



Load Bearing Members

QUALITY LIGHT STEEL FRAMING MEMBERS AND CONNECTIONS

Load Bearing Wall Systems

Introduction

TSN provides solutions for all standard light steel framing applications, including load-bearing mid-rise construction systems. TSN's optimized StiffWall Shear Wall System used together with SigmaStud's increased load capacity will allow you to build taller, lighter, faster, and stronger. StiffWall uses 1/3rd the screws of other steel-framed shear walls, and the strap system is located on the outside of the wall to facilitate electrical pipe work in the wall cavity. SigmaStud's unique configuration provides installation and design advantages which create efficiencies no other light steel framing (LSF) load bearing wall stud can provide, delivering the most efficient LSF load-bearing stud member available.

Products

SigmaStud®

SigmaStud® Load Bearing Member
SigmaStud® Web Reinforcement (RFT)
SigmaTrak® Runner Track



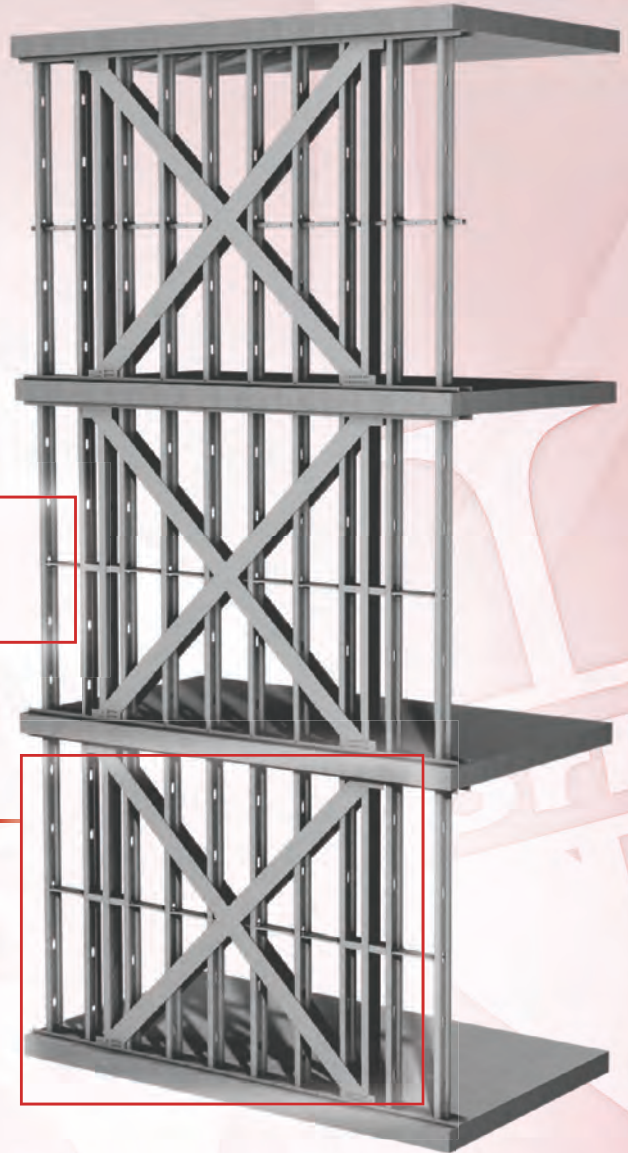
X-Braced Shear Walls

StiffWall® Column Boot Assembly
Load Bearing Member & Anchor
Flat Strap X-Bracing
TightStrap® Tensioning Tool



PrimeJoist®

PrimeJoist® Floor Member



Project Spotlight: 26 Cherry Street Apartments, Grand Rapids, MI



SigmaStud® is Most Economical Solution

"Owners are always looking to build the most cost effective building possible. With a fixed property size in the city, the only way to meet the unit requirement is to build up. It was found that the most economical solution for the overall structure was [TSN's] SigmaStud because of its cross section and load capacity in combination with precast hollow core plank.

This project was the first building I have designed using SigmaStud. The team members at The Steel Network were very helpful in providing details and answering technical engineering questions as my knowledge and comfort level with the system increased."

