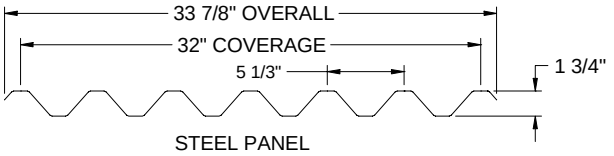
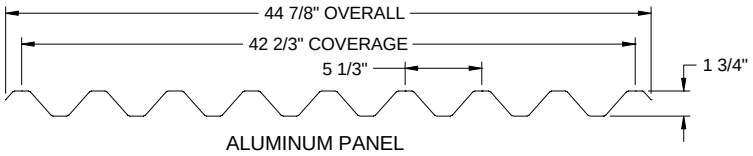
V-Beam

INDUSTRIAL-COMMERCIAL ROOFING & SIDING

Effective September 2007



STEEL PANEL



ALUMINUM PANEL

MATERIAL AND THICKNESS	WT./SQ. PLAIN	WT./SQ. PAINTED	METAL SPECIFICATION	FINISH
GALVANIZED STEEL 26 ga. 24 ga. 22 ga. 20 ga. 18 ga.	 115.0 lb. 146.8 lb. 178.5 lb. 210.2 lb. 273.7 lb.	 116.7 lb. 148.5 lb. 180.2 lb. 211.9 lb. 275.4 lb.	Grade 50 (50 ksi yield strength) Grade 40 (40 ksi yield strength