ViperStud™

MARINO WARE®

2009

TECHNICAL PRODUCT GUIDE

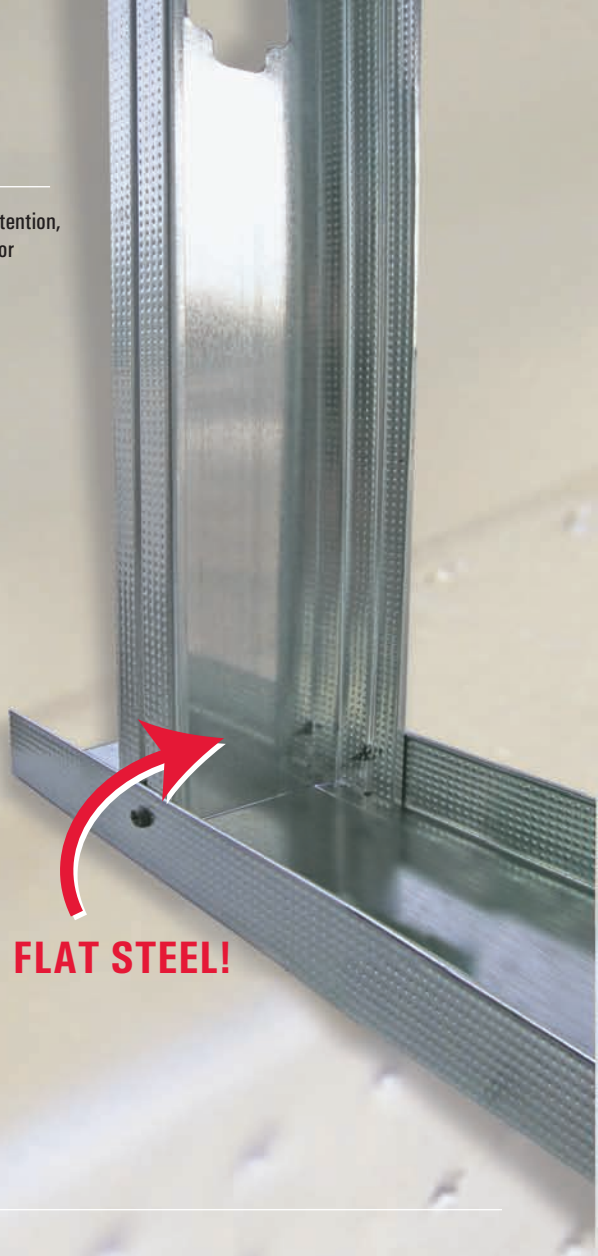
THE ONLY DRYWALL STUD FIRE TESTED WITH BOTH UL® & WARNOCK HERSEY

VIPERSTUD™ DRYWALL FRAMING SYSTEM

ViperStud™ is an improved steel drywall framing stud and track system. Formed for extra strength, better screw retention, and greater limiting heights, ViperStud is proven to be the better performing drywall stud and track over traditional or dimpled alternatives.

5 THINGS YOU SHOULD KNOW

1. **One Track System:** ViperTrack™ is a high strength one track system, and works with Viper20D™, Viper20S™ and Viper25™ studs. This eliminates SKU's from your inventory. ViperTrack 0.0155" is 100% hemmed, making it safer than any other product offered.
2. **Better Screw Retention:** Independent laboratory testing proves Viper25™ has a 20% greater screw retention than the competition, resisting 139 lbs of force compared to resisting 116 lbs of force for the dimpled alternative product. No more screw spin outs to slow down your job or call backs on completed projects.
3. **100% Flat Steel:** The flat steel requires no extra training or special fasteners for installation. ViperStud is interchangeable with conventional framing components, and is easy to plumb, laser level and mark. There's no learning curve for trades and inspectors because ViperStud installs exactly the same as conventional studs.
4. **ViperRib™ Technology:** The ViperRib technology helps to prevent "high shoulders" when finishing gypsum board and makes ViperStud much stronger, stiffer, and less prone to twist than the dimpled alternative product.
5. **Fully Tested, ASTM Compliant:** ViperStud conforms to the following ASTM standards:
   - ASTM E119 "Standard Test Methods for Fire Tests of Building Construction and Materials" Fire Tested for 1, 2, 3, and 4 hour rated walls.
   - 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 E72 "Standard Test Methods of Conducting Strength Tests of Panels for Building Construction"
   - NYC Department of Buildings MEA 56-08-M, MEA 56-08-M Vol 2, MEA 234-08-M, MEA 235-08-M



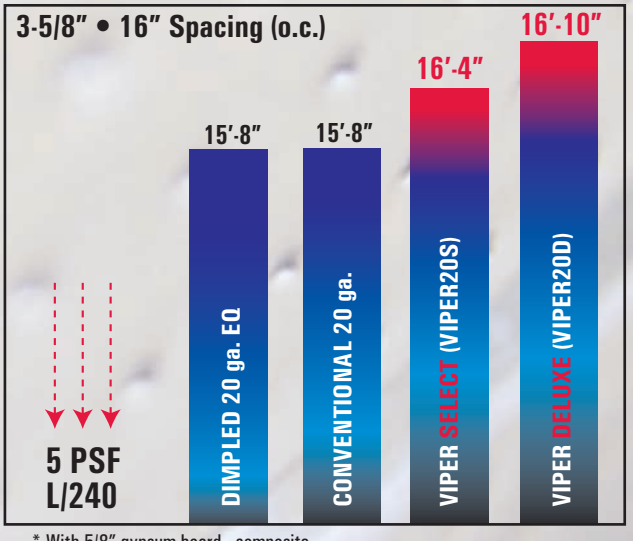
VIPER20™ EQ NOW AVAILABLE IN 2 CHOICES

VIPER "SELECT" 0.0200" & VIPER "DELUXE" 0.0245"

ViperStud™ Drywall Framing System from Marino\WARE® is now expanding the Viper20™ stud into TWO high quality, high strength choices. For 20 gauge assemblies, you can choose from Viper20S™ for standard framing assemblies or Viper20D™. Both meet or exceed the minimum standards required by the ASTM and the building code. Viper20S and Viper20D are approved for use with both UL and Warnock Hersey.