- Tim DenHartigh, EOR, JDH Engineering, Grandville, MI

TSN Engineered Solutions Deliver Project Success

The apartments at 26 Cherry Street in Grand Rapids, MI presented the construction team with an opportunity to save significant time and money through the use of SigmaStud® as the primary load-bearing wall component. **TSN provided a value engineering design assist for the construction team**, communicating the true worth of utilizing SigmaStud® to the Engineer of Record, General Contractor, and entire design team. Benefits of cold-formed steel design are added to the total cost of construction and general service conditions with an accelerated revenue stream to owners and developers. **SigmaStud provided innovative alternative to other traditional structures, providing significant values in economies and condensed schedules in construction.**

Load Bearing Wall Systems

SigmaStud® Product Line

Introduction:

SigmaStud® is a breakthrough in the load-bearing steel stud industry, producing significant increases in load capacity when compared with conventional "C" Shaped studs. SigmaStud's unique configuration provides installation and design advantages which create efficiencies no other light steel framing (LSF) load bearing wall stud can provide. Each bend made to a flat LSF element increases load capacity over a standard stud section with the same material thickness. The return lips present in SigmaStud also increase capacity, delivering the most efficient LSF load-bearing stud member available.

Quality

- Increases load capacity over a standard "C-shaped" stud of the same thickness.
- Reduces overall materials needed (14ga "C-shaped" to 18ga "SG" common)
- Re-defines previous limitations considered for utilization of steel studs in building construction
- Larger flange width increases area for fasteners
- Axial load capacity tables compatible with recent code changes

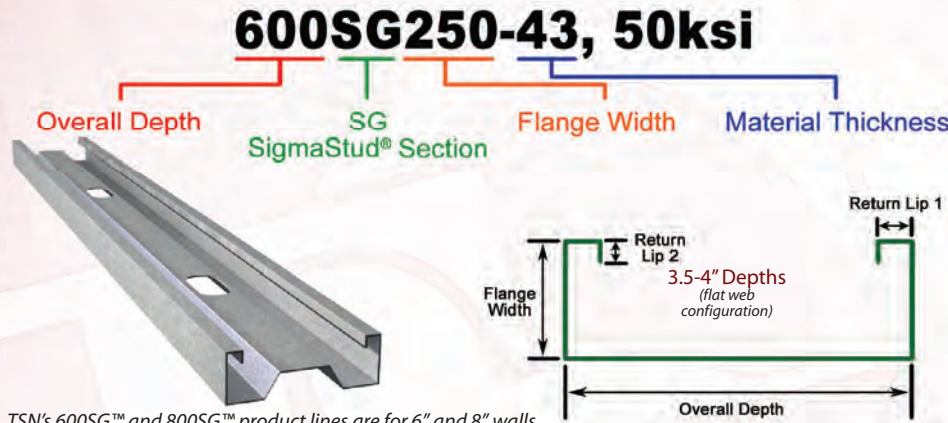
Value

- Lighter weight results in shipping efficiencies and easier handling & faster connections
- Screw size decreases with thinner material thickness of member material
- May eliminate double studs and their attachments to each other
- Increased load capacity produces more cost-effective options for designing load bearing walls for clients

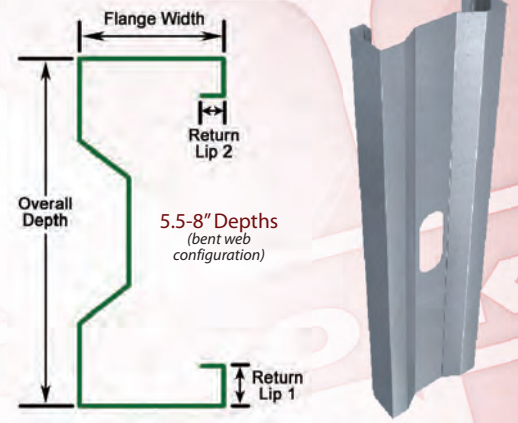
SigmaStud® Load Bearing Wall Stud

Nomenclature

600SG250-43, 50ksi



TSN's 600SG™ and 800SG™ product lines are for 6" and 8" walls.



SigmaStud® Web RFT Reinforcement

Function

Any larger holes cut into SigmaStud require a review by the engineer, as load capacity is based on the existence of standard punchout sizes. With the realization that additional holes do manage to appear in studs, TSN provides the SigmaStud Web RFT to provide reinforcement of a hole or holes added to the stud web during construction. The SigmaStud Web RFT is designed for use with 550 and greater SigmaStud.

Features

- No loss of stud strength when using the SigmaStud Web RFT with up to a 3" hole.
- SigmaStud Web RFT is designed for use with #12 Self-Drilling Tapping Screws.

