

A NUCOR COMPANY

COMPOSITE ROOF SYSTEM WITH 16" LOC SEAM / LOC SEAM 360

1. PRODUCT NAME

Composite Roof System for roof applications.

2. MANUFACTURER

AMERICAN BUILDINGS COMPANY

1150 State Docks Road Eufaula, Alabama 36027 Phone: (334) 687-2032

3. PRODUCT DESCRIPTION

These standing seam roof panels offer a flat profile, with minor striations and optional pencil ribs, for an attractive appearance on higher pitched roofs. Loc Seam panels are seamed electrically and Loc Seam 360 panels have full 360 degree rolled seams formed with an electrical seaming machine. Minimum roof slope for the Loc Seam/Loc Seam 360 roof panels is ¼ to 12.

Basic Use: A roof covering system for new or retrofit construction. A specially designed roof system combines American's Loc Seam roof panel with a layer of rigid insulation board and a Multi-rib liner panel giving the interior a finished look with excellent insulating properties. Thermax rigid insulation is applied between the interior and exterior panels. A compressible blanket insulation (unfaced) 1" thickness before compression is located between the exterior panel and the rigid insulation (while optional, this insulation is highly recommended to minimize panel rumbling in high winds). An optional 3 mil (or equivalent) vinyl vapor barrier may be used between the liner panel and the rigid insulation. Materials: Loc Seam panels are available in 24 or 22 gage 50,000 psi in either G90 zinc-coated (galvanized) steel or aluminum-zinc alloy-coated (AZ50 or AZ55) steel. Prepainted panels have American Buildings Company SmartKote[®] (PVDF) Finish.

The Multi-rib liner has 15/16" ribs with major corrugations spaced on 6" centers. They offer 36" width coverage. Rigid insulation is Thermax® by Celotex Corporation, Types TF600, TF604, TF610 or Thermax Plus with a maximum thickness of 5-1/2" in a double layer or 4-1/2" in a single layer.

The Loc Seam clip is a two part assembly. The tab portions are a nominal 2-3/8" in height and 3" in width, die formed 24 gage aluminum coated steel. The bases are die formed 18 gage zinc-coated (galvanized) steel. Expansion capability is 1-1/4".Bearing plates for the Loc Seam panel clips are 20 gage zinc-coated (galvanized) or aluminum-zinc alloy-coated steel.

Loc Seam panel sidelaps have factory applied mastic, SikaLastomer-511 or equal. Its composition is 85% solids by weight. Service temperature range is -60°F to + 220°F. Endlaps, roof flashing laps, ridges and eave closures are sealed with tape mastic, Sika Sika-Tape TC-95 or equal. The material is non-staining, non-corrosive, non-toxic and non-volatile. Composition is 100% solid isobutylene tripolymer tape. Service temperature is -60°F to +212°F. Eaves, endlaps, ridge and eave closures are sealed with non-skinning butyl caulk, SikaLastomer-511 or equal. Its composition is 85% solids by weight. Service temperature range is -60°F to + 220°F. All gutter and downspout joints, and roof accessories are sealed with polyurethane caulk, SikaSikaFlex 219LM or equal. It meets or exceeds Federal Specification TT-S-00230C, Type II, Class A.

All fasteners for panel to secondary framing and panel to panel will be one of the following EPDM washer head screws. **A.** Premium roof fasteners shall be No. 14 x 1" self-drilling carbon steel screws with a molded zinc alloy hex washer head. Premium roof fasteners will be on all warranted roofs and all pre-finished roofs.

B. Standard roof fasteners shall be No. 14 x 1" self-drilling carbon steel screws with an integral hex washer head. Standard roof fasteners shall have a corrosive resistant coating over zinc plating. Standard roof fasteners shall be on unwarranted aluminum-zinc, alloy-coated roofs only. Loc Seam panel clips are attached to the purlins with self-drilling carbon steel screws No. 12 hex head, cadmium or zinc plated. The screw length is determined by the thickness of the rigid insulation. Multi-rib panels are attached to the secondary framing members by self-drilling carbon steel screws, No. 12 x 1-1/4" hex head, cadmium or zinc plated. Panel sidelaps are stitched with self-drilling carbon steel screws, No. $14 \times 7/8$ " cadmium or zinc plated.

