	13'-7" F	12'-1" F
	600VS125-30	33	13'-1" F	12'-2" F	10'-11" F	18'-10" F	17'-6" F	15'-8" F	11'-9" F	10'-11" F	9'-10" F	16'-11" F	15'-8" F	14'-1" F
VIPER 33MIL	162VS125-33	33	9'-1"	8'-3"	7'-3"	9'-1"	8'-3"	7'-3"	7'-11"	7'-3"	6'-4"	7'-11"	7'-3"	6'-4"
	250VS125-33	33	10'-9" F	9'-10" F	8'-10" F	12'-7"	11'-5"	10'-0"	9'-7" F	8'-10" F	7'-11" F	11'-0"	10'-0"	8'-9"
	362VS125-33	33	11'-9" F	10'-11" F	9'-9" F	16'-7" F	15'-3"	13'-4"	10'-7" F	9'-9" F	8'-9" F	14'-8"	13'-4"	11'-8"
	400VS125-33	33	12'-1" F	11'-2" F	10'-0" F	17'-0" F	15'-8" F	14'-1" F	10'-10" F	10'-0" F	9'-0" F	15'-3" F	14'-1" F	12'-7" F
	600VS125-33	33	13'-6" F	12'-6" F	11'-3" F	19'-5" F	18'-0" F	16'-3" F	12'-2" F	11'-3" F	10'-1" F	17'-6" F	16'-3" F	14'-6" F

"f" - flexure controls; "s" - shear controls; "w" - web crippling controls.  
No letter next to the number means deflection controls.

**Ceiling Span Notes:**

1. Ceiling Spans are in accordance with AISI S100-07 using all steel non-composite design.
2. Ceiling Spans are established by considering flexure, shear, web crippling and deflection.
3. For web crippling, when  $h/t \leq 200$ , the web crippling values are computed based on section C3.4.2 of AISI S100-07, when  $h/t > 200$ , the web crippling values are based on testing with a bearing length of 1".

4. No web stiffeners are required for studs with  $h/t > 200$ , web crippling and shear values have been confirmed by testing.
5. All values are for simple spans, with compression flange either unbraced or braced at midspan.
6. Ceiling spans are based on total load of assembly, not including storage or live load for accessible ceilings.
7. The factory punchouts are in accordance with section C5 of AISI S201-07. The distance from the center of the last punchout to the end of the stud is 12".





# SCREW ALLOWABLE LOADS (lbs.)

MODEL NO.	DESIGN THICKNESS (in)	MIN. THICKNESS (in)	FY YIELD (ksi)	FU TENSILE (ksi)	#6 SCREW (0.138" dia; 0.25" head)			#8 SCREW (0.164" dia; 0.3125" head)			#10 SCREW (0.190" dia; 0.34" head)			C645 SCREW PENETRATION TEST (P,F)
					SHEAR	PULL OUT	PULL OVER	SHEAR	PULL OUT	PULL OVER	SHEAR	PULL OUT	PULL OVER	
VIPER25	0.0155	0.0147	50	50	75 <sup>a</sup>	30	97	909	36	121	939	42	132	PASS
VIPER20 (1-5/8" – 3-5/8")	0.0205	0.0195	57	57	106 <sup>a</sup>	46	146	1249	54	183	1309	63	199	PASS
VIPER20 (4" – 6")	0.0220	0.0209	57	57	129 <sup>a</sup>	49	157	1419	58	196	1449	98	213	PASS
VIPER 18mil	0.0188	0.0179	33	33	44	24	78	48	29	97	52	33	105	--
VIPER 30mil	0.0312	0.0296	33	33	95	40	129	103	48	161	111	55	175	--
VIPER 33mil	0.0346	0.0329	33	33	110	45	143	120	53	178	130	61	194	--

**Notes:**

- Capacities are based on section E4 of the AISI S100-07 Specification.
- Capacities are based on Allowable Strength Design (ASD).
- Screw pull-out capacities are based on listed 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 value for shear capacity (tilting and bearing), for pull-out capacity use sheet closest to screw tip and for pull-over capacity use sheet closest to screw head.
- Where multiple fasteners are used, screws are assumed to have a center-to-center spacing of at least 3 times the nominal diameter.
- Screws are assumed to have a center-of-screw to edge-of-steel dimension of at least 1.5 times the nominal diameter of the screw.
- When screws are subjected to combination of shear and tension forces, interaction equation of AISI S100-2007 Specification section E4.5 shall be used.
- Viper25 & Viper20 shear values are tested per AISI S100-07 and AISI S905, tests conducted by Structural Testing & Research, Inc.
- Non Structural Code Compliance Certification Program requires the Shear and Pullout values of a screw in Viper25 & Viper20 be equal or greater than the equivalent conventional stud.