The Viper20S replaces the original Viper20 for standard installations. The limiting heights are still beyond standard or dimpled studs, and the installation is exactly the same! With high tensile steel, Viper20S reaches new heights in efficiency.

LIMITING HEIGHTS COMPARISON*



* With 5/8" gypsum board - composite

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

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PHYSICAL PROPERTIES

VIPERSTUD

MODEL NO.	DESIGN THICKNESS (IN.)	MINIMUM THICKNESS (IN.)	YIELD STRENGTH	COATING
VIPER25	0.0155	0.0147	50ksi	G40[1]
VIPER20S	0.0200	0.0190	50ksi	G40[1]
VIPER20D	0.0245	0.0233	45ksi	G40[1, 2]

- **Stud web sizes:**
  1-5/8", 2-1/2", 3-5/8", 4", 6"
- **Knockout sizes:**
  1-5/8" stud = 3/4" x 1-3/4"
  2-1/2", 3-5/8", 4", & 6" = 1-1/2" x 2-1/2"
- **Flange:**
  1-1/4
- **Return Lip:**
  3/16

TRACK

MODEL NO.	DESIGN THICKNESS (IN.)	MINIMUM THICKNESS (IN.)	YIELD STRENGTH	COATING
ViperTrack[3]	0.0155	0.0147	50ksi	G40[1]
Viper20S Track	0.0200	0.0190	50ksi	G40[1]
Viper20D Track	0.0245	0.0233	45ksi	G40[1, 2]

- **Track web sizes:**
  1-5/8", 2-1/2", 3-5/8", 4", 6"
- **Flange:**
  1-1/4"

NOTE:
[1] Or equivalent per ASTM C645
[2] G60 and G90 available upon request.
[3] ViperTrack works with Viper25, Viper20S and Viper20D studs, but should not be used with Viper20D if hi impact, abuse or cement boards are used.

SECTION PROPERTIES – VIPERSTUD

			GROSS SECTION PROPERTIES					EFFECTIVE SECTION PROPERTIES			TORSIONAL PROPERTIES				
Section	Design Thickness (in.)	Weight (lb/ft)	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_a (lb-in.)	x_o (in.)	$J \times 10^{-5}$ ($in.^4$)	C_w ($in.^6$)	r_o (in.)	Beta
VIPER25															
162 VS015	0.0155	0.235	0.0663	0.0314	0.688	0.0133	0.448	0.0288	0.0223	666	-1.01	0.531	0.0077	1.28	0.382
250 VS015	0.0155	0.282	0.0799	0.0823	1.020	0.0155	0.440	0.0769	0.0357	1067	-0.892	0.639	0.0195	1.38	0.584
362 VS015*	0.0155	0.341	0.0973	0.1940	1.410	0.0174	0.422	0.1690	0.0529	1583	-0.781	0.779	0.0450	1.64	0.775
400 VS015*	0.0155	0.361	0.1030	0.2440	1.540	0.0178	0.416	0.2090	0.0586	1753	-0.750	0.826	0.0563	1.74	0.815
600 VS015*	0.0155	0.466	0.1340	0.6440	2.190	0.0197	0.384	0.4940	0.0998	2989	-0.622	1.070	0.1430	2.30	0.927
VIPER20S															
162 VS020	0.0200	0.301	0.0852	0.0401	0.686	0.0170	0.446	0.0385	0.0317	948	-1.00	1.14	0.0097	1.27	0.383
250 VS020	0.0200	0.358	0.1030	0.1050	1.010	0.0197	0.438	0.1030	0.0512	1532	-0.887	1.37	0.0247	1.38	0.585
362 VS020	0.0200	0.437	0.1250	0.2480	1.410	0.0221	0.420	0.2410	0.0766	2292	-0.776	1.67	0.0571	1.64	0.776
400 VS020	0.0200	0.463	0.1330	0.3130	1.540	0.0227	0.414	0.2970	0.0849	2542	-0.746	1.77	0.0716	1.74	0.816
600 VS020*	0.0200	0.599	0.1730	0.8270	2.190	0.0251	0.381	0.6970	0.1470	4413	-0.618	2.30	0.1820	2.30	0.928
VIPER20D															
162 VS025	0.0245	0.366	0.1040	0.0486	0.684	0.0205	0.444	0.0491	0.0431	1162	-0.995	2.08	0.0117	1.27	0.384
250 VS025	0.0245	0.438	0.1250	0.1280	1.010	0.0238	0.436	0.1310	0.0704	1896	-0.882	2.51	0.0297	1.37	0.586
362 VS025	0.0245	0.532	0.1530	0.3020	1.410	0.0267	0.418	0.3130	0.1070	2869	-0.772	3.06	0.0689	1.64	0.777
400 VS025	0.0245	0.564	0.1620	0.3810	1.530	0.0275	0.412	0.3960	0.1180	3187	-0.741	3.24	0.0863	1.73	0.817
600 VS025*	0.0245	0.730	0.2110	1.0100	2.190	0.0304	0.379	0.9340	0.2090	5631	-0.614	4.22	0.2200	2.29	0.928

Notes:
1.) * h/t is greater than 200.
2.) Ixd was calculated at an assumed stress of 0.6Fy.
3.) Yield strength 50 ksi for 0.0155" and 0.0200" and 45 ksi for 0.0245"
4.) All calculations were based on AISI 2007.