Nomenclature

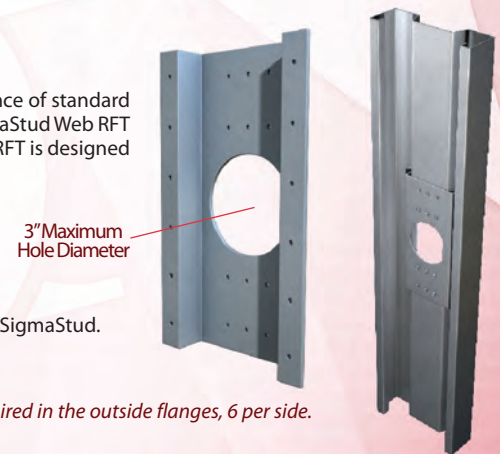
SigmaStud® Web RFT is available in 54 or 97 mil thicknesses, and is designed for use with 550 & greater sized SigmaStud.

Designate: SG Web RFT-54 or SG Web RFT-97

* Contact TSN Engineering for specific recommendations.

** Each SigmaStud Web RFT contains 12 pre-drilled guide holes in the center section, 12 additional screws are required in the outside flanges, 6 per side.

*** All modifications to SigmaStud must be reviewed by a structural engineer.



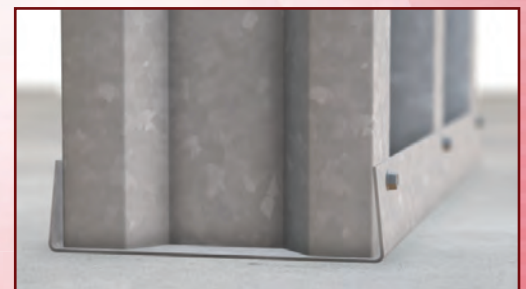
SigmaTrak® Runner Track

According to design standards, load bearing studs must be fully seated within the top and bottom tracks. SigmaTrak® eliminates field issues typically seen with (T) section tracks where the studs bear directly on the corner radius of the track, creating gaps between the stud and track.

SigmaTrak is the ideal runner track for load bearing and curtain wall metal stud wall assemblies. Manufactured from mill-certified steel, SigmaTrak's unique shape is designed to allow a stud to seat fully within the track, providing full bearing at the top and bottom structural tracks.

Nomenclature

600SGT150-43, 50ksi



Load Bearing Wall Systems

PrimeJoist® Floor Member

Introduction:

PrimeJoist® is a revolutionary addition to the light gauge steel stud industry, producing significant economies in both design and installation when compared with conventional "C" Shaped studs. PrimeJoist's unique configuration delivers increased strength and stiffness, minimizing or eliminating the use of built-up joist sections in floor assemblies. Available in all common floor joist depths, PrimeJoist streamlines the design and construction process. PrimeJoist's shape is easily differentiated from the typical c-shape, enabling the selection of the most optimal member sizes to fit project conditions.

Quality

- Increases load capacity over a standard "C-shaped" stud of the same thickness, reducing overall materials needed
- Increased stiffness for deflection
- Increased load capacity enables selection of optimal thickness of flooring members

Value

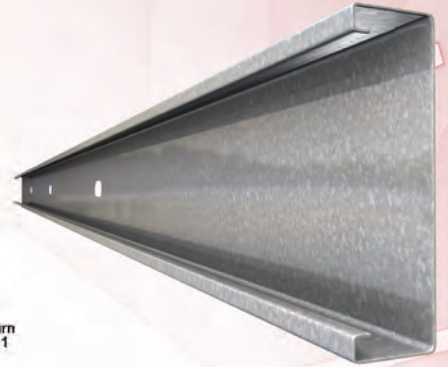
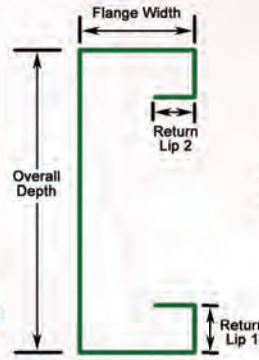
- Simplified joist and floor system design
- Lighter weight results in shipping efficiencies and easier handling
- Provides a flat surface for attachment of door or window frame, requiring no additional track
- No welding or fastening built-up members together

PrimeJoist® Load Bearing Floor Stud

Nomenclature

1200PJ350-68, 50 ksi

Overall Depth
PJ PrimeJoist® Section
Flange Width
Material Thickness



Load Bearing Wall Systems

StiffWall® Shear Wall System

Introduction:

The Steel Network's StiffWall® is custom designed and manufactured to meet the performance requirements of the project. Each component making up the StiffWall is selected to meet or exceed both strength and stiffness requirements of the applicable building code. The design and fabrication of StiffWall is optimized through a series of both component and full scale wall assembly tests, using state of the art technology to measure performance. Simple attachments are made at corners through the innovative Boot system, offering a practical attachment to foundations, through floors and at roof termination.