## 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.

HI-ABUSE/HI-IMPACT – VIPER20				
SHEATHING TYPE AND THICKNESS	STEEL FRAMING	SCREW TYPE	DRILL SPEED (rpm)	PASS/FAIL ASTM-C-1002
USG 5/8" VHI	3-5/8" VIPER20	#6 X 1-1/4" TYPE S SHARP PT	2500	PASS
			4000	PASS
NATIONAL GYPSUM 5/8" HIGH IMPACT	3-5/8" VIPER20	#6 X 1-1/4" TYPE S SHARP PT	2500	PASS
			4000	PASS
NATIONAL GYPSUM 5/8" HIGH ABUSE	3-5/8" VIPER20	#6 X 1-1/4" TYPE S SHARP PT	2500	PASS
			4000	PASS

CEMENT BOARD – VIPER20				
SHEATHING TYPE AND THICKNESS	STEEL FRAMING	SCREW TYPE	DRILL SPEED (rpm)	PASS/FAIL ASTM-C-1002
USG 1/2" Durock®	VIPER20	#9 BUILDEX ROCK-ON	2500	PASS
			4000	PASS
		#9 PHILLIPS CEMENT BOARD	2500	PASS
			4000	PASS
NATIONAL GYPSUM 5/8" PERMABASE	VIPER20	#9 BUILDEX ROCK-ON	2500	PASS
			4000	PASS
		#9 PHILLIPS CEMENT BOARD	2500	PASS
			4000	PASS
GYPSUM BOARD – VIPER25 & VIPER20				
1/2" TYPE C 5/8" TYPE X 5/8" TYPE X	VIPER25 VIPER25 VIPER20	#6 X1-1/4" TYPE S SHARP PT	2500	PASS
			2500	PASS
			2500	PASS

**Notes:**

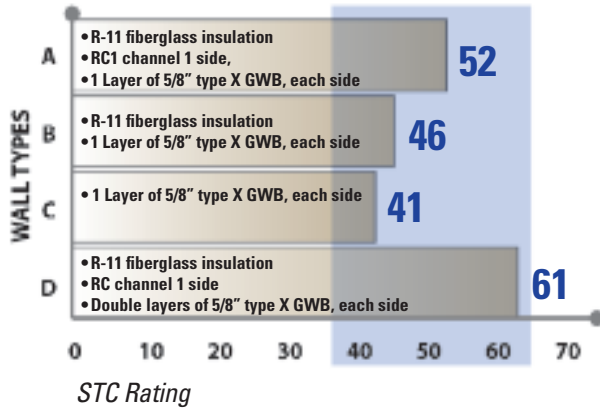
- Rock-on is a registered trademark of ITW Buildex.
- Durock is a registered trademark of the United States Gypsum Co. (USG)
- Phillips is a registered trademark of the Phillips Screw Co.
- Hi-Abuse, Hi-Impact, and Permbase are registered trademarks of the National Gypsum Co.