ViperStud™ MARINO\WARE®

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VIPERSTUD - COMPOSITE LIMITING HEIGHTS - 5/8" GYPSUM WALL BOARD (FT.-IN.)

DEPTH	EQ. GAUGE	DESIGN THICKNESS (IN.)	SPACING (O.C.)	5 PSF			7.5 PSF			10 PSF			15 PSF		
				L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
1-5/8″	25	0.0155	12	17'-6"	13'-10"	12'-1"	14'-8"f	12'-1"	10'-7"	12'-9"f	11'-0"	9'-7"	10'-5"f	9'-7"	8'-5"
			16	15'-7"f	12'-7"	11'-0"	12'-9"f	11'-0"	9'-7"	11'-0"f	10'-0"	8'-9"	9'-0"f	8'-9"	7'-7"
			24	12'-9"f	11'-0"	9'-7"	10'-5"f	9'-7"	8'-5"	9'-0"f	8'-9"	7'-7"	-	-	-
	20S	0.0200	12	18'-3"	14'-6"	12'-8"	15'-3"f	12'-8"	11'-0"	13'-3"f	11'-6"	10'-0"	10'-10"f	10'-0"	8'-9"
			16	16'-3"f	13'-2"	11'-6"	13'-3"f	11'-6"	10'-0"	11'-6"f	10'-5"	9'-1"	9'-4"f	9'-1"	8'-0"
			24	13'-3"f	11'-6"	10'-0"	10'-10"f	10'-0"	8'-9"	9'-4"f	9'-1"	8'-0"	7'-8"f	7'-8"f	-
	20D	0.0245	12	18'-11"	15'-0"	13'-1"	16'-4"f	13'-1"	11'-6"	14'-2"f	11'-11"	10'-5"	11'-6"f	10'-5"	9'-1"
			16	17'-2"	13'-8"	11'-11"	14'-2"f	11'-11"	10'-5"	12'-3"f	10'-10"	9'-6"	10'-0"f	9'-6"	8'-3"
			24	14'-2"f	11'-11"	10'-5"	11'-6"f	10'-5"	9'-1"	10'-0"f	9'-6"	8'-3"	8'-2"f	8'-2"f	-
2-1/2″	25	0.0155	12	19'-8"f	16'-11"	14'-9"	16'-0"f	14'-9"	12'-11"	13'-11"f	13'-5"	11'-9"	11'-4"f	11'-4"f	10'-3"
			16	17'-0"f	15'-5"	13'-5"	13'-11"f	13'-5"	11'-9"	12'-0"f	12'-0"f	10'-8"	9'-10"f	9'-10"f	9'-4"
			24	13'-11"f	13'-5"	11'-9"	11'-4"f	11'-4"f	10'-3"	9'-10"f	9'-10"f	9'-4"	8'-0"f	8'-0"f	8'-0"f
	20S	0.0200	12	21'-4"	17'-0"	14'-10"	17'-9"f	14'-10"	12'-11"	15'-4"f	13'-6"	11'-9"	12'-7"f	11'-9"	10'-3"
			16	18'-10"f	15'-5"	13'-6"	15'-4"f	13'-6"	11'-9"	13'-4"f	12'-3"	10'-8"	10'-10"f	10'-8"	9'-4"
			24	15'-4"f	13'-6"	11'-9"	12'-7"f	11'-9"	10'-3"	10'-10"f	10'-8"	9'-4"	8'-10"	8'-10"	8'-2"
	20D	0.0245	12	21'-4"	17'-0"	14'-10"	18'-8"	14'-10"	12'-11"	17'-0"	13'-6"	11'-9"	14'-10"	11'-9"	10'-3"
			16	19'-5"	15'-5"	13'-6"	17'-0"	13'-6"	11'-9"	15'-5"	12'-3"	10'-8"	12'-10"f	10'-8"	9'-4"
			24	17'-0"	13'-6"	11'-9"	14'-10"f	11'-9"	10'-3"	12'-10"f	10'-8"	9'-4"	10'-6"f	9"'-4"	8'-2"
3-5/8″	25	0.0155	12	21'-11"	17'-5"	15'-3"	19'-0"f	15'-3"	13'-3"	16'-6"f	13'-10"	12'-1"	13'-6"f	12'-1"	10'-7"
			16	19'-11"	15'-10"	13'-10"	16'-6"f	13'-10"	12'-1"	14'-3"f	12'-7"	11'-0"	11'-8"f	11'-0"	9'-7"
			24	16'-6"f	13'-10"	12'-1"	13'-6"f	12'-1"	10'-7"	11'-8"f	11'-0"	9'-7"	9'-6"f	9'-6"f	8'-5"
