







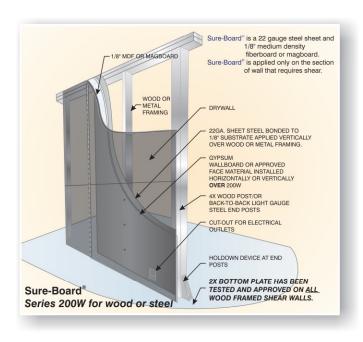
# SURE-BOARD® ...FOR SHEAR FLOORS BLAST BALLISTIC

## Sure-Board® Series 200

The Sure-Board® Series 200 Structural Shear Panels are Patented, IAPMO, ICC, DSA and City of Los Angeles approved products. The Series 200 is manufactured with a single 22 gage galvanized sheet of steel laminated to any manufactured version of gypsum panel with a water based EVA adhesive to create an incredibly STRONG shear panel that is 1 and 2 hour fire approved. Series 200W is also a Structural Shear Panel with one Dynamic\_difference. Since 200W is laminated to 1/8" MDF (medium density fiberboard) the attachment can be with nails or screws. This allows 200W to be attached to WOOD or STEEL framing members with exceptional results. 200W is used as a substrate shear panel and can be installed in the field or in a panelized process, saving even more time in the field. And as we all agree, TIME is MONEY.

## Replace your Present Shear Panels with Sure-Board® Today

The use of cross bracing, brace frames and plywood sheathing are the commonly used methods of our time. For the first time you can reduce your INSTALLED COSTS relating to lateral shear by as much as 30%. Don't hesitate, you need to make the change TODAY.



## Improve the quality of your next framing project with Sure-Board®

The revolutionary

Sure-Board \*\* improves quality

and successfully

eliminates shear wall

problems often

encountered in the framing and

construction process.

Sure-Board 200 and 200W require no additional furring of the interior and exterior surfaces. The Series 200W when used as shear panels on Wood framing, require only a 1 1/2" thick bottom plate per the tested and approved assemblies. This item alone reduces the cost of cutting all of the studs and posts and reduces the labor time of framing on the first floor shear walls.