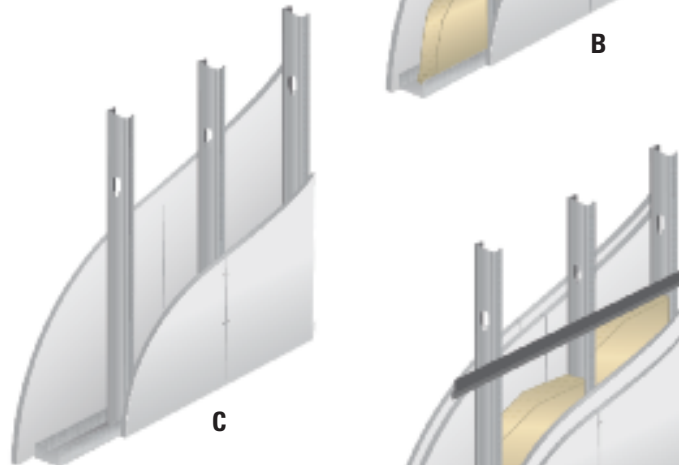
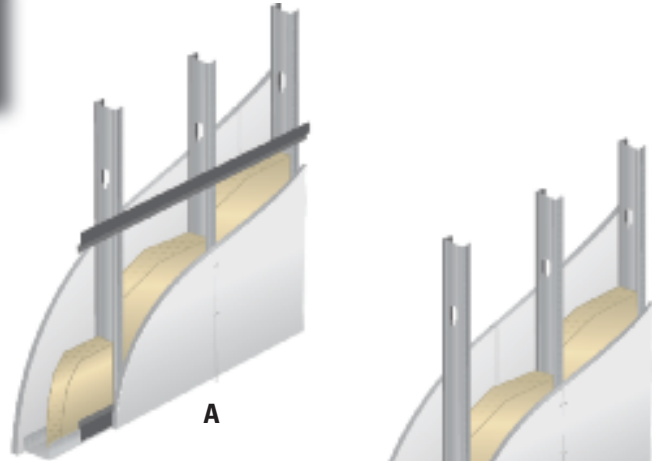
The ViperStud® drywall framing system has been tested to determine the transmission of sound through walls. Acoustic tests were performed using 3-5/8" ViperStud steel studs. The tests were performed according to ASTM E 90 in different configurations.

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

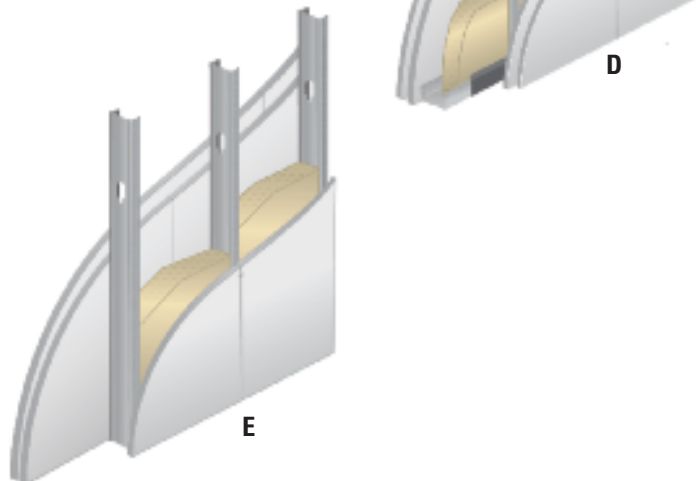
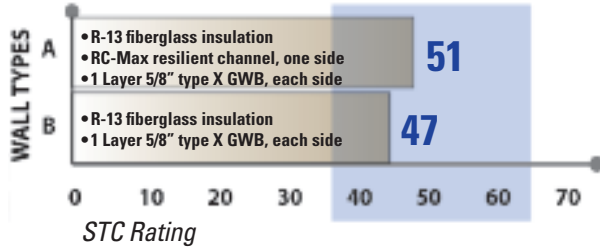
**VIPER25 24" O.C.**



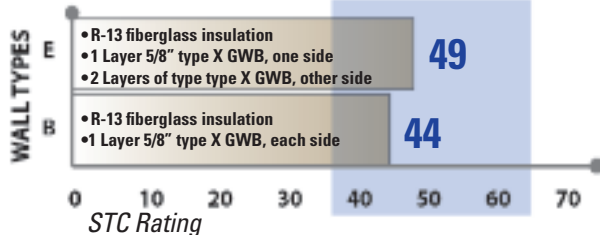
**WALL TYPES**



**VIPER25 16" O.C.**



**VIPER20 16" O.C.**

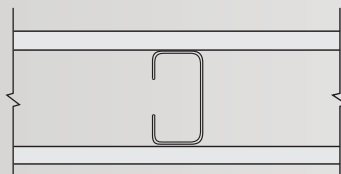




**1 HOUR WALL ASSEMBLIES • NON-LOAD BEARING**

**Viper25 or Viper20- 3-5/8", 4", or 6"**

**1 Hour Wall Assembly**



**WALL ASSEMBLIES**

- Studs spaced 24" o.c.
- One layer of generic 5/8" Type X gypsum wallboard<sup>1</sup>
- No insulation required

**Warnock-Hersey Design No. CEM/WF 60-01**

- The wallboard is oriented horizontally
- Warnock-Hersey Design No. CEM/WF 60-02**
- The wallboard is oriented vertically