4. TECHNICAL DATA

The Loc Seam panel has received a Class 90 Wind Uplift rating by Underwriters Laboratories when tested in accordance with test procedure UL 580. The Loc Seam roof panel has been tested in accordance with ASTM E1592 and CEGS 07416. This panel has also been tested in accordance with Air Infiltration, ASTM E1680, ASTM E283 and Water Penetration, ASTM E1646, ASTM E331. This panel has received a Class A fire rating when tested in accordance with test procedure ASTM E108.

The Loc Seam 360 panel has received a Class 90 Wind Uplift rating by Underwriters Laboratories when tested in accordance with test procedure UL 580. The Loc Seam 360 roof panel has been Factory Mutual and Miami-Dade County approved and also tested in accordance with Wind Uplift ASTM E1592 and CEGS 07416. This panel has been tested in accordance with Air Infiltration, ASTM E1680 and Water Penetration, ASTM E1646. This panel has been approved for SREF (SSTD-97) Impact Testing. This panel has

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received a Class A fire rating when tested in accordance with test procedure ASTM E108.

5. INSTALLATION

Installation should be performed in accordance with American Buildings Company's manuals and building erection drawings, and should be by a qualified installer using proper tools and equipment. Systems are installed by American Buildings Company Authorized Builders.

6. AVAILABILITY

For availability, contact:

AMERICAN BUILDINGS COMPANY

7. WARRANTY

Thirty-five year material and twenty year weathertightness warranties are available.

8. MAINTENANCE

Only normal routine maintenance is required over the life of the panels.

9. TECHNICAL SERVICES

For information, contact:

AMERICAN BUILDINGS COMPANY

10. PRODUCT NOTES

A certain amount of waviness called "oilcanning" may exist in this panel. Minor waviness of the panel is not sufficient cause for rejection, because oilcanning does not affect the structural integrity of the panel.

American Buildings Company reserves the right to revise all standard specifications and information. American Buildings Company regularly updates its published "Standard Specifications" on the American Buildings web site, <u>www.americanbuildings.com</u>, which supercede and replace any previously published standard specifications of American Buildings Company.