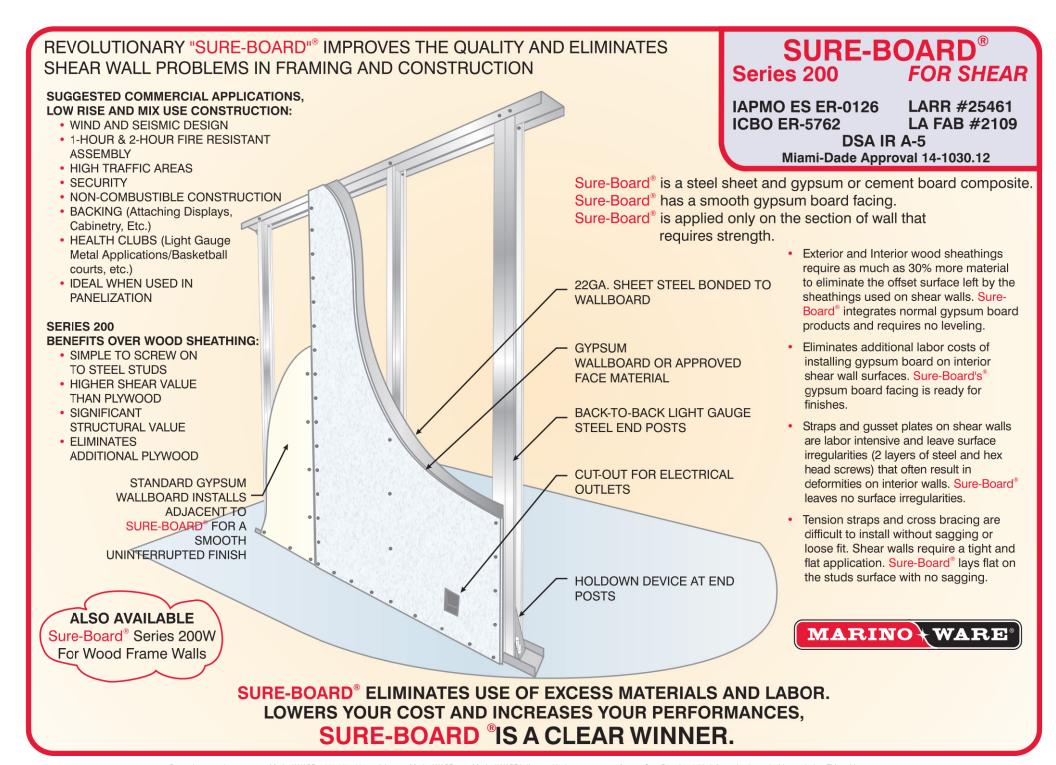
## Warranty & Limitations

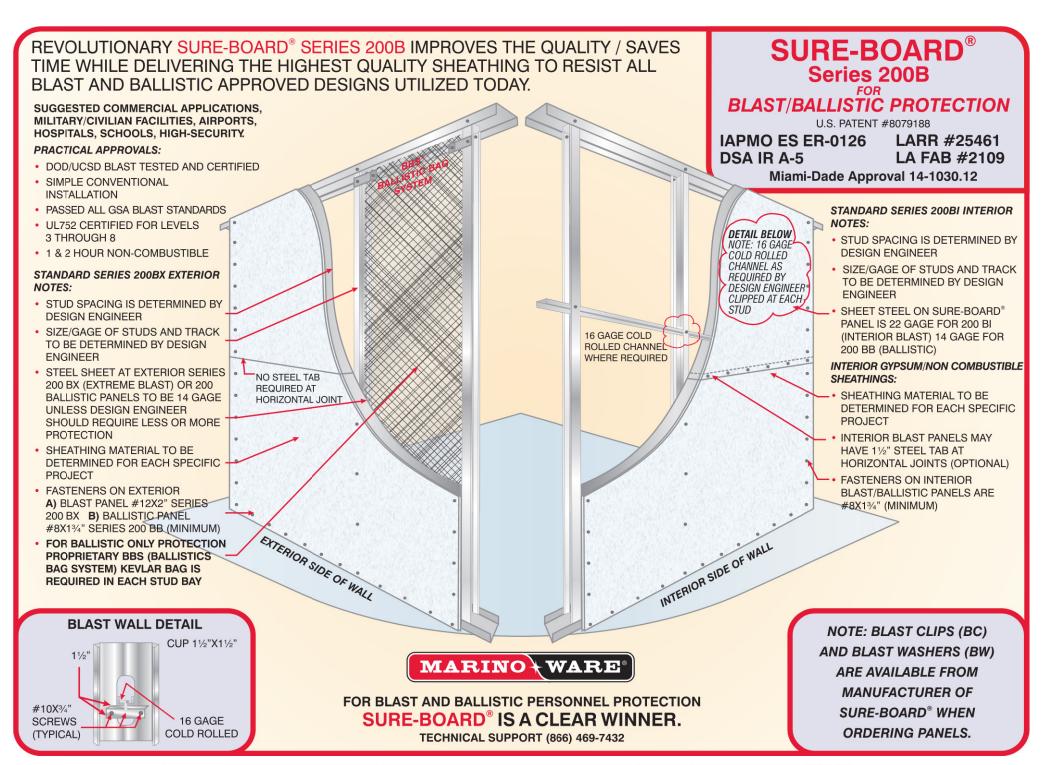
All products presented herein are warranted to the buyer to be free from defects in material and workmanship. The foregoing warranty is non-assignable and in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied by operation of law or otherwise, including 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.

