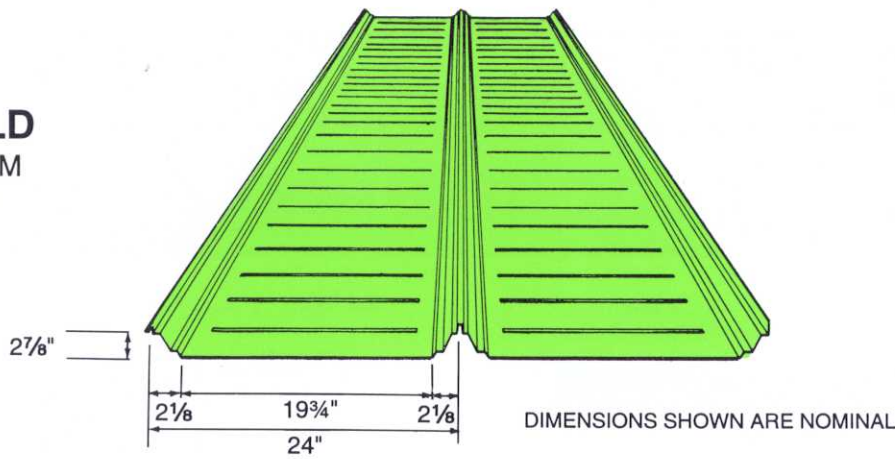


THE **STARSHIELD** STANDING SEAM ROOF SYSTEM



STARSHIELD STANDING SEAM ROOF SYSTEM



ENGINEERING PROPERTIES OF STEEL STARSHIELD PANEL									
GAUGE	STEEL THK. (IN.)	COATED THK. (IN.)	FY (KSI)	WEIGHT (#/FT ²)	OUTSIDE IN COMPRESSION		INSIDE IN COMPRESSION		Fb (KSI)
					I _x (IN. ⁴ /FT.)	S _x (IN. ³ /FT.)	I _x (IN. ⁴ /FT.)	S _x (IN. ³ /FT.)	
24	.024	.0259	50	1.294	.29826	.12430	.14934	.08556	30
22	.030	.0319	50	1.594	.36780	.14290	.18420	.11355	30

1. Section properties have been calculated in accordance with the 1986 AISI Cold-Formed Steel Specifications with 1989 Addendum.
2. Steel thickness was used in determining section properties. Coated thickness includes galvanized or zinc-aluminum coating.

ALLOWABLE LOAD (PSF) FOR NOMINAL PURLIN SPACING						
GAUGE	SPAN CONDITION	LOAD CONDITION	PURLIN SPACING			
			2'-6"	4'-0"	5'-0"	6'-0"
24	2-SPAN	GRAVITY	(142)	(89)	68.31	47.44
		UPLIFT - Fastener - Tab	(67) (69)	(42) (58)	(33) (50)	(28) (42)
	3-SPAN	GRAVITY	(162)	(101)	(81)	59.30
		UPLIFT - Fastener - Tab	(76) (78)	(47) (66)	(38) (59)	(32) (49)
	4-SPAN	GRAVITY	(156)	(97)	(78)	55.37
		UPLIFT - Fastener - Tab	(73) (75)	(46) (63)	(37) (57)	(31) (47)
22	2-SPAN	GRAVITY	(142)	(89)	(71)	(59.1)
		UPLIFT - Fastener - Tab	(67) (69)	(42) (58)	(33) (50)	(28) (42)
	3-SPAN	GRAVITY	(162)	(101)	(81)	(67.5)
		UPLIFT - Fastener - Tab	(76) (78)	(47) (66)	(38) (59)	(32) (49)
	4-SPAN	GRAVITY	(156)	(97)	(78)	(65)
		UPLIFT - Fastener - Tab	(73) (75)	(46) (63)	(37) (57)	(31) (47)

1. Values given in the above table which are not in parentheses are based on section properties.
2. For gravity loading:
The values shown are based on stress except values in parenthesis are controlled by panel clip crippling.
The allowable gravity loads shown will result in less than L/240 panel rib deflection.
3. For uplift loading:
The top values are based on standard panel clip fastener pullout in .064" thick purlin and includes 1/3 increase for wind. This value can be increased with thicker purlins and/or additional fasteners but cannot exceed the tab capacity.
The bottom values are based on Tab pullout of seam and include a 1/3 increase for wind.
The allowable uplift loads shown will result in less than L/180 panel rib deflection.