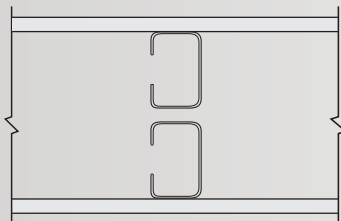
**CHASE WALL ASSEMBLIES**

- Two rows of ViperStud®
- Studs spaced 24" o.c.
- Can be aligned with a 1" minimum spacing between studs from each row, staggered or staggered and overlapped.
- One layer of generic 5/8" Type X gypsum wallboard<sup>1</sup>
- No insulation required

**Warnock-Hersey Design No. CEM/WF 60-03**

- The wallboard is oriented vertically
- Warnock-Hersey Design No. CEM/WF 60-04**
- The wallboard is oriented horizontally

**1 Hour Chase Wall Assembly**



**VIPERSTUD® IS FIRE TESTED**



**FOR EXPANDED UL CLASSIFICATIONS**

See these UL Design Assemblies

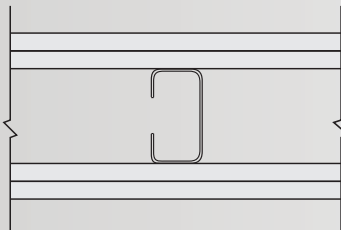
**Viper25 Steel Framing Member** for use in Design Nos. U375, U407, U419, V417, V435, V448, V477, V486, V489, V498, W411, W423, W424

**Viper20 Steel Framing Member** for use in Design Nos. U403, U408, U411, U412, U419, U421, U431, U435, U436, U450, U451, U454, U463, U465, U466, U471, U475, U478, U491, U494, U495, U496, V410, V412, V416, V417, V418, V419, V425, V435, V437, V438, V443, V444, V448, V449, V452, V476, V477, V496, V498, W411, W415, W424

**2 HOUR WALL ASSEMBLIES • NON-LOAD BEARING**

**Viper25 or Viper20- 1-5/8", 2-1/2", 3-5/8", 4", or 6"**

**2 Hour Wall Assembly**



**WALL ASSEMBLIES**

- Studs spaced 24" o.c.
- Two layers of generic 5/8" Type X gypsum wallboard<sup>1</sup>
- No insulation required

**Warnock-Hersey Design No. CEM/WF 120-01**

- The wallboard is oriented vertically
- Warnock-Hersey Design No. CEM/WF 120-02**
- The wallboard is oriented horizontally

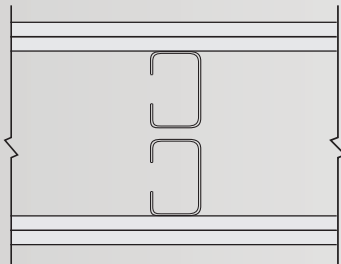
**CHASE WALL ASSEMBLIES**

- Two rows of ViperStud™ spaced 24" o.c.
- Can be aligned with a 1" minimum spacing between studs from each row, staggered or staggered and overlapped.
- Two layers of generic 5/8" Type X gypsum wallboard<sup>1</sup>
- No insulation required

**Warnock-Hersey Design No. CEM/WF 120-03**

- The wallboard is oriented vertically
- Warnock-Hersey Design No. CEM/WF 120-04**
- The wallboard is oriented horizontally

**2 Hour Chase Wall Assembly**



<sup>1</sup> 5/8" Generic Type X gypsum wallboard denotes these manufacturers for Warnock Hersey designs: American Gypsum, CertainTeed Gypsum, CGC Inc., Federal Gypsum Company, GP Gypsum, Lafarge North America, National Gypsum Co., PABCO Gypsum, Temple-Inland and United States Gypsum.

Visit [www.cemcosteel.com](http://www.cemcosteel.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 and ASTM C 1629 Annex 1 for Hard Body Impact Tests. Each test was repeated 3 times as required by the test method and results reported to the ASTM standard published values for Level Classification.