	20S	0.0200	12	22'-8"	18'-0"	15'-9"	19'-10"	15'-9"	13'-9"	18'-0"	14'-4"	12'-6"	15'-1"f	12'-6"	10'-11"
			16	20'-8"	16'-4"	14'-4"	18'-0"	14'-4"	12'-6"	16'-0"f	13'-0"	11'-4"	13'-0"f	11'-4"	9'-11"
			24	18'-0"	14'-4"	12'-6"	15'-1"f	12'-6"	10'-11"	13'-0"f	11'-4"	9'-11"	10'-8"f	9'-11"	8'-8"
	20D	0.0245	12	23'-5"	18'-7"	16'-3"	20'-5"	16'-3"	14'-2"	18'-7"	14'-9"	12'-11"	16'-3"	12'-11"	11'-3"
			16	21'-3"	16'-10"	14'-9"	18'-7"	14'-9"	12'-11"	16'-10"	13'-5"	11'-8"	14'-9"	11'-8"	10'-3"
			24	18'-7"	14'-9"	12'-11"	16'-3"	12'-11"	11'-3"	14'-9"	11'-8"	10'-3"	12'-7"f	10'-3"	8'-11"
4″	25	0.0155	12	25'-0"f	20'-7"	17'-11"	20'-5"f	17'-11"	15'-8"	17'-8"f	16'-4"	14'-3"	14'-5"f	14'-3"	12'-5"
			16	21'-7"f	18'-8"	16'-4"	17'-8"f	16'-4"	14'-3"	15'-3"f	14'-10"	12'-11"	12'-6"f	12'-6"f	11'-4"
			24	17'-8"f	16'-4"	14'-3"	14'-5"f	14'-3"	12'-5"	12'-6"f	12'-6"f	11'-4"	10'-2"f	10'-2"f	9'-11"
	20S	0.0200	12	27'-3"	21'-7"	18'-11"	22'-7"f	18'-11"	16'-6"	19'-6"f	17'-2"	15'-0"	15'-11"f	15'-0"	13'-1"
			16	23'-11"f	19'-8"	17'-2"	19'-6"f	17'-2"	15'-0"	16'-11"f	15'-7"	13'-7"	13'-10"f	13'-7"	11'-11"
			24	19'-6"f	17'-2"	15'-0"	15'-11"f	15'-0"	13'-1"	13'-10"f	13'-7"	11'-11"	11'-3"f	11'-3"f	10'-5"
	20D	0.0245	12	28'-5"	22'-7"	19'-9"	24'-10"	19'-9"	17'-3"	22'-7"	17'-11"	15'-8"	18'-6"f	15'-8"	13'-8"
			16	25'-10"	20'-6"	17'-11"	22'-7"	17'-11"	15'-8"	19'-8"f	16'-3"	14'-3"	16'-1"f	14'-3"	12'-5"
			24	22'-7"	17'-11"	15'-8"	18'-6"f	15'-8"	13'-8"	16'-1"f	14'-3"	12'-5"	13'-1"f	12'-5"	10'-10"
6″	25	0.0155	12	30'-6"f	25'-5"	22'-2"	24'-11"f	22'-2"	19'-5"	21'-7"f	20'-2"	17'-7"	17'-7"f	17'-7"	15'-5"
			16	26'-5"f	23'-1"	20'-2"	21'-7"f	20'-2"	17'-7"	18'-8"f	18'-4"	16'-0"	15'-3"f	15'-3"f	14'-0"
			24	21'-7"f	20'-2"	17'-7"	17'-7"f	17'-7"	15'-5"	15'-3"f	15'-3"f	14'-0"	12'-5"f	12'-5"f	12'-3"
	20S	0.0200	12	32'-7"	25'-11"	22'-7"	27'-9"f	22'-7"	19'-9"	24'-0"f	20'-6"	17'-11"	19'-7"f	17'-11"	15'-8"
			16	29'-5"f	23'-6"	20'-6"	24'-0"f	20'-6"	17'-11"	20'-9"f	18'-8"	16'-4"	17'-0"f	16'-4"	14'-3"
			24	24'-0"f	20'-6"	17'-11"	19'-7"f	17'-11"	15'-8"	17'-0"f	16'-4"	14'-3"	13'-10"f	13'-10"f	12'-5"
	20D	0.0245	12	33'-2"	26'-4"	23'-0"	29'-0"	23'-0"	20'-1"	26'-4"	20'-11"	18'-3"	22'-8"f	18'-3"	16'-0"
			16	30'-2"	23'-11"	20'-11"	26'-4"	20'-11"	18'-3"	23'-11"	19'-0"	16'-7"	19'-8"f	16'-7"	14'-6"
			24	26'-4"	20'-11"	18'-3"	22'-8"f	18'-3"	16'-0"	19'-8"f	16'-7"	14'-6"	16'-1"f	14'-6"	12'-8"