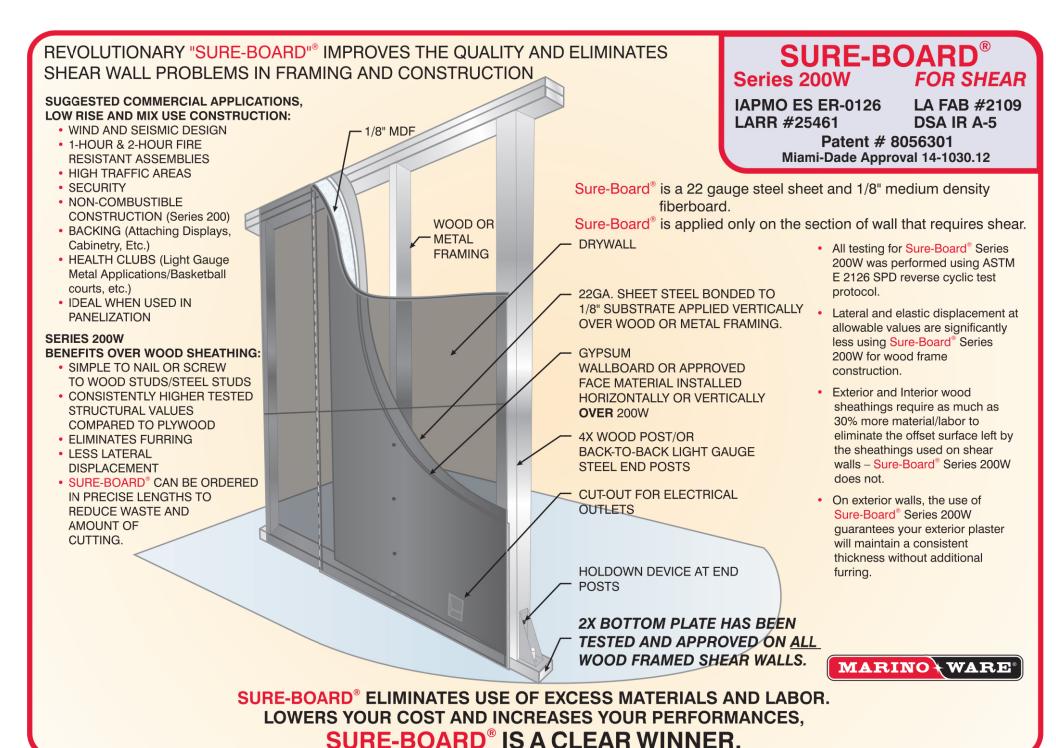
Marino\WARE® assumes no responsibility for failure resulting from use of its details or specifications, or for failure resulting from improper application or installation of these products.

## 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.







ALL TABLES INCLUDE ASD DESIGN LOAD CAPACITIES FOR USE WITH ALL ACCEPTED VERSIONS OF THE 2010 AISI LATERAL STANDARDS / 2015 IBC / 2015 IRC / 2013 CBC / AND THE ASCE/SEI 7-10 CODES

**SURE-BOARD®** 

Series 200W For Shear

**IAPMO ES ER-0126** LARR #25461 / DSA IR A-5



SURE-BOARD® Series 200W For Shear **IAPMO ES ER-0126** LARR #25461 DSA IR A-5



TABLE 4 - NOMINAL AND ALLOWABLE SHEAR RESISTANCE TO WIND OR EARTHQUAKE FORCES AND DISPLACEMENT (inches) FOR SHEAR WALLS WITH SURE-BOARD® SERIES 200W STRUCTURAL PANELS ATTACHED TO DF STUDS AT 16" O.C. WITH 10D NAILS'

FRAMING	10d (2.25"min X .148) NAIL SPACING AT PANEL EDGES AND FIELD, INCHES ON CENTER <sup>3</sup>											
Stud:	4/6			3/6			2/6			2/6 Two Sided*		
2 x 4 stud grade DF End post: 4 x 4 No. 1 grade DF *4 x 6 No. 1 grade DF Sill and top plate: 2 x 4 standard	Vn 2,3,4,5,6 (plf)	Vasd 2,3,5,7 (plf)	∆Vasd « (inch)	Vn 2,3,4,5,6 (plf)	Vasd 23.5.7 (plf)	∆Vasd « (inch)	Vn 2,3,4,5,6 (plf)	Vasd 2.3.5.7 (plf)	∆Vasd s (inch)	Vn 2,3,4,5,6 (plf)	Vasd 23.5.7 (plf)	∆Vasd « (inch)
grade DF	1,453	583	0.18		Г <i>—</i>	Γ—	2,357	950	0.23	4,884	1,827	0.24

For SI: 1 inch = 25.4 mm, 1 plf = 0.0146 N/mm

- These values are for short term loads due to wind or earthquake
- The nails are described in Section 3.2.5 and are installed in accordance with Section 4.2.3.2 in IAPMO ES ER-0126.
- All panel edges must be blocked. Panels are installed vertically or horizontally. Fasteners must be spaced a minimum of 6 inches on center along field framing members.
- For load and resistance factor design (LRFD) loads, the tabulated Vn load values must be multiplied by the resistance factor  $\Phi = 0.60$  for Seismic / 0.65 for Wind.
- Tabulated values are for panels applied to one side and two sides of a wall.
- Vn = Nominal Strength
- Vasd = ASD Design Load.
- <sup>8</sup> ∆ Vasd = Deflection at Vasd design Load.