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PDS-SSRS-600

StarShield Roof System Specifications

I. GENERAL

- A. The roof system will consist of metal panels joined together by an interlocking seam and secured to the structure with an interlocking clip. Integral components such as start and finish panels, ridge cover, perimeter trim, gutter and flashings will be furnished as required.

II. PANEL DESCRIPTION

- A. All StarShield panels will be precision roll formed to 24" wide coverage. Finished panels will have the edges formed into a 2" high box rib plus a 7/8" high seam. The panel flat will be embossed with cross ribs at 6" on center.

III. PANEL DESIGN

- A. Design shall be in accordance with AISI "specification for the design of light-gauge, cold-formed steel structural members," and in accordance with sound engineering methods and practices.
- B. Panel weight will be 1.3 lbs per square foot of roof coverage for 24-gauge or 1.7 lbs per square foot for 22-gauge.
- C. Panels of maximum possible length (44'-6") will be provided to minimize end splices. The panel ends will be factory notched for panel end splices.
- D. The panel seam will be designed to positively interlock the panels and clips. The seam will contain factory-installed sealant.
- E. The panel clips will be of a two piece sliding design to accommodate expansion movement and will support the panel flat 0", 1", or 1-3/4" above the structural system.
1. The clip shall be made of 12-gauge steel, minimum yield of 36 ksi, coated with G-90, meeting ASTM A446.
 2. Minimum height shall be 3" with 5" x 1-1/4" base and 3-1/2" expansion slot at the center of gravity location of the panel rib when it is installed.
 3. The tab shall be made of 26-gauge steel having minimum yield of 50 ksi, coated with G-90, meeting ASTM A446 Grade D. The tab length shall be minimum 4" long at the panel engagement location.
 4. When the roof panels are installed, the panel shall be supported by the 12-gauge clip shoulders for positive bearing.
- F. Panel end splices will be designed with a 3" overlap and heavy gauge clamping plates to provide panel continuity. The splices will be independent of the structural to accommodate expansion movement.
- G. The ridge cover and flashings will be of an expansion joint design to accommodate thermal movement of the panel.
- H. Start and finish panels will be factory fabricated to terminate the roof panel at gable ends and will be designed to accommodate expansion movement.
- I. After the panels are installed, the seam will be closed to a double lock 360° seam, with a motorized seamer.
- J. Fasteners will penetrate the panel only at the eave and end purlin splice. At these conditions, factory punched clamping plates and butyl sealant will be used to assure a positive seal.
- K. All butyl sealants will be a nonshrinking, nondrying,

and nontoxic compound formulated for application at temperatures of 20° to 120° F, and will be installed according to manufacturer's drawings.

- L. The perimeter will be closed at the roof to wall junction with 26-gauge factory painted trim as required to provide an attractive weathertight fascia.
- M. All fasteners will be installed at locations as shown on manufacturer's drawings.

IV. PANEL MATERIAL AND FINISH

- A. The roof will be covered with:
1. StarShield panels of roll formed 24 or 22-gauge 50,000 PSI minimum yield steel (ASTM A653 Structural Quality Grade 50) with Aluminum-Zinc alloy coating (ASTM Specification A792).
 2. Factory colored StarShield roof panels of 24 or 22-gauge, 50,000 PSI minimum yield steel (ASTM A653 Structural Quality Grade 50) with Aluminum-Zinc alloy coating (ASTM Specification A792) with Ultra Premium 20 (Kynar) finish.

V. FASTENERS

- A. All connection of panel clips to structural framing will be made with:
1. 1/4-14 x 1-1/2" self-drilling carbon steel screws, .0005" zinc plated.
 2. #12-24 x 1-1/2" self-drilling carbon steel screws, .0005" zinc plated. (Bar joist with 3/16" or greater cord thickness.)
- B. All exposed connections at eave, end splice, ridge cover and flashings will be made with #12 self-drilling carbon steel screws, .0005" zinc plated with long life coating or .008" thick 302 stainless steel caps, or cast alloy head, colored to match roof panel, with sealing washer.
- C. All connection of trim to wall panels and trim splices will be made with #8 x 5/8" self-drilling carbon steel screws, zinc plated and painted.

