



SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: _____ Substitution Request Number: _____

From: _____

To: _____ Date: _____

A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: Drawings Product Data Samples Tests Reports _____

25-Gauge EQ physical and structural properties

ClarkWestern UltraSTEEL framing's 25-gauge EQ physical and structural properties

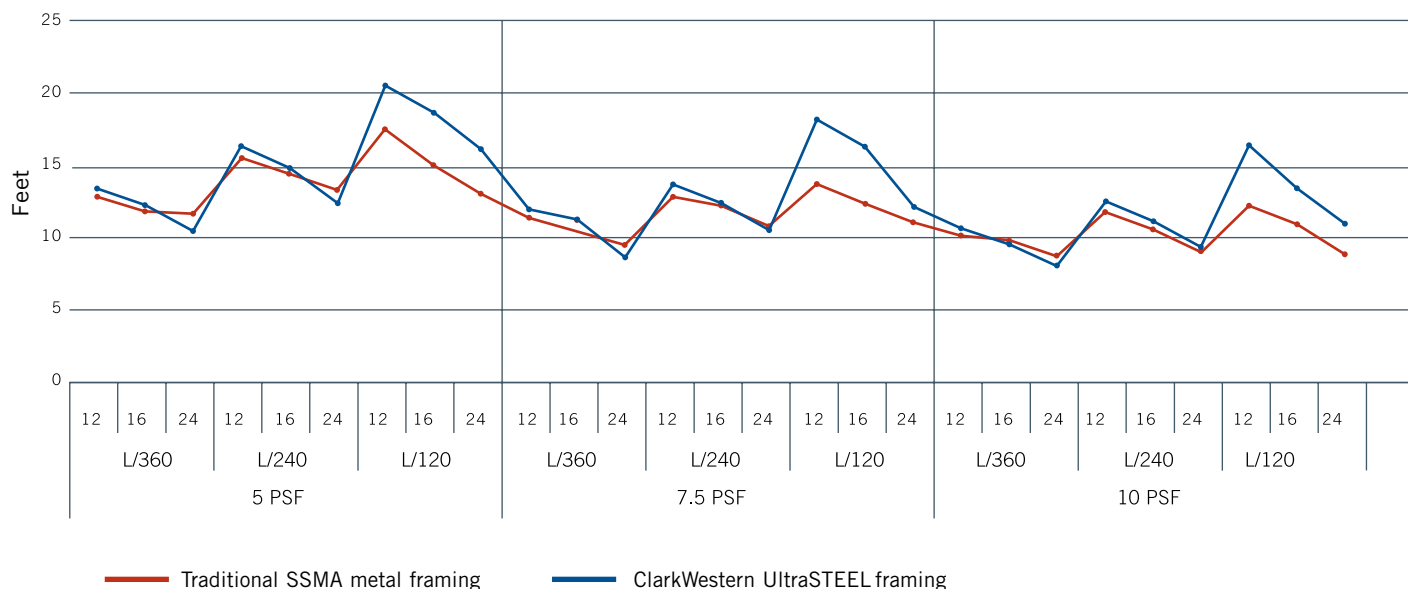
Member designation	Base metal thickness (inches)	Effective metal thickness (inches)	Weight (lbs/ft)	Gross section properties					Effective section properties		Allowable moment M_a (in-lbs)	Torsional section properties				
				Area (in ²)	I_x (in ⁴)	r_x (in)	I_y (in ⁴)	r_y (in)	I_{se} (in ⁴)	S_{se} (in ³)		X_o (in)	J (10 ⁻⁵ in ⁴)	C_w (in ⁶)	R_o (in)	Beta (degree)
162 UDS	0.015	0.034	0.237	0.070	0.033	0.689	0.015	0.460	0.029	0.024	578	-1.062	0.580	0.009	1.347	0.378
250 UDS	0.015	0.034	0.284	0.084	0.087	1.020	0.017	0.452	0.078	0.045	1,087	-0.935	0.694	0.021	1.456	0.587
362 UDS	0.015	0.034	0.345	0.101	0.204	1.418	0.019	0.435	0.189	0.057	1,363	-0.815	0.842	0.049	1.693	0.768
400 UDS	0.015	0.034	0.365	0.107	0.256	1.546	0.020	0.429	0.233	0.063	1,509	-0.783	0.891	0.061	1.785	0.808
600 UDS*	0.015	0.034	0.472	0.139	0.675	2.205	0.022	0.396	0.535	0.108	2,580	-0.648	1.154	0.153	2.332	0.923

Notes: Section properties were determined in accordance with AISI-NASPEC 2001.
 Section properties were conservatively calculated using the thickness and yield strength of the base material, prior to the UltraSTEEL framing process.