	Enginee	ering Pro	perties	of Ameri	can Bui	ldings C	ompany	16" Loc	Seam P	anel	
Designated	Steel	Base	Total	Panel							
Gage	Yield	Metal	Thick.	Weight	Compression Compression				Fb		
of	KSI	Thick.	(ln.)	(lbs. / ft.2)	lx	Sx	Ma	Ix	Sx	Ma	KSI
Steel		(ln.)			(In. ⁴ / ft.)	(In. ³ / ft.)	K-IN.	(In.4 / ft.)	(In. ³ / ft.)	K-IN.	
24 Ga.	50	0.0225	0.0241	1.35	0.166	0.099	2.96	0.073	0.061	1.83	30
22 Ga.	50	0.0300	0.0316	1.77	0.225	0.141	4.22	0.110	0.094	2.83	30
Gage	N		Load	Maximum Total Uniform Load in PSF							
of	of		Туре	Span Lengths, Ft.							
Panel	Spa			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
	1		POS	876	493	316	219	161	123	97	79
24 Ga.	2		POS	460	276	183	130	96	74	59	48
24 00.		3	POS	542	333	223	159	119	92	73	60
		4	POS	517	315	210	149	111	86	69	56
	1		POS	1250	703	450	312	230	176	139	112
22 Ga.	2		POS	735	436	287	202	150	116	92	75
	3		POS	875	529	351	249	185	143	114	93
		4	POS	831	499	330	234	174	134	107	87
							-		-		
			erties of	America		ngs Cor	-		eam 360	Panel	
Designated	Steel	Base	erties of Total	Panel	n Buildi	ngs Cor Top In	npany 1	6" LocS	eam 360 Bottom In		
Designated Gage	Steel Yield	Base Metal	erties of Total Thick.	Panel Weight	n Buildi	ngs Cor Top In compressio	npany 1 n	6" LocS	eam 360 Bottom In compressio	n	Fb
Designated	Steel	Base Metal Thick.	erties of Total	Panel	n Buildi C	ngs Cor Top In compressio Sx	npany 1 n Ma	6" LocS C	eam 360 Bottom In compressio Sx	n Ma	Fb KSI
Designated Gage of Steel	Steel Yield KSI	Base Metal Thick. (ln.)	erties of Total Thick. (In.)	Panel Weight (lbs. / ft. ²)	n Buildi C Ix (In. ⁴ / ft.)	ngs Cor Top In compressio Sx (In. ³ / ft.)	npany 1 n Ma K-IN.	6" LocS C Ix (In. ⁴ / ft.)	eam 360 Bottom In compressio Sx (In. ³ / ft.)	n Ma K-IN.	KSI
Designated Gage of Steel 24 Ga.	Steel Yield KSI 50	Base Metal Thick. (In.) 0.0225	erties of Total Thick. (In.)	Panel Weight (lbs. / ft. ²) 1.35	n Buildi C Ix (In. ⁴ / ft.) 0.140	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078	npany 1 n Ma K-IN. 2.35	6" LocS C Ix (In. ⁴ / ft.) 0.063	eam 360 Bottom In compressio Sx (In. ³ / ft.) 0.056	n Ma <u>K-IN.</u> 1.67	KSI 30
Designated Gage of Steel	Steel Yield KSI	Base Metal Thick. (ln.)	erties of Total Thick. (In.)	Panel Weight (lbs. / ft. ²)	n Buildi C Ix (In. ⁴ / ft.)	ngs Cor Top In compressio Sx (In. ³ / ft.)	npany 1 n Ma K-IN.	6" LocS C Ix (In. ⁴ / ft.)	eam 360 Bottom In compressio Sx (In. ³ / ft.)	n Ma K-IN.	KSI
Designated Gage of Steel 24 Ga.	Steel Yield KSI 50	Base Metal Thick. (In.) 0.0225 0.0300	erties of Total Thick. (In.)	Panel Weight (lbs. / ft. ²) 1.35	n Buildi Ix (In. ⁴ / ft.) 0.140 0.195	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078	npany 1 n <u>Ma</u> <u>K-IN.</u> 2.35 3.42	6" LocS Ix (In. ⁴ / ft.) 0.063 0.095	eam 360 Bottom In compressio Sx (In. ³ / ft.) 0.056 0.085	n Ma K-IN. 1.67 2.54	KSI 30
Designated Gage of Steel 24 Ga. 22 Ga.	Steel Yield KSI 50 50 N	Base Metal Thick. (In.) 0.0225 0.0300	erties of Total Thick. (In.) 0.0241 0.0316	Panel Weight (lbs. / ft. ²) 1.35	n Buildi Ix (In. ⁴ / ft.) 0.140 0.195	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078 0.114	npany 1 n <u>Ma</u> <u>K-IN.</u> 2.35 3.42	6" LocS Ix (In. ⁴ / ft.) 0.063 0.095 iform Loa	eam 360 Bottom In compressio Sx (In. ³ / ft.) 0.056 0.085	n Ma K-IN. 1.67 2.54	KSI 30