Notes:

A. Viper Stud 20 Deluxe gauge based on minimum yield strength = 45 ksi (steel thickness = 0.0245", minimum steel thickness = 0.0233")
B. Viper Stud 20 Select gauge based on minimum yield strength = 50 ksi (steel thickness = 0.020", minimum steel thickness = 0.019")
C. Viper Stud 25 gauge based on minimum yield strength = 50 ksi (steel thickness = 0.0155", minimum steel thickness = 0.0147")
D. f = Flexural stress controls allowable wall height
E. Viper composite limiting heights based on single layer of 5/8" thick type X gypsum board full height on each side with screws spaced 12" o.c. to framing members as per ASTM C754-04.
F. ICC-ES -AC86-95 Utilized a 0.75 load reduction factor (for strength determination only) to determine the heights as shown in the table.

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VIPERSTUD - COMPOSITE LIMITING HEIGHTS - 1/2" GYPSUM WALL BOARD (FT.-IN.)

DEPTH	EQ. GAUGE	DESIGN THICKNESS (IN.)	SPACING (O.C.)	5 PSF			7.5 PSF			10 PSF			15 PSF		
				L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
1-5/8"	25	0.0155	12	13'-9"f	10'-11"	9'-7"	12'-1"	9'-7"	8'-4"	10'-11"	8'-8"	-	9'-7"	-	-
			16	12'-6"	9'-11"	8'-8"	10'-11"	8'-8"	7'-7"	9'-11"	7'-11"	-	8'-8"	-	-
			24	10'-11"	8'-8"	7'-7"	9'-7"	7'-7"	-	8'-8"	-	-	7'-7"	-	-
	20S	0.0200	12	14'-3"	11'-4"	9'-11"	12'-5"	9'-11"	8'-8"	11'-4"	9'-0"	7'-10"	9'-11"	7'-10"	-
			16	12'-11"	10'-3"	9'-0"	11'-4"	9'-0"	7'-10"	10'-3"	8'-2"	-	9'-0"	-	-
			24	11'-4"	9'-0"	7'-10"	9'-11"	7'-10"	6'-10"	9'-0"	-	-	7'-10"	-	-
	20D	0.0245	12	14'-8"	11'-7"	10'-2"	12'-9"	10'-2"	8'-10"	11'-7"	9'-3"	8'-1"	10'-2"	8'-1"	-
			16	13'-4"	10'-7"	9'-3"	11'-7"	9'-3"	8'-1"	10'-7"	8'-5"	-	9'-3"	-	-
			24	11'-7"	9'-3"	8'-1"	10'-2"	8'-1"	-	9'-3"	-	-	8'-1"	-	-
3-5/8"	25	0.0155	12	23'-1"	18'-4"	16'-0"	20'-2"	16'-0"	14'-0"	18'-4"	14'-6"	12'-8"	15'-6"f	12'-8"	11'-1"
			16	21'-0"	16'-8"	14'-6"	18'-4"	14'-6"	12'-8"	16'-5"f	13'-3"	11'-6"	13'-5"f	11'-6"	10'-1"
			24	18'-4"	14'-6"	12'-8"	15'-6"f	12'-8"	11'-1"	13'-5"f	11'-6"	10'-1"	11'-0"f	10'-1"	8'-10"
	20S	0.0200	12	23'-6"	18'-8"	16'-3"	20'-6"	16'-3"	14'-3"	18'-8"	14'-9"	12'-11"	16'-3"	12'-11"	11'-3"
			16	21'-4"	16'-11"	14'-9"	18'-8"	14'-9"	12'-11"	16'-11"	13'-5"	11'-9"	14'-9"	11'-9"	10'-3"
			24	18'-8"	14'-9"	12'-11"	16'-3"	12'-11"	11'-3"	14'-9"	11'-9"	10'-3"	12'-6"f	10'-3"	9'-0"
	20D	0.0245	12	23'-10"	18'-11"	16'-6"	20'-9"	16'-6"	14'-5"	18'-11"	15'-0"	13'-1"	16'-6"	13'-1"	11'-5"
			16	21'-7"	17'-2"	15'-0"	18'-11"	15'-0"	13'-1"	17'-2"	13'-7"	11'-11"	15'-0"	11'-11"	10'-5"
			24	18'-11"	15'-0"	13'-1"	16'-6"	13'-1"	11'-5"	15'-0"	11'-11"	10'-5"	13'-1"	10'-5"	9'-1"
6"	25	0.0155	12	27'-3"	21'-8"	18'-11"	23'-10"	18'-11"	16'-6"	21'-8"	17'-2"	15'-0"	18'-0"f	15'-0"	13'-1"
			16	24'-9"	19'-8"	17'-2"	21'-8"	17'-2"	15'-0"	19'-1"f	15'-7"	13'-8"	15'-7"f	13'-8"	11'-11"
			24	21'-8"	17'-2"	15'-0"	18'-0"f	15'-0"	13'-1"	15'-7"f	13'-8"	11'-11"	12'-9"f	11'-11"	10'-5"
	20S	0.0200	12	29'-6"	23'-5"	20'-5"	25'-9"	20'-5"	17'-10"	23'-5"	18'-7"	16'-3"	20'-5"	16'-3"	14'-2"
			16	26'-9"	21'-3"	18'-7"	23'-5"	18'-7"	16'-3"	21'-3"	16'-10"	14'-9"	18-0"f	14'-9"	12'-10"
			24	23'-5"	18'-7"	16'-3"	20'-5"	16'-3"	14'-2"	18'-0"f	14'-9"	12'-10"	14'-9"f	12'-10"	11'-3"
	20D	0.0245	12	31'-2"	24'-9"	21'-7"	27'-3"	21'-7"	18'-10"	24'-9"	19'-8"	17'-2"	21'-7"	17'-2"	15'-0"
			16	28'-4"	22'-6"	19'-8"	24'-9"	19'-8"	17'-2"	22'-6"	17'-10"	15'-7"	19'-2"f	15'-7"	13'-7"
			24	24'-9"	19'-8"	17'-2"	21'-7"	17'-2"	15'-0"	19'-2"f	15'-7"	13'-7"	15'-8"f	13'-7"	11'-11"

Notes:
A. Viper Stud 20 Deluxe gauge based on minimum yield strength = 45 ksi (steel thickness = 0.0245", miniumum steel thickness = 0.0233")
B. Viper Stud 20 Select gauge based on minimum yield strength = 50 ksi (steel thickness = 0.020", miniumum steel thickness = 0.019")
C. Viper Stud 25 gauge based on minimum yield strength = 50 ksi (steel thickness = 0.0155", miniumum steel thickness = 0.0147")
D. f = Flexural stress controls allowable wall height
E. Viper composite limiting heights based on single layer of 1/2" thick type C gypsum board full height on each side with screws spaced 12" o.c. to framing members as per ASTM C754-04.
F. ICC-ES -AC86-95 Utilized a 0.75 load reduction factor (for strength determination only) to determine the heights as shown in the table.