Effective properties and moment capacity did not incorporate stress increase as a result of cold work of forming. The term "Effective Thickness" was created by Underwriters Laboratory (UL®) to establish a minimum thickness measurement after the UltraSTEEL manufacturing process has occurred. Effective thickness is the measurement across the peaks of the dimples or the thickest part of the steel. The manufacturing, base steel and quality control process is verified by independent third party UL® representatives, who make regular unannounced visits to manufacturing facilities to assure full compliance with UL® established quality control standards.

Tested to ICC acceptance criteria AC86.

25-Gauge EQ ClarkWestern UltraSTEEL framing compared to traditional 25-gauge SSMA 362s125-18*



* Composite limiting heights based on single layer 1/2" thick gypsum board full height on each side with screws spaced 12" O.C. to framing members per ASTM C754. Tested to ICC acceptance criteria AC86.

25-Gauge EQ composite limiting heights

ClarkWestern UltraSTEEL® framing's 25-gauge EQ composite limiting heights (1 layer 1/2" thick gypsum wallboard)*

Stud member	Spacing (inches)	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
162 UDS	12	12' 6"	9' 11"	8' 8"	10' 11"	8' 8"	—	9' 11"	7' 11"	—	8' 8"	—	—
	16	11' 4"	9' 0"	7' 11"	9' 11"	7' 11"	—	9' 0"	—	—	—	—	—
	24	9' 11"	7' 11"	—	8' 8"	—	—	7' 11"	—	—	—	—	—
250 UDS	12	15' 8"	12' 5"	10' 10"	13' 8"	10' 10"	9' 6"	12' 4" f	9' 11"	8' 8"	10' 1" f	8' 8"	—
	16	14' 2"	11' 3"	9' 10"	12' 5"	9' 10"	8' 7"	11' 3"	8' 11"	7' 10"	8' 11" s	7' 10"	—
	24	12' 4"	9' 10"	8' 7"	10' 9"	8' 7"	—	9' 9" f	7' 9"	—	—	—	—
362 UDS	12	20' 10"	16' 7"	14' 3"	18' 3"	14' 3"	12' 3"	16' 3" f	12' 10"	11' 0"	12' 10" f	11' 0"	9' 6"
	16	19' 1"	15' 1"	12' 10"	16' 5" f	12' 10"	11' 0"	13' 11" f	11' 6"	9' 11"	11' 0" f	9' 11"	8' 6"
	24	16' 6" f	12' 11"	11' 0"	13' 1" f	11' 0"	9' 5"	11' 2" f	9' 11"	8' 6"	8' 10"	8' 6"	—
400 UDS	12	22' 5"	17' 9"	15' 6"	19' 7"	15' 6"	13' 2"	17' 0" f	13' 10"	11' 9"	13' 4" s	11' 9"	10' 1"
	16	20' 6"	16' 3"	13' 10"	17' 0" f	13' 10"	11' 9"	14' 6"	12' 4"	10' 6"	11' 1" s	10' 6"	9' 0"
	24	17' 1" f	13' 11"	11' 9"	13' 8" f	11' 9"	10' 10"	11' 7" f	10' 6"	9' 0"	8' 11" s	8' 11" s	—
600 UDS	12	29' 10"	23' 8"	20' 9"	24' 7" f	20' 9"	18' 1"	20' 9" s	18' 10"	16' 5"	13' 10" s	13' 10" s	13' 10" s
	16	25' 7" f	21' 6"	18' 9"	20' 11" f	18' 9"	16' 5"	17' 1" s	17' 1" s	14' 8"	11' 5" s	11' 5" s	11' 5" s
	24	20' 6" f	18' 9"	16' 5"	16' 9"	16' 5"	13' 10"	13' 5" s	13' 5" s	12' 3"	9' 0" s	9' 0" s	9' 0" s

Minimum yield strength = 40 ksi f: Flexural stress controls allowable wall height s: Shear/web crippling control allowable wall height

Tested to ICC acceptance criteria.

* Composite limiting heights based on single layer 1/2" thick gypsum board full height on each side with screws spaced 12" O.C. to framing members per ASTM C754.

Tested to ICC acceptance criteria AC86.