VI. ACCESSORIES

- A. Accessories, i.e., light transmitting panels and roof jack, shall be standard with Star Building Systems unless otherwise noted, and furnished as specified.
- B. Standard accessory locations shall be as shown on erection drawings as furnished by Star Building Systems.

VII. TESTING

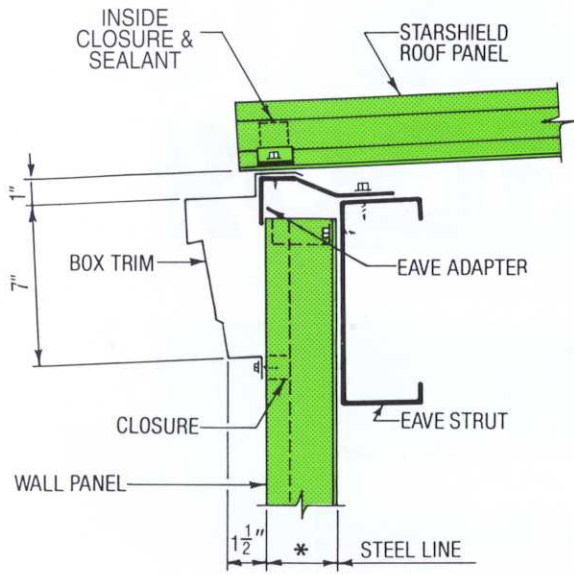
- A. The roof system is classified by the UNDERWRITERS' LABORATORIES, INC., Class 90 for wind uplift resistance only. UL Classified Building Materials Index, Construction No. 165.
- B. The roof system is FACTORY MUTUAL approved under No. 4471 standard.
- C. The roof system will be in accordance with the MBMA watertightness and ice damming test.

VIII. WARRANTIES

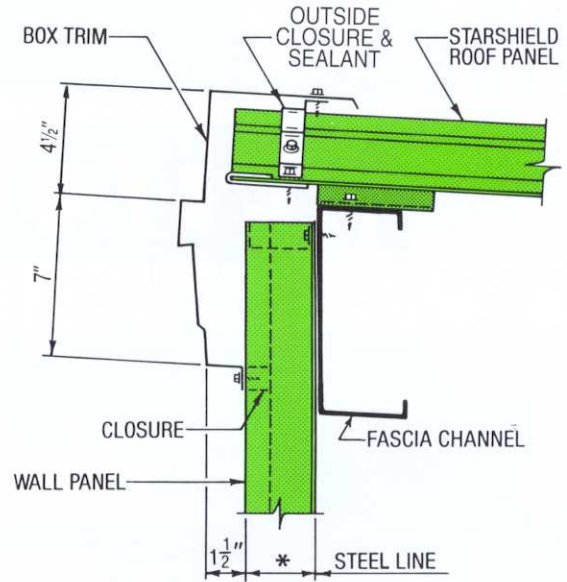
- A. All roof panels shall be warranted for a period of 1 year for defects in material or workmanship.
- B. All Ultra Premium 20 finished roof panels will be warranted for a period of 20 years against blistering, peeling, and chalking according to manufacturer's standard warranty.
- C. Roof panels are available with warranties of 20 years against perforation according to manufacturer's standard warranty.