Designated Gage of Steel 24 Ga. 22 Ga. Gage	Steel Yield KSI 50 50 N	Base Metal Thick. (In.) 0.0225 0.0300 0. of ans	erties of Total Thick. (In.) 0.0241 0.0316 Load Type	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50	In Buildi C Ix (In. ⁴ / ft.) 0.140 0.195 2.00	ngs Cor Top In Compression Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50	npany 1 n K-IN. 2.35 3.42 Total Un Span Ler 3.00	6" LocS [x (In. ⁴ / ft.) 0.063 0.095 iform Loa ngths, Ft. 3.50	eam 360 Bottom In compressio Sx (In. ³ / ft.) 0.056 0.085 ad in PSF 4.00	n Ma K-IN. 1.67 2.54 4.50	KSI 30 30 5.00
Designated Gage of Steel 24 Ga. 22 Ga. Gage of	Steel Yield KSI 50 50 N Sp	Base Metal Thick. (In.) 0.0225 0.0300 0. of ans	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695	In Buildi C Ix (In. ⁴ / ft.) 0.140 0.195 1 2.00 391	ngs Con Top In ompressio Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250	npany 1 n K-IN. 2.35 3.42 Total Un Span Ler 3.00 174	6" LocS Ix (In. ⁴ / ft.) 0.063 0.095 iform Loa ogths, Ft. 3.50 128	eam 360 Bottom In compressio Sx (In. ³ / ft.) 0.056 0.085 ad in PSF 4.00 98	n Ma K-IN. 1.67 2.54 - - - - - - - - - - - - - - - - - - -	KSI 30 30 5.00 63
Designated Gage of Steel 24 Ga. 22 Ga. Gage of Panel	Steel Yield KSI 50 50 N Sp	Base Metal Thick. (In.) 0.0225 0.0300 0. of ans 1	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695 446	In Buildi (In. ⁴ / ft.) 0.140 0.195 2.00 391 262	ngs Cor Top In Smpressio Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250 171	npany 1 n K-IN. 2.35 3.42 Total Un Span Ler 3.00 174 120	6" LocS k (In. ⁴ / ft.) 0.063 0.095 iform Loa ogths, Ft. 3.50 128 89	eam 360 Bottom In compression Sx (In. ³ / ft.) 0.056 0.085 ad in PSF 4.00 98 68	n Ma K-IN. 1.67 2.54 - - - - - - - - - - - - - - - - - - -	KSI 30 30 5.00 63 44
Designated Gage of Steel 24 Ga. 22 Ga. Gage of	Steel Yield KSI 50 50 N C Spi	Base Metal Thick. (In.) 0.0225 0.0300 0. of ans 1 2 2 3	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS POS POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695 446 537	In Buildi (In. ⁴ / ft.) 0.140 0.195 2.00 391 262 319	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250 171 210	npany 1 n <u>Ma</u> <u>K-IN.</u> 2.35 3.42 <u>Total Un</u> <u>Span Ler</u> 3.00 174 174 120 148	6" LocS [x (In. ⁴ / ft.) 0.063 0.095 iform Loa ngths, Ft. 3.50 128 89 110	eam 360 Bottom In compression Sx (In. ³ / ft.) 0.056 0.085 ad in PSF 4.00 98 68 85	n Ma K-IN. 1.67 2.54 - - - - - - - - - - - - - - - - - - -	KSI 30 30 5.00 63 44 55
Designated Gage of Steel 24 Ga. 22 Ga. Gage of Panel	Steel Yield KSI 50 50 N Sp	Base Metal Thick. (In.) 0.0225 0.0300 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS POS POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695 446 537 508	In Buildi (In. ⁴ / ft.) 0.140 0.195 2.00 391 262 319 301	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250 171 210 197	npany 1 n Ma K-IN. 2.35 3.42 Total Un Span Ler 3.00 174 120 148 139	6" LocS (In. ⁴ / ft.) 0.063 0.095 iform Loa ogths, Ft. 3.50 128 89 110 103	eam 360 Bottom In compressio Sx (In. ³ / ft.) 0.056 0.085 ad in PSF 4.00 98 68 885 79	n Ma K-IN. 1.67 2.54 - - - - - - - - - - - - - - - - - - -	KSI 30 30 5.00 63 44 55 51