ClarkWestern UltraSTEEL framing's 25-gauge EQ composite limiting heights (1 layer 5/8" thick gypsum wallboard)*

Stud member	Spacing (inches)	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
162 UDS	12	13' 2"	10' 6"	9' 2"	11' 6"	9' 2"	—	10' 6"	8' 5"	—	8' 8"	—	—
	16	12' 2"	9' 8"	8' 5"	10' 8"	8' 5"	—	9' 8"	—	—	—	—	—
	24	10' 9"	8' 6"	—	9' 4"	—	—	8' 6"	—	—	—	—	—
250 UDS	12	16' 0"	13' 1"	11' 5"	14' 3"	11' 5"	9' 11"	12' 4"	10' 5"	8' 10"	10' 1"	8' 10"	—
	16	14' 11"	11' 10"	10' 4"	13' 1"	10' 4"	9' 1"	11' 4"	9' 5"	8' 3"	8' 11"	8' 3"	—
	24	13' 0"	10' 4"	8' 11"	11' 3"	8' 11"	—	9' 9"	7' 11"	—	—	—	—
362 UDS	12	21' 4"	17' 1"	14' 7"	18' 8"	14' 7"	12' 5"	16' 3"	13' 0"	11' 1"	12' 10"	11' 1"	9' 6"
	16	19' 5"	15' 4"	13' 1"	16' 6"	13' 1"	11' 2"	13' 11"	11' 9"	10' 1"	11' 0"	10' 1"	8' 8"
	24	16' 8"	13' 2"	11' 2"	13' 1"	11' 2"	9' 6"	11' 2"	10' 0"	8' 6"	8' 10"	8' 6"	—
400 UDS	12	23' 1"	18' 4"	15' 11"	19' 7"	15' 11"	13' 7"	17' 0"	14' 2"	12' 1"	13' 4"	12' 1"	10' 3"
	16	20' 10"	16' 8"	14' 3"	17' 0"	14' 3"	12' 1"	14' 6"	12' 8"	10' 10"	11' 1"	10' 10"	9' 3"
	24	17' 1"	14' 4"	12' 2"	13' 8"	12' 2"	10' 2"	11' 7"	10' 9"	9' 1"	8' 11"	8' 11"	—
600 UDS	12	30' 1"	23' 11"	20' 10"	24' 7"	20' 10"	18' 3"	20' 9"	19' 0"	16' 7"	13' 10"	13' 10"	13' 10"
	16	25' 7"	21' 8"	19' 0"	20' 11"	19' 0"	16' 7"	17' 1"	17' 1"	14' 9"	11' 5"	11' 5"	11' 5"
	24	20' 6"	19' 0"	16' 8"	16' 9"	16' 8"	14' 0"	13' 5"	13' 5"	12' 3"	9' 0"	9' 0"	9' 0"

Minimum yield strength = 40 ksi

* Composite limiting heights based on single layer 5/8" thick gypsum board full height on each side with screws spaced 12" O.C. to framing members per ASTM C754.

20-Gauge EQ physical and structural properties & composite limiting heights®

ClarkWestern UltraSTEEL® framing's 20-gauge EQ physical and structural properties

Member designation	Base metal thickness (inches)	Effective metal thickness (inches)	Weight (lbs/ft)	Gross section properties					Effective section properties		Allowable moment M _a (in-lbs)	Torsional section properties				
				Area (in ²)	I _x (in ⁴)	r _x (in)	I _y (in ⁴)	r _y (in)	I _{se} (in ⁴)	S _{se} (in ³)		X _o (in)	J (10 ⁻⁵ in ⁴)	C _w (in ⁶)	R _o (in)	Beta (degree)
162 UDS	0.025	0.055	0.391	0.115	0.054	0.685	0.024	0.455	0.052	0.048	1,157	-1.050	2.653	0.014	1.333	0.380
250 UDS	0.025	0.055	0.469	0.138	0.142	1.015	0.028	0.447	0.136	0.090	2,166	-0.923	3.184	0.034	1.442	0.591
362 UDS	0.025	0.055	0.570	0.168	0.334	1.412	0.031	0.430	0.320	0.119	2,841	-0.804	3.868	0.078	1.681	0.771
400 UDS	0.025	0.055	0.604	0.177	0.421	1.540	0.032	0.423	0.403	0.132	3,155	-0.771	4.095	0.098	1.774	0.811
600 UDS	0.025	0.055	0.782	0.230	1.111	2.197	0.035	0.391	1.017	0.234	5,593	-0.637	5.310	0.247	2.321	0.925

Notes: Section properties were determined in accordance with AISI-NASPEC 2001.
Section properties were conservatively calculated using the thickness and yield strength of the base material, prior to the UltraSTEEL framing process.

Effective properties and moment capacity did not incorporate stress increase as a result of cold work of forming. The term "Effective Thickness" was created by Underwriters Laboratory (UL®) to establish a minimum thickness measurement after the UltraSTEEL manufacturing process has occurred. Effective thickness is the measurement across the peaks of the dimples or the thickest part of the steel. The manufacturing, base steel and quality control process is verified by independent third party UL® representatives, who make regular unannounced visits to manufacturing facilities to assure full compliance with UL® established quality control standards.

Tested to ICC acceptance criteria AC86.