VIPER20D DEEP LEG DEFLECTION TRACK

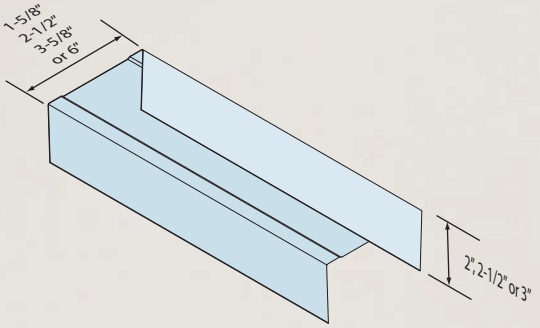
Deflection track is required at the top of a wall to allow for anticipated downward movement of the primary structure. A gap is provided between the end of the stud and track to accommodate this movement. The studs are not fastened to the track to allow movement up and down. The bridging is required to keep the stud in place and provide rotational strength. Please see below for the method that is applicable for your condition. The leg of the track must be long enough to provide the required gap, bearing surface for the studs and allow for construction tolerances.

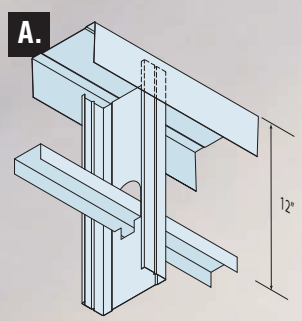
VIPER20D™ DEEP LEG TRACK

MODEL NO.	DESIGN THICKNESS (IN.)	MINIMUM THICKNESS (IN.)	YIELD STRENGTH	COATING	LEG SIZE (in.)	GAP (in.)	LOAD (lb.)	MAX HEIGHT 5 psf, 16" o.c.
Viper20D track	0.0245	0.0233	45ksi	G40[1, 2]	2"	1/2"	77	23'-2"
					2-1/2"	3/4"	51	15'-4"
					3"	1"	39	11'-9"

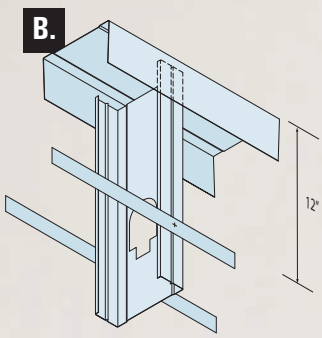
NOTE:
- Studs at 16" O.C.
- AISI Wall Stud Design 2007 Edition
- 1-5/8" deep leg track available with maximum 2" leg

NOTE:
[1] Or equivalent per ASTM C645
[2] G60 and G90 available upon request.

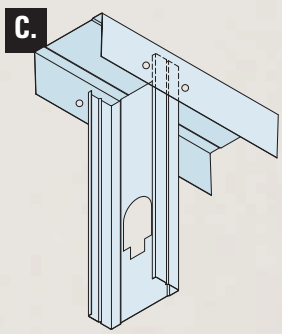




A. Alternative 1 with CR channel and BRC Clip. 12" down from the stud end.



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)

VIPERSTUD™ SCREW TESTING

CEMENT BOARD – VIPER20S & VIPER20D

SHEATHING TYPE AND THICKNESS	STEEL FRAMING	SCREW TYPE	DRILL SPEED (RPM)	PASS/FAIL ASTM C-645, SECTION 10
USG 1/2" Durock®	3-5/8" Viper20S Viper20D	#9 Buildex Rock-On	2500	PASS
			4000	PASS
		#9 Phillips Cement Board	2500	PASS
			4000	PASS
National Gypsum 5/8" Permabase	3-5/8" Viper20S Viper20D	#9 Buildex Rock-On	2500	PASS
			4000	PASS
		#9 Phillips Cement Board	2500	PASS
			4000	PASS

Screw Type:
- #9 x 1-1/4" Buildex Rock-On High Low, self-drilling screws
- #9 x 1-5/8" Phillips Cement Board, self-drilling screws

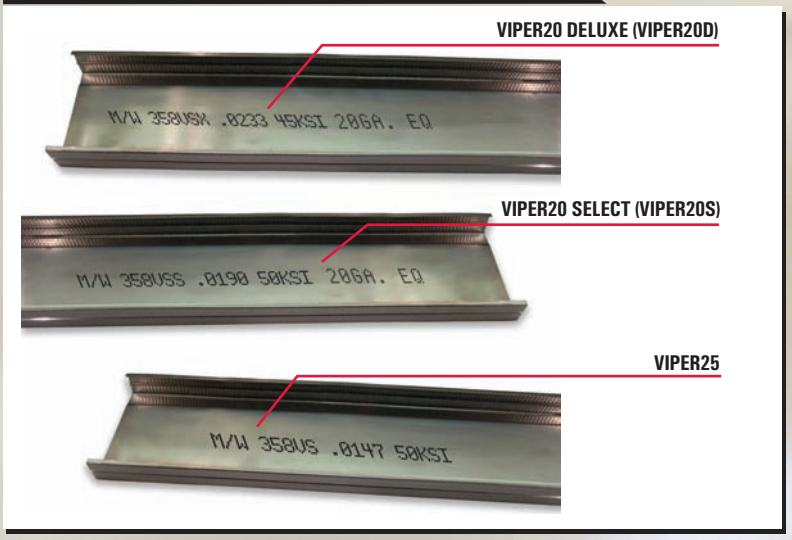
To pass, studs must be capable of pulling the head of the screw below surface of gypsum board in less than 2 seconds without spin out. *Screw testing performed by Structural Testing and Research Inc.*