Quality

- Exceeds design requirements & industry standards for sizes & loads
- Stronger & more efficient than wood sheathed & gusset plate systems
- Tested for multi-story application and capable of carrying loads present in 10 story buildings
- Strap system is on the outside of the wall to facilitate utilities within the wall
- Allows 3 times the window space of plywood braced structures

Value

- Requires 1/3rd the screws of all other steel framed shear walls, saving time & material
- Templates are not required for hold-downs
- Versatile design may be incorporated into steel, concrete and wood construction without additional costly parts
- Sits inside the wall cavity, eliminating bump-outs

StiffWall System Components:



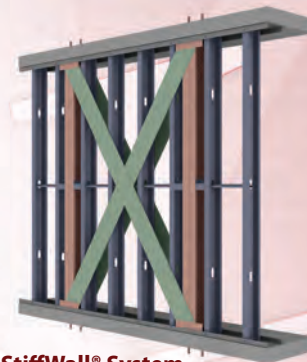
Column/Boot Assembly
(1) at each end post
(same height as studs)



SigmaStud® & BuckleBridge®
Load bearing wall studs & bridging are not a part of the StiffWall System**

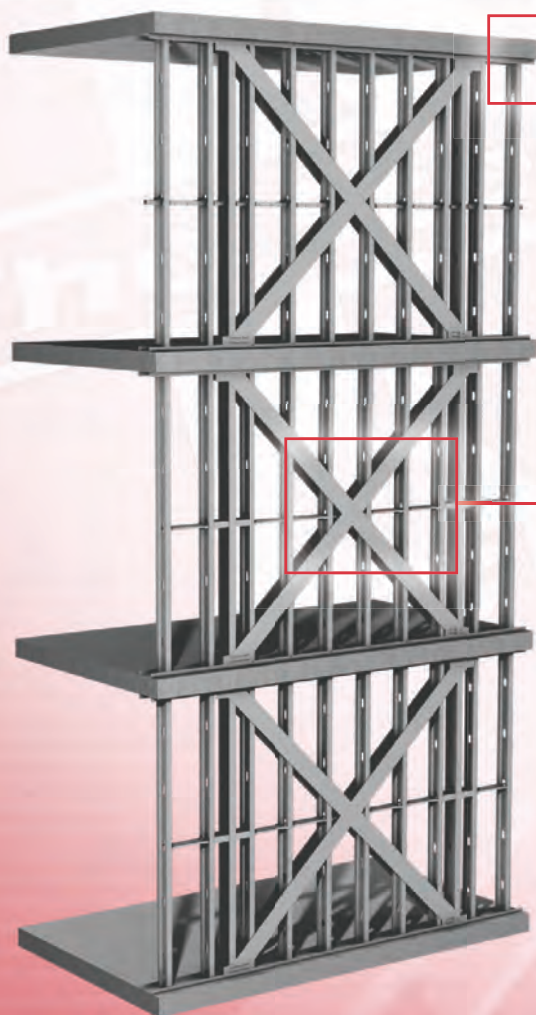


Flat Strap
(2) at each side of X-bracing



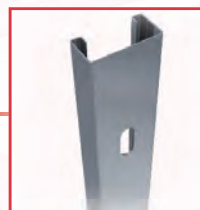
StiffWall® System
Embedded within load bearing wall studs

* Anchor bolts are not included with Column/Boot Assembly. 1¼" anchor is required for LG and TR boots, & 7/8" is required for ME, SM and LT boots.
** StiffWall is embedded between studs and does not replace load bearing studs



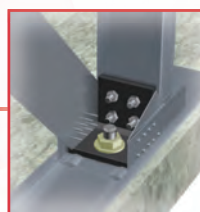
StiffWall® Column Boot Assembly (C/STW)

- End posts for the shear wall - Columns come pre-assembled with boots & strap track for easy installation into the wall
- Tested for multi-story application and capable of carrying loads present in 10 story buildings