Designated Gage of Steel 24 Ga. 22 Ga. Gage of Panel	Steel Yield KSI 50 50 N Sp	Base Metal Thick. (In.) 0.0225 0.0300 0. o. of ans 1 2 3 3 4	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS POS POS POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695 446 537 508 1013	In Buildi (In. ⁴ / ft.) 0.140 0.195 2.00 391 262 319 301 570	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250 171 250 171 210 197 365	npany 1 n K-IN. 2.35 3.42 Total Un Span Ler 3.00 174 120 148 139 253	6" Locs k (In. ⁴ / ft.) 0.063 0.095 iform Loc ogths, Ft. 3.50 128 89 110 103 186	eam 360 Bottom In compression Sx (In. ³ / ft.) 0.085 ad in PSF 4.00 98 68 85 79 143	n Ma K-IN. 1.67 2.54 - - - - - - - - - - - - -	KSI 30 30 5.00 63 44 55 51 91
Designated Gage of Steel 24 Ga. 22 Ga. Gage of Panel	Steel Yield KSI 50 50 N Sp	Base Metal Thick. (In.) 0.0225 0.0300 0. of ans 1 2 3 3 4 1 2 2	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS POS POS POS POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695 446 537 508 1013 697	n Buildi (In. ⁴ /ft.) 0.140 0.195	ngs Cor Top In compression Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250 171 210 197 3655 263	npany 1 Ma K-IN. 2.35 3.42 Total Un Span Ler 3.00 174 120 148 139 2653 184	6" LocS k (In. ⁴ / ft.) 0.063 0.095 iform Loz gths, Ft. 3.50 128 89 1110 103 1866 136	eam 360 Bottom In compression (In. ³ / ft.) 0.056 0.085 add in PSF 4.00 98 68 85 79 1433 105	n K-IN. 1.67 2.54 - - - - - - - - - - - - - - - - - - -	KSI 30 30 5.00 63 44 55 51 91 67
Designated Gage of Steel 24 Ga. 22 Ga. Gage of Panel 24 Ga.	Steel Yield KSI 50 50 N C Spi	Base Metal Thick. (In.) 0.0225 0.0300 0. o. of ans 1 2 3 3 4	erties of Total Thick. (In.) 0.0241 0.0316 Load Type POS POS POS POS	Panel Weight (lbs. / ft. ²) 1.35 1.77 1.50 695 446 537 508 1013	In Buildi (In. ⁴ / ft.) 0.140 0.195 2.00 391 262 319 301 570	ngs Cor Top In compressio Sx (In. ³ / ft.) 0.078 0.114 Maximum 2.50 250 171 250 171 210 197 365	npany 1 n K-IN. 2.35 3.42 Total Un Span Ler 3.00 174 120 148 139 253	6" Locs k (In. ⁴ / ft.) 0.063 0.095 iform Loc ogths, Ft. 3.50 128 89 110 103 186	eam 360 Bottom In compression Sx (In. ³ / ft.) 0.085 ad in PSF 4.00 98 68 85 79 143	n Ma K-IN. 1.67 2.54 - - - - - - - - - - - - -	KSI 30 30 5.00 63 44 55 51 91

System "R" Values									
Thermax	Winter	Summer							
1"	9.8	10.5							
1 1/2"	13.8	14.1							
2"	17.8	17.7							
2 1/2"	21.8	21.3							
3"	25.8	24.9							
4"	33.8	32.1							

1. The panels are checked for bending (B), shear (S), combined bending and shear (B+S) and deflection (D). The controlling check is noted in the table. Deflection is limited to span/60.

2. Section Properties are calculated in accordance with the 2007 North American Specification for the Design of Cold-Formed Steel Structural Members.

Minimum yield strength of 24 and 22 gage steel is 50,000 psi.
Steel panels are either aluminum-zinc alloy or G-90 coated. The base metal thickness is used in determining section properties.

Steel panels are either aluminum-zinc alloy or G-90 coated. The base metal thickness is used in determining section properties.
Positive load (POS) is applied inward toward the panel supports and is applied to the outer surface of the full panel cross-section.



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