HI-ABUSE/HI-IMPACT – VIPER20S & VIPER20D

SHEATHING TYPE AND THICKNESS	STEEL FRAMING	DRILL SPEED (RPM)	PASS/FAIL ASTM C-1002
USG 5/8" VHI	3-5/8" Viper20S Viper20D	2500	PASS
		4000	PASS
National Gypsum 5/8" High Impact	3-5/8" Viper20S Viper20D	2500	PASS
		4000	PASS
National Gypsum 5/8" High Abuse	3-5/8" Viper20S Viper20D	2500	PASS
		4000	PASS

Screw Type:
- #6 x1-1/4" Type S sharp point drywall screw

INKJET LABELING



GYPSUM BOARD – VIPER25

SHEATHING TYPE AND THICKNESS	STEEL FRAMING	DRILL SPEED (RPM)	PASS/FAIL ASTM C-645, SECTION 10
USG 1/2" Type C	3-5/8" Viper25™	2500	PASS
CGC 5/8" Type X	3-5/8" Viper25™	2500	PASS

Screw Type:
- #6 x1-1/4" Type S sharp point drywall screw

-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 Permabase are registered trademarks of the National Gypsum Co.

VIPERSTUD™ ACOUSTIC PERFORMANCE

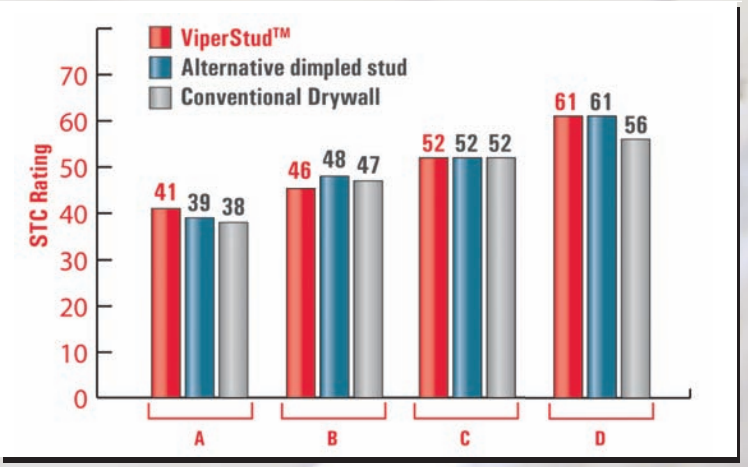
ViperStud reduces the transmission of noise through walls and ceilings. Several acoustic tests were conducted with various gypsum board applications.

A. 3-5/8" Stud - 1 Layer of 5/8" GWB on each side

B. 3-5/8" Stud - 3-5/8" Fiberglass Insulation R-11, 1 Layer of 5/8" GWB on each side

C. 3-5/8" Stud - 3-5/8" Fiberglass Insulation R-11, RC1 Channel 1 side, 1 Layer of 5/8" GWB on each side

D. 3-5/8" Stud - 3-5/8" Fiberglass Insulation R-11, RC1 Channel 1 side, Double Layers of 5/8" GWB on each side



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

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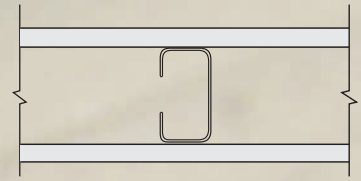
VIPERSTUD™ FIRE TEST DATA

1 HOUR WALL ASSEMBLIES • NON-LOAD BEARING
Viper25™ or Viper20D™ and Viper20S™- 3-5/8", 4", or 6"

1 Hour Wall Assembly



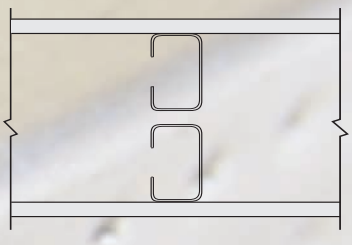
WALL ASSEMBLIES
- Studs spaced 24" o.c.
- One layer of generic 5/8" Type X gypsum wallboard[1]
- No insulation required

Warnock-Hersey Design No. MW/WA 60-02
- The wallboard is oriented horizontally

UL® Design U419

Warnock-Hersey Design No. MW/WA 60-04
- The wallboard is oriented vertically

1 Hour Chase Wall Assembly



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[1]
- No insulation required

Warnock-Hersey Design No. MW/WA 60-03
- The wallboard is oriented vertically

Warnock-Hersey Design No. MW/WA 60-05
- The wallboard is oriented horizontally

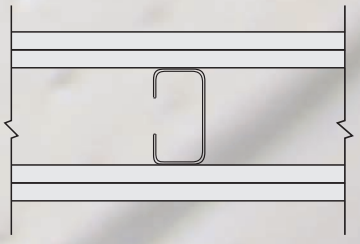
THE ONLY DRYWALL STUD FIRE TESTED WITH BOTH!