StiffWall® Column

- Comes with Boots pre-installed on top and bottom of each Column by TSN
- Wider flange & additional return lips provide an increased load capacity over standard steel studs
- Exceeds industry standards for sizes and loads



Boots

- Pre-installed on top & bottom of each Column by TSN
- Made up of a Strap Track (piece of track 12" long with pre-punched screw pilot holes) and a Base Plate ("T" shaped structural steel), and specified bolts for connection to Column.
- Fits into a standard (T) Section track



Flat Strap (FS)

- X-braced straps arrive at the jobsite cut to length eliminating splicing
- Runs diagonally as a single piece and attaches to the strap track on each side of the wall
- Made to your specifications, always using 50 ksi steel

FS400-54, 50ksi

FS
Flat Strap Section

Overall Depth
Ex: 4"

Material Thickness (mils)
Ex: 54mil (16ga)



TightStrap® (Tension Tool)

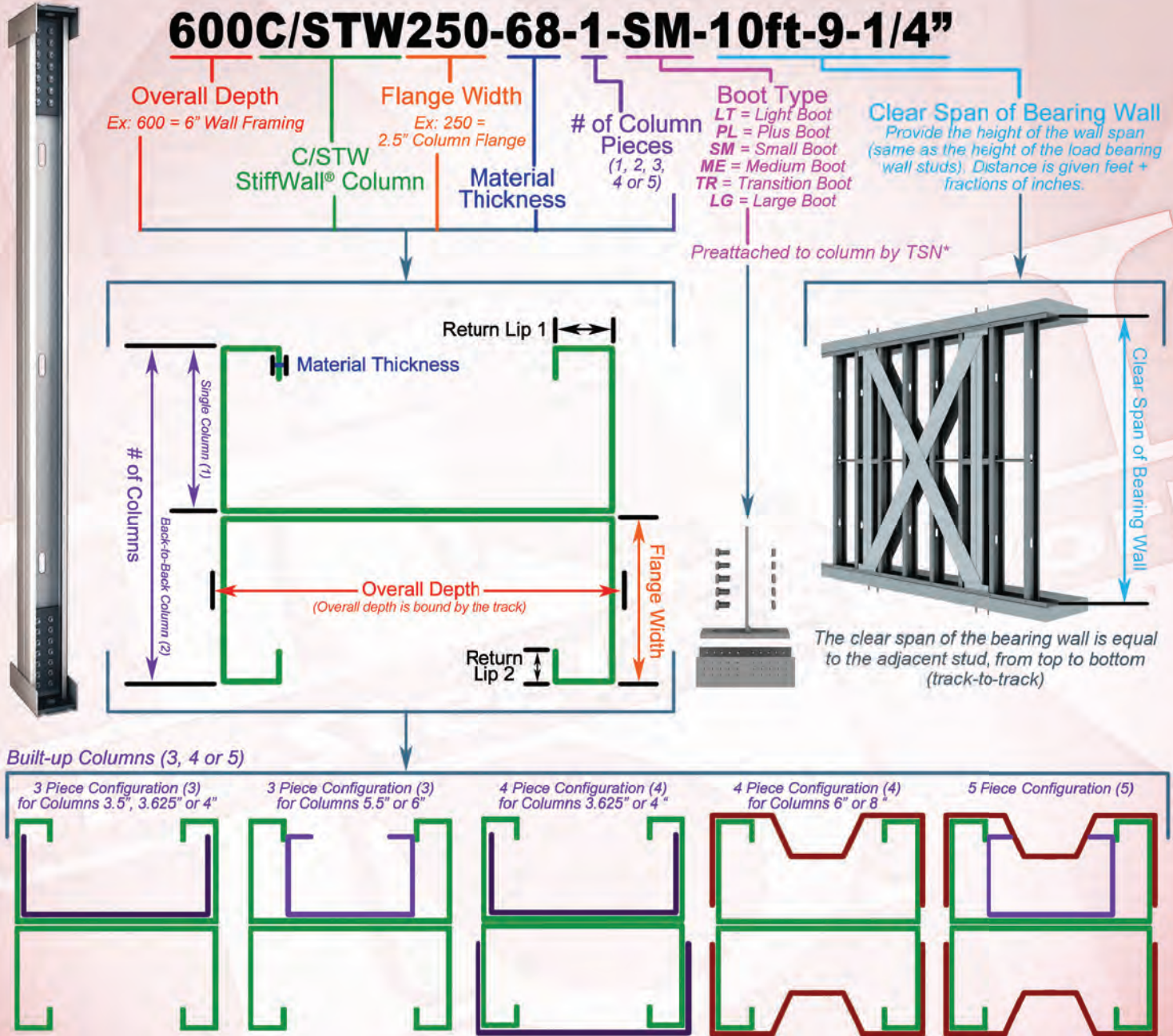
- Device used to tighten flat strap in the field, removing "waviness" or "bowing" prior to fastening
- Ensures flat straps are as tight as possible when installed to achieve optimal system performance
- Fastens to standard track at the corners of the shear wall to provide a base for the tensioning process