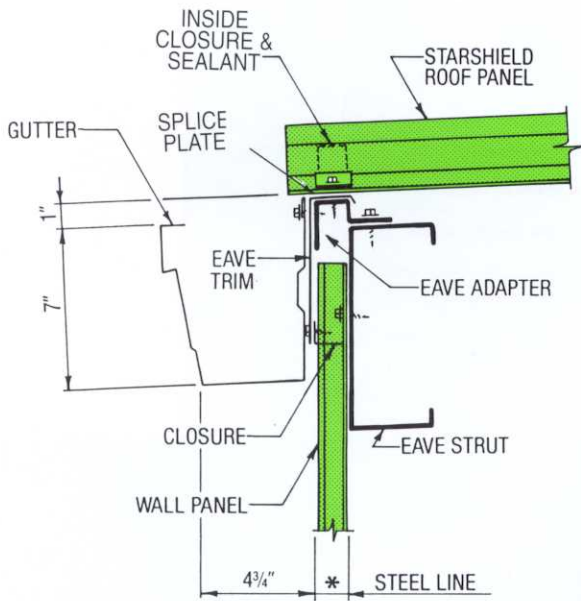
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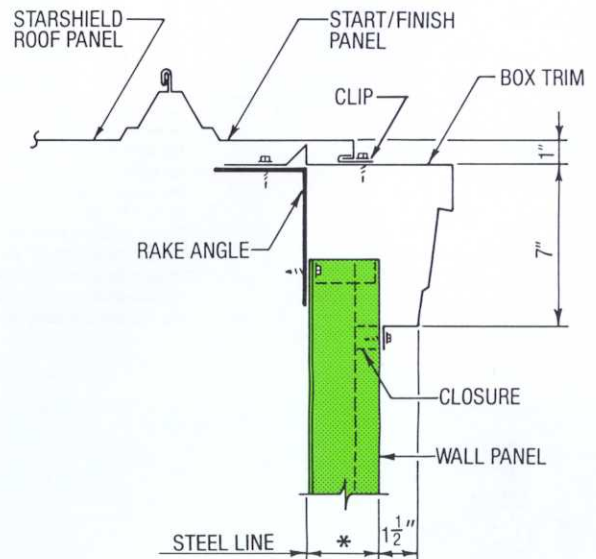
LOW EAVE - BOX TRIM



HIGH EAVE - BOX TRIM



EXTERIOR EAVE GUTTER



GABLE - BOX TRIM



STARSHIELD

**WEATHERTIGHT, ENERGY EFFICIENT,
EASY INSTALLATION,**

StarShield Standing Seam Roof System is designed to save you money through weathertightness, energy efficiency and reduced maintenance.

A properly erected StarShield roof yields a weathertight membrane; one that eliminates roof leakage. There are no panel-to-structural fastener penetrations. It's a floating roof system - two piece sliding panel clips connect the weathering surface to the structural member absorbing expansion and contraction forces resulting from seasonal temperature extremes. The full floating feature ensures structural integrity and resists thermal shock.