## SURE-BOARD®

Series 200 For Shear

## IAPMO ES ER-0126 / ICBO ES ER-5762 LARR #25461 / DSA IR A-5



TABLE 1/1A - NOMINAL AND ALLOWABLE SHEAR RESISTANCE TO WIND OR EARTHQUAKE FORCES AND DISPLACEMENT (inches) FOR SHEAR WALLS WITH SURE-BOARD® SERIES 200 STRUCTURAL PANELS ATTACHED TO LIGHT GAGE STEEL C-STUDS AT 24" O.C. WITH SCREWS (pounds per foot)

FRAMING	FASTENER SPACING AT PANEL EDGES, INCHES ON CENTER <sup>6</sup>											
Minimum Gage⁵	6			4			3			2		
	Vn 23,4,7 (plf)	Vasd 2,3,8 (plf)	∆Vasd (inch)	Vn 23.4.7 (plf)	Vasd 2,3,8 (plf)	∆Vasd ∘ (inch)	Vn 2,3,4,7 (plf)	Vasd 2,3,8 (plf)	∆Vasd g (inch)	Vn 2.3.4.7 (plf)	Vasd 2,3,8 (plf)	∆Vasd ∘ (inch)
20	1,085	434	0.21	1,545	618	0.21	1,730	692	0.24	1,915	766	0.26
(0.033 in)	1,543 <sup>10</sup>	617	0.17	2,211110	885	0.22	2,486 <sup>10</sup>	977	0.22	2,53710	906	0.16
18 (0.043 in)	1,40510	562	0.24	1,92510	770	0.23	2,82110	1,126	0.25	2,98910	1,196	0.21
16 (0.054 in)	1,697	678	0.25	2,306	922	0.25	2,95710	1,092	0.26	3,64710	1,253	0.28
16 (0.054 in) 2-Sided	-	·								5,011 <sup>10</sup>	1,710	0.28
14-Ga. (0.071 in)							3,292	1,257	0.24			
14-Ga. (0.071 in) 2-Sided *Fasteners 6" O.C. into intermediate framing							4,635*	1,700*	0.22*			
14-Ga. (0.071 in) 2-Sided – 16" O.C. Stud Framing							5,079	1,897	0.26			

For SI: 1 inch = 25.4 mm, 1 lb/linear = 0.0146 N/mm.

report, for requirements of use

- These values are for short-term loads due to wind or earthquake.
- The screws are described in Section 3.2.1 and are installed in accordance with Section 4.2.2.2 of IAPMO ES ER-0126.
- Tabulated values are for panels applied to one side or two sides of a wall. For load and resistance factor design (LRFD) loads, the tabulated Vn load values
- must be multiplied by the resistance factor  $\Phi = 0.60$  for Seismic / 0.65 for Wind. Section 3.3.1 in IAPMO ES ER-0126, describes minimum base metal
- All panel edges must be blocked. Panels can be installed vertically or horizontally. Fasteners must be spaced a maximum of 12 inches on center along intermediate framing members, except as noted with (\*) in Table 1 above. Vn = Nominal Strength
- Vasd = ASD Design Load.
- ∧ Vasd = Deflection at Vasd design Load.
- Nominal strength is based on double c-stud collector to be designed using one gage thicker than the framing material used Note: Sure-Board® Series 200 may be installed on Wood Framing, Refer to IAPMO ES ER-0126 Evaluation Report, Table 5 on page 9 in

TABLE 2 - NOMINAL AND ALLOWABLE SHEAR RESISTANCE TO WIND OR EARTHQUAKE FORCES AND DISPLACEMENT (inches) FOR SHEAR WALLS WITH SUREBOARD® SERIES 200W STRUCTURAL PANELS ATTACHED TO LIGHT GAGE C-STUDS AT 16" O.C. WITH #10 SCREWS

STEEL FRAMING	#10 SCREW SPACING AT PANEL EDGES AND FIELD 2/6, INCHES ON CENTER®							
Minimum Gage⁵	Vn <sup>2,3,4,7</sup>	Vasd <sup>2,3,8</sup>	∆Vasd°					
	(plf)	(plf)	(inch)					
18-Ga. (0.043 in.)	2,168	703	0.14					
16-Ga. (0.054 in.)	2,704	923	0.18					
14-Ga. (0.071 in.)	2,755	934	0.15					
14-Ga. (0.071 in.) 2 Sided	5,091	1,922	0.29					

For SI: 1 inch = 25.4 mm, 1 plf = 0.0146 N/mm.