StiffWall® X-Braced Shear Wall

Order Information

StiffWall consists of two Column assemblies (one at each end post) and Flat Strap (two on each side of X-bracing). The StiffWall is embedded into the load bearing and non-load bearing walls. Perform your stud take off as normal, then order the Column/Boot Assembly and the Flat Strap as separate items. **Each Column is delivered fully assembled with boots attached and ready for installation to the wall panels per project requirements.**

Column/Boot Assembly Nomenclature



* Anchor bolts are not included with Column/Boot Assembly. 1/4" anchor is required for LG and TR boots, & 7/8" is required for ME, SM and LT boots.

Project Spotlight: Old Dominion University Quad Housing, Norfolk, VA



SigmaStud® Value Replaces Both Concrete & Steel

The Quad Housing development at Old Dominion University presented the construction team with an opportunity to save significant time and money through the use of SigmaStud® as the primary load-bearing wall component, replacing concrete block. **TSN provided a value engineering comparison for the construction team**, communicating the true worth of utilizing SigmaStud® to the Architect, Engineer of Record, General Contractor, Sub-Contractor, Specialty Engineer, and the Owner/Developer. **The switch to SigmaStud® resulted in a 30% savings in the cost of the wall construction**, created substantial additional savings by reducing the overall foundation requirements and accelerated the construction schedule.

2 Buildings (4 Stories Each)

General Contractor: WM Jordan

Sub-Contractor:

Agent Wall Systems

Specialty Engineer: LSA, Inc.

Architect/EOR: Clark Nexsen

Terms, Conditions, and Limited Warranty

Product Use

Products in this catalog are designed and manufactured for the specific purposes shown, and should not be used in other applications unless approved by a qualified design professional. All modifications to products or changes in installation procedures should be made by a qualified design professional. The performance of such modified products or altered installation procedures is the sole responsibility of the design professional or installation contractor. The installation contractor and/or qualified design professional are responsible for installing all products in accordance with relevant specifications and building codes.

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All warranty obligations of TSN shall be limited, at the sole discretion of TSN, to repair or replace the defective product(s). These remedies shall constitute TSN's sole obligation and sole remedy of purchaser under this warranty. In no event will TSN be responsible for incidental, consequential, indirect, exemplary, incidental, special, consequential, or punitive damages, or other losses or damages however caused, including, but not limited to, installation costs, lost revenue or lost profits. TSN's liability for damages shall in no event exceed the applicable portion of the purchase price for defective product(s).

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This Warranty is expressly in lieu of all other warranties, expressed or implied, including any warranties of merchantability or fitness for a particular purpose, all such other warranties being hereby expressly excluded.

Patented Technology

BackIt®, BridgeBar®, BridgeClip®, BuckleBridge®, CircleTrak®, DriftClip®, DriftCorner®, DriftTrak®, GripClip®, 600JAM®, 800JAM®, JamStud®, MidWall™, MasterClip®, NotchTrak®, PrimeWall®, 600SG®, 800SG®, SigmaStud®, SigmaTrak®, Step-Bushing Technology™, StiffClip®, StiffWall®, ThermaFast®, TightStrap®, VertiClip®, and VertiTrack® are trademarked products, and are patented or patent-pending technologies of TSN. Numerous TSN design configurations are patented and/or patent pending and are protected under US and International patent laws. Patent numbers include: #4,970,410; #4,970,411; #4,970,412; #4,970,413; #5,079,710; #5,467,566; #5,904,023; #5,906,080; #6,612,087; #6,701,689; #6,892,504; #7,104,024; #7,503,150; #7,559,519; #7,596,921; #7,634,889; #7,788,878; #7,832,162; #7,836,657; #8,132,383; #8,181,419; #8,205,402; #8,387,321 and #8,683,770.

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