ClarkWestern UltraSTEEL framing's 20-gauge EQ composite limiting heights (1 layer 1/2" thick gypsum wallboard)*

Stud member	Spacing (inches)	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
162 UDS	12	17' 4"	13' 9"	12' 0"	15' 2"	12' 0"	7' 7"	13' 9"	8' 9"	—	12' 0"	—	—
	16	12' 8"	10' 1"	8' 10"	11' 1"	8' 10"	7' 8"	10' 1"	8' 0"	—	8' 10"	—	—
	24	14' 0"	9' 0"	—	12' 3"	—	—	9' 0"	—	—	—	—	—
250 UDS	12	19' 10"	15' 9"	13' 6"	17' 4"	13' 6"	10' 8"	15' 9"	11' 5"	9' 1"	13' 6"	9' 1"	—
	16	16' 5"	13' 0"	11' 4"	14' 4"	11' 4"	9' 11"	13' 0"	10' 4"	9' 0"	9' 5" f	9' 0"	7' 10"
	24	16' 0"	11' 10"	9' 5"	14' 0"	9' 5"	7' 8"	11' 10"	8' 1"	—	9' 5"	—	—
362 UDS	12	22' 0"	17' 5"	15' 1"	19' 2"	15' 1"	12' 10"	17' 5"	13' 5"	11' 5"	15' 1"	11' 5"	9' 9"
	16	19' 4"	15' 4"	13' 5"	16' 11"	13' 5"	11' 9"	15' 4"	12' 2"	10' 8"	12' 11" f	10' 8"	9' 3"
	24	17' 8"	13' 8"	11' 7"	15' 5"	11' 7"	9' 11"	13' 8"	10' 4"	8' 10"	11' 7"	8' 10"	7' 7"
400 UDS	12	24' 3"	19' 3"	16' 9"	21' 2"	16' 9"	14' 8"	19' 3"	15' 3"	13' 2"	16' 9"	13' 2"	11' 3"
	16	21' 9"	17' 3"	15' 0"	19' 0"	15' 0"	13' 2"	17' 3"	13' 8"	11' 11"	15' 0"	11' 11"	10' 5"
	24	19' 5"	15' 5"	13' 3"	17' 0"	13' 3"	11' 1"	15' 5"	11' 8"	9' 10"	12' 10" f	9' 10"	8' 3"
600 UDS	12	30' 8"	24' 4"	21' 3"	26' 9"	21' 3"	18' 7"	24' 4"	19' 4"	16' 10"	21' 3"	16' 10"	14' 7"
	16	28' 0"	22' 3"	19' 5"	24' 6"	19' 5"	17' 0"	22' 3"	17' 8"	15' 5"	18' 9" f	15' 5"	13' 5"
	24	25' 0"	19' 10"	17' 4"	21' 10" f	17' 4"	14' 10"	18' 11" f	15' 7"	13' 2"	14' 3" s	13' 2"	11' 3"

Minimum yield strength = 40 ksi

f: Flexural stress controls allowable wall height

s: Shear/web crippling control allowable wall height

* Composite limiting heights based on single layer 1/2" thick gypsum board full height on each side with screws spaced 12" O.C. to framing members per ASTM C754.

Code approvals and performance standards

ClarkWestern UltraSTEEL® framing meets or exceeds these applicable performance standards.

AISI “North American Specification for the Design of Cold-Formed Steel Structural Members, 2001”

ASTM American Society for Testing and Materials

C645 “Standard Specification for Non-Structural Steel Framing Members”

C754 “Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products”

E119 “Standard Test Methods for Fire Tests of Building Construction and Materials”

E72 “Standard Test Methods of Conducting Strength Tests of Panels for Building Construction”

E90 “Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements”

UL® Underwriters Laboratories Testing Standard

UL® 263 “Fire Tests of Building Construction and Materials”**

UL® Underwriters Laboratories ClarkWestern UltraSTEEL framing classification

Wall Design No. V450 in the UL® Fire Resistance Directory

Steel Framing Members Fire Resistance Classification

See UL® Fire Resistance Directory

SSMA (Steel Stud Manufacturers Association)*

Additional Code Approvals

ICC - ES ESR 1977

Architectural Testing, Inc. CCRR-0109

NYC MEA 300-05-M

Independent Product Certification

Sound Ratings - Riverbank Acoustical Laboratories

Fire Testing - Underwriters Laboratories Inc.,

Structural Testing - Progressive Engineers Inc.

Structural Analysis - Construction Technologies Laboratory

* ClarkWestern UltraSTEEL framing meets or exceeds all the requirements of SSMA except minimum decimal standards because language in SSMA does not account for, or address, effective thickness as a result of manufacturing technology.

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