- These values are for short term loads due to wind or earthquake
- The screws as described in Section 3.2.2 and installed in accordance with Section 4.2.2.2 of IAPMO ES ER-0126
- Tabulated values are for panels applied to one or two sides of a wall.
- For load and resistance factor design (LRFD) loads, the tabulated Vn load values must be multiplied by the resistance factor
- $\Phi = 0.60$  for Seismic / 0.65 for Wind. Section 3.3.1 in evaluation report IAPMO ES ER-0126, describes minimum base metal thickness associated with gages
- All panel edges must be blocked. Panels are installed vertically or horizontally. Fasteners must be spaced a minimum of 6 inches
- on center along intermediate framing members. Vn = Nominal Strength.
- Vasd = ASD Design Load.
- <sup>9</sup> ∆Vasd = Deflection at Vasd design Load.

Note: Series 200W may be installed on 24" O.C. CFS framing. Refer to IAPMO ES ER-0126 Table 3 on page 8 in report, for requirements of use.

## Sure-Board® Series 200 & 200W Information Table

### SURE-BOARD® STANDARDS & SPECIFICATIONS

The Sure-Board® Series 200 Structural Panel is fabricated using all thicknesses of cement or Type X gypsum board complying with ASTM C1396, or Exterior Gypsum Sheathing having an exterior water repellant paper and water resistant treated core gypsum sheathing, complying with ASTM C79-97, also approved glassmat gypsum substrate ASTM C1177, fiber reinforced gypsum panels ASTM C1278 and cement board ASTM C1325. Our Series 200W is fabricated using non-combustible sheathing or composite MDF, laminated with water soluble adhesive to sheet steel. The sheet steel is No.22 gauge (0.027", 27 mil) minimum base metal thickness complying with ASTM A653, Grade 33 minimum, hot-dipped galvanized coating conforming to ASTM A653 and A924. Panel is available in standard 8, 10, and 12 ft. lengths. The Sure-Board® panel is identified with a label located on top right or bottom left hand corner on the metal facing. Sure-Board® shear panel is also available cut to special lengths upon request.

### **FASTENERS SPECIFICATIONS**

Fasteners used to attach the Sure-Board Series 200 Panel to steel framing are self-drilling (3/4" long drilltip) bugle head screws having a minimum #8 shank diameter (0.138"), minimum 0.3145" head diameter and 1 1/4" long, complying with SAE J78 and ASTM C954. 200W Panel on steel studs require the use of #10 pan head self-drilling screws, as tested. Screw fastener head may be flush with the panel surface and must penetrate into the cold-formed steel-framing member a minimum of three exposed threads. Estener must be installed at a minimum 3/8" edge distance. Sure-Board Series 200W panels on wood framing are fastened with 10D smooth ply nails, as tested.

### STEEL AND WOOD STUD SPECIFICATION

Steel studs used for shear walls are C-shaped, with a minimum 1 5/8-inch flange and 3/8-inch return lip. Steel track shall have a minimum 1 1/4-inch flange. Steel studs are fabricated from 14 gauge (0.071"), 16 gauge (0.054") steel complying with ASTM C653 Grade 50. 18 gauge (0.043") and 20 gauge (0.033") steel complying with ASTM C653 Grade 33. Wood studs are 2x4 stud grade D.F., end posts 4x4 / 4x6 #1 D.F., as tested (actual shear wall to be specifically engineered).

Full scale reverse cyclic testing demonstrates strengths well in excess of those achieved with plywood or sheet metal only diaphragms, using identical test assemblies.

Sure-Board®

IAPMO ES ER-0126 Series 200/200W • ICC ES ER-5762 Series 200



www.MarinoWare.com

## MARINO WARE®

Recommended Tools / Screws and Staples for Installing Sureboard® Series 200 / 200W "for shear" / 200S for Sheathing

Any questions please call Technical Support (866) 545-1545

Always wear Eye Protection when Cutting SURE-BOARD®

## **Grabber & TyRex Collated Screwgun and Standard Handfed Installation**

- A) (14 gage or heavier stud/track)
  - 2500 rpm Model 4025 with CW75F/7525 IT (Grabber) or DS325AC (TyRex) Super Drive Feed Track
- B) (lighter than 14 gage stud/track)
  - 4000 rpm Model 4063 with CW75F/7540 IT (Grabber) or DS325AC (TyRex) Super Drive Feed Track
- C) Standard Screwgun (handfed) using long drill-tip Dart Screws (or equal)