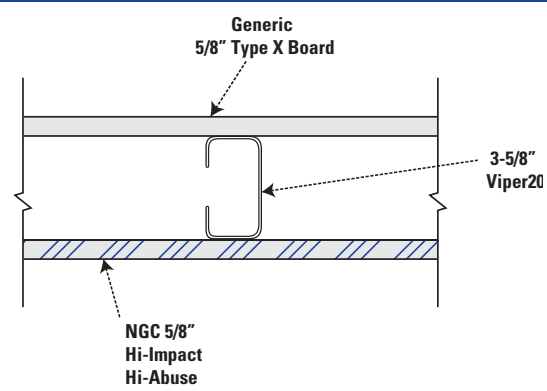
## Test Materials:

Steel Studs – Viper20 Stud and track spaced 16" o.c., do not use ViperTrack25 on Viper20 studs for impact resistant walls. Tests conducted using USG® & National Gypsum® boards.

Testing conducted by IAS Certified 3rd party testing lab Intertek Testing Services.

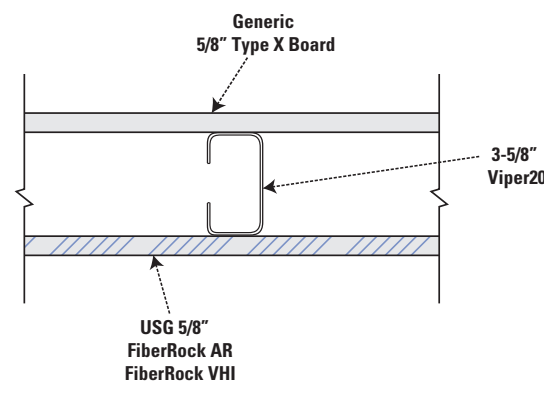
## NATIONAL GYPSUM®

Test Type	Board Assembly	Classification
Soft Body Impact Test Single Drop	3-5/8" NGC Hi-Abuse	Level 2
Soft Body Impact Test Single Drop	3-5/8" NGC Hi-Impact	Level 3
Soft Body Impact Test Progressive Drop	3-5/8" NGC Hi-Abuse	Level 1
Soft Body Impact Test Progressive Drop	3-5/8" NGC Hi-Impact	Level 3
Hard Body Impact Test Single Drop	3-5/8" NGC Hi-Impact	Level 3



## USG®

Test Type	Board Assembly	Classification
Soft Body Impact Test Single Drop	3-5/8" USG FiberRock AR	Level 2
Soft Body Impact Test Progressive Drop	3-5/8" USG FiberRock VHI	Level 3
Hard Body Impact Test Single Drop	3-5/8" USG FiberRock AR	Level 1
Hard Body Impact Test Single Drop	3-5/8" USG FiberRock VHI	Level 3



Soft body impact test using ViperStud.

- FiberRock VHI & FiberRock AR are registered trademarks of the United States Gypsum Co. (USG)
- Hi-Abuse, Hi-Impact, & Permabase are registered trademarks of the National Gypsum Co.
- ProRoc & ProRoc Extra are registered trademarks of Certainteed.
- Protecta AR 100 is a registered trademark of Lafarge Gypsum.
- ComfortGuard AR & ComfortGuard IR are registered trademarks of Temple-Inland.
- Dens Brand is a trademark of Georgia Pacific.

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The CEMCO Structural Engineering division provides solutions that make sure your buildings are designed to current codes and specifications. Our methodology helps you control costs and keep your projects on schedule. We work closely with owners, designers, and contractors to facilitate efficient project execution.

The structural engineering division uses state-of-the-art software and technologies to streamline the request, design, and issuance processes to cut costs and save time on your projects.

Let the experienced CEMCO Structural Engineering team add value to your project with the following services:

- Thorough review of your architectural plans to determine structural requirements.
- Member sizing and cost estimation for preliminary and conceptual designs.
- Professional, certified engineering shop drawing and calculations.
- Use our project submittal form to submit your project online.

### CEMCO STRUCTURAL ENGINEERING 1-2-3 PROCESS

- 1 Review client structural and architectural plans.
- 2 Deliver shop drawings and structural solutions based on the client's needs.
- 3 Provide full engineering support through the life of the project.



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13191 Crossroads Parkway North, Suite 325, City of Industry, CA 91746

**P:** 800.775.2362 | **F:** 626.330.7598

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263 North Covina Lane, City of Industry, CA 91746

**P:** 800.775.2362 | **F:** 626.330.7598

## Northern California Manufacturing Facility

1001-A Pittsburg Antioch Hwy, Pittsburg, CA 94565

**P:** 925.473.9340 | **F:** 925.473.9341

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