CLASSIFIED C UL® US

INTERTEK CM C Warnock Hersey US

2 HOUR WALL ASSEMBLIES • NON-LOAD BEARING
Viper25™ or Viper20D™ and Viper20S™- 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[1]
- No insulation required

Warnock-Hersey Design No. MW/WA 120-04
- The wallboard is oriented vertically

Warnock-Hersey Design No. MW/WA 120-05
- The wallboard is oriented horizontally

2 Hour Chase Wall Assembly

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[1]
- No insulation required

Warnock-Hersey Design No. MW/WA 120-06
- The wallboard is oriented vertically

Warnock-Hersey Design No. MW/WA 120-07
- The wallboard is oriented horizontally

SEE THESE UL DESIGN ASSEMBLIES FOR EXPANDED UL CLASSIFICATION FOR VIPER20S & VIPER20D

U403	U419	U436	U454	U466	U478	U495	V412	V418	V435	V443	V449	V477
U408	U431	U450	U463	U471	U491	U496	V416	V419	V437	V444	V452	
U412	U435	U451	U465	U475	U494	V410	V417	V425	V438	V448	V476	

[1] 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.MarinoWare.com for more information on fire rated assemblies.

MARINO\WARE®

www.MarinoWARE.com

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

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MARINO\WARE®

DesignRite™

Marino\WARE® DesignRite Engineering is the best team of seasoned engineers and technical staff. We offer experience and technical expertise developed from years of successful engineering practices. You will benefit from our personal commitment to the success of your project. Only DesignRite has the record of delivering the results you need through the life cycle of your project. Quality engineering from Marino\WARE, call us and it will be designed right!

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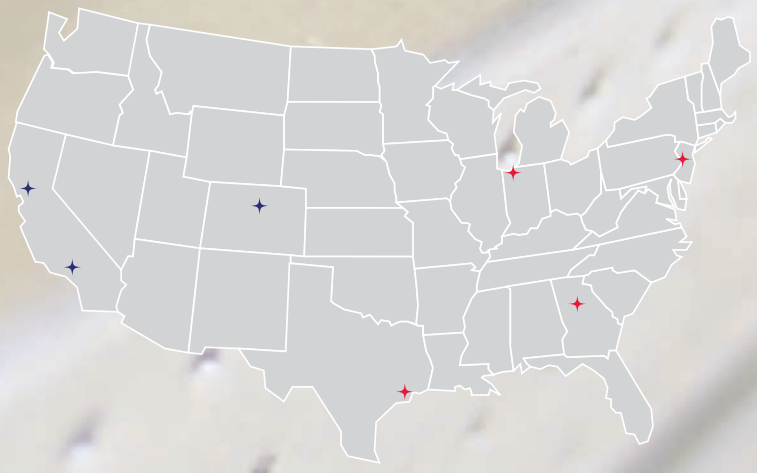

Expedius®

NATIONAL COLD FORMED STEEL ALLIANCE

In 2006, Expedius™ was formed as New Jersey based Marino\WARE® joined with California based CEMCO to create the largest strategic alliance in cold-formed steel manufacturing. Both Marino\WARE and CEMCO share a unique commitment to customer satisfaction in metal framing with a focus on quality, service and innovation. Together, their manufacturing facilities and corporate office locations create an efficient network for national development and distribution of ViperStud™.

CEMCO
1001-A Pittsburg Antioch Hwy
Pittsburg, CA 94565
P: 925.473.9340
F: 925.473.9341

CEMCO
490 Osage Street
Denver, CO 80204
P: 303.572.3626
F: 303.572.3627

CEMCO
263 N Covina Lane
City Of Industry, CA 91744
P: 800.775.2362
F: 626.330.7598

Marino\WARE®
Georgia Plant
777 Greenbelt Pkwy
Griffin, GA 30223
P: 800.504.8199
F: 678.688.1379

Marino\WARE®
New York Sales Office
137 Broadway, Suite B
Amityville, NY 11701
P: 800.627.4667
F: 631.691.1492

Marino\WARE®
Engineering Office
175 Country Club Drive Suite 200A
Stockbridge, GA 30281
P: 866-545-1545
F: 770.507.2605

Marino\WARE®
New Jersey Plant
400 Metuchen Rd
South Plainfield, NJ 07080
P: 800.627.4661
F: 908.412.1442

Marino\WARE®
Indiana Plant
4245 Railroad Ave
East Chicago, IN 46312
P: 219.378.7100
F: 219.378.7106

Marino\WARE®
Texas Plant
10101 Bay Area Blvd.
Pasadena, TX 77507
P: 800.852.9510
F: 281.283.8105

Warranty & Limitations

All products presented herein are warranted to the buyer to be free from defects in material and workmanship. The foregoing warranty is non-assignable and in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied by operation of law or otherwise, including but not limited to any implied warranties of merchantability or fitness for a particular purpose. All details and specifications presented herein are intended as a general guide for the use of Marino\WARE® framing systems. These products should not be used without evaluation by a qualified engineer or architect to determine their suitability for a specific use.

Marino\WARE® assumes no responsibility for failure resulting from use of its details or specifications, or for failure resulting from improper application or installation of these products.

Governing Law

All issues arising in connection with your order and all transactions associated with it shall be interpreted according to the laws of the State of New Jersey, and all actions or other proceedings arising out of such issues shall be brought only in Superior Court, State of New Jersey, County of Essex, or United States District Court for the District of New Jersey. No action may be brought more than one year after accrual of the cause of action therefore.

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

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