## Screws for Collated Screwgun and Handfed Screw Installation

- A) 200 Series (gypsum laminate)
  - #8 x 13/4" Bugle Head screw with long drill tip
  - Part Number: CM175SDZJBW (Grabber) or 08G200CKLFPS (TyRex) Steel Framing Only
- B) 200W Series (1/8" MDF laminate) Steel Framing Only
  - #10 x 3/4" Panhead screw self tapping
  - Part Number: CFP101875LYZ (Grabber) or 10M075CTMFDS (TyRex) Steel Framing Only
- C) 200 Series use Prime Source/Dart hand screw #PP2 #8X2" w/quadrex tip Steel Framing Only
- D) 200S Series (7/16" / 9/16" Fiber Cement laminate) Grabber #8 x 15%" winged driller Part Number: CHS8158JBWG2 Steel Framing Only
- E) 200W Series (1/8" MDF) Standard #10 x 21/4" plywood gun nails Wood Framing Only
- F) 200 Series (Drywall laminate) #8 x 2" "A-point" CS8200JBWYZ (Grabber) Wood Framing Only

## Metal Cutting Circular Saws for Cutting Sureboard® Series 200W and 200

(Watch Video Clips on website for reference and demonstration of cutting)

- A) Milwaukee 8" Circular Saw Model #6370-20, Blade only #48-40-4515
- B) Milwaukee 6 3/4" 28 Volt Cordless Model #0740-22, Blade only #48-40-4016
- C) Morse Evolution 180 71/4" Saw Blade CSM768TSC 7" carbide blade
- D) Champion RS725 71/4" Saw
- E) Standard Skilsaw with Carbide tip blade, 71/4" Ferrous metal blade Diablo MDL #D0748F

## Lath Stapler and 14 Gage Staples/Nailgun for 200W Wood Framing Only

- A) Paslode Model #4150/38 W14
- B) Staples 7/8" #GSW1478 mfg. by Master Fasteners Inc., (14 Gage Staples)
- C) Standard Pneumatic Nailgun (using 10d smooth plywood nails)

## MARINO WARE®

## Recommended Tools / Screws / Saws / Blades for Installing Sureboard® Series \*200 B / BX / BI for Ballistic / Blast

Any questions please call Technical Support (866) 545-1545

Always wear Eye Protection when Cutting SURE-BOARD®

## Definition of Series \*200 B / 200 BX / 200 BI Panels

- 1) \*200 B Ballistic panels with 14 gage steel sheet
- 2) \*200 BX Blast (EXTERIOR SIDE) panel with 14 gage steel sheet
- 3) \*200 BI Blast (INTERIOR SIDE) panel with 22 gage steel sheet

## Grabber & TyRex/Senco Collated Screwgun and Standard Handfed Installation

- A) (14 gage or heavier framing studs/track)

  2500 rpm Model 4025 with CW75F/7525 IT (Grabber) or DS325AC (TyRex/Senco)

  Super Drive Feed Track
- B) (lighter than 14 gage framing studs/track)
  4000 rpm Model 4063 with CW75F/7540 IT (Grabber) or DS325AC (TyRex/Senco)
  Super Drive Feed Track
- C) Standard Screwgun (handfed) using long drill-tip Dart Screws (or equal)

## Screws for Collated Screwguns and Handfed Screw Installation

- A) Series \*200 B/BI Panels #8 x 1¾" Bugle Head screw with long drill tip Collated Bugle Head Screws Part Number: CM175SDZJBW (Grabber) or 08G200CKLFPS (TyRex/Senco) Steel Framing Only
- B) Series \*200 BX Panels
  #10 x 2" (Grabber), #12 x 2" (Grabber), #14 x 2%" (Simpson), or #12 x 2" (TyRex/Senco)
  Collated Bugle Head Screws
  Part Number: C10200L3YZE (Grabber), CC12200LYZ (Grabber), TB1460S (Simpson) or
  12G200YKLFCX (TyRex/Senco)
- C) Series \*200 B/BI Panels use Prime Source/Dart hand screw #PP2 #8X2" w/quadrex tip Steel Framing Only

## Metal Cutting Circular Saws for Cutting Sureboard® Series \*200 B/BX/BI

(Watch Video Clips on website for reference and demonstration of cutting)

- A) Milwaukee 8" Circular Saw Model #6370-20, Blade only #48-40-4515
- B) Milwaukee 6 3/4" 28 Volt Cordless Model #0740-22, Blade only #48-40-4016
- C) Morse Evolution 180 71/4" Saw Blade CSM768TSC 7" carbide blade
- D) Champion RS725 71/4" Saw
- E) Standard Skilsaw with Carbide tip blade, 71/4" Ferrous metal blade Diablo MDL #D0748F