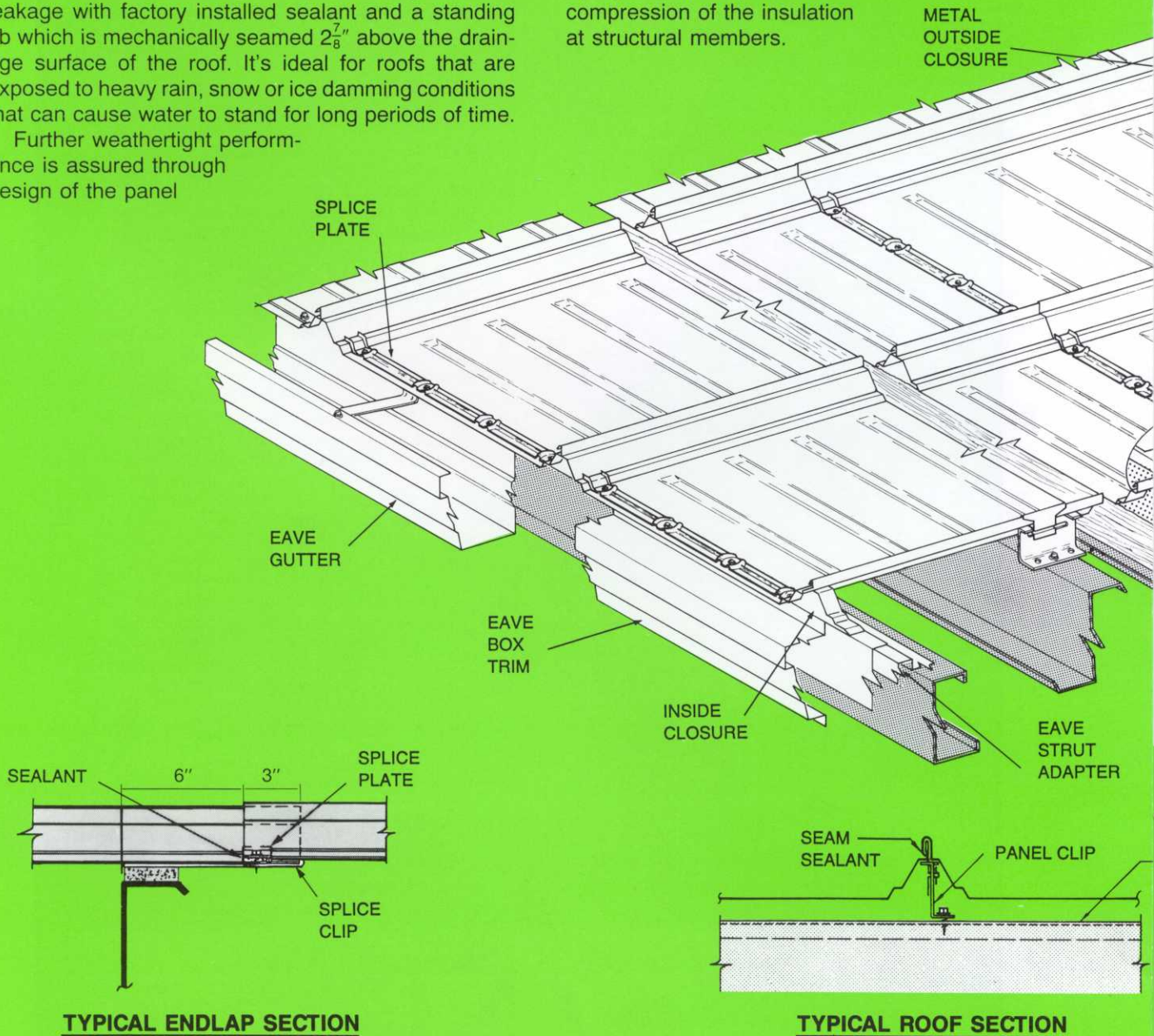
The StarShield roof system protects against roof leakage with factory installed sealant and a standing rib which is mechanically seamed $2\frac{7}{8}$ " above the drainage surface of the roof. It's ideal for roofs that are exposed to heavy rain, snow or ice damming conditions that can cause water to stand for long periods of time.

Further weathertight performance is assured through design of the panel

endlaps where factory notching self-aligns for proper overlap and placement of the $1\frac{1}{4}$ " tape sealant. Drain relieved clamping plates are used to ensure full compression and uniform adhesion of the sealant.

StarShield is unbeatable on wide, low pitched roofs, where water run-off can be so slow that even a moderate rainfall can accumulate before it begins running off the roof.

Maximum energy efficiency can be obtained with StarShield, because of a standard 1" thermal break between the roof surface and the structural membrane. The concealed clip provides the 1" space, or optional $1\frac{3}{4}$ " space, which prevents full compression of the insulation at structural members.



TYPICAL ENDLAP SECTION

TYPICAL ROOF SECTION

ENERGY EFFICIENT, ECONOMICAL

Even greater thermal break space is available for use with rigid board and other types of insulation. StarShield's reflective metal surface and thermal break system will not only help reduce the initial cost of heating and cooling equipment, it will also save you money year after year by lowering energy consumption.

Maintenance costs are reduced, because the minimum 24-gauge steel surface will not crack, blister, soften, or absorb moisture and require periodic patching

common to most roofs. StarShield has an Aluminum-Zinc Alloy coating and all exposed fasteners are stainless steel capped or alloy head to prevent problems, as attested by its 20 year no perforation guarantee. StarShield has achieved a wind uplift classification of UL 90 when tested by Underwriter's Laboratories, Inc., and classified as Class I Roof by Factory Mutual which on many projects can mean lower extended coverage insurance rates.

StarShield offers pre-engineered and controlled factory fabricated quality, lowered maintenance costs, superior weathertightness, and increased energy efficiency. Give your building the protection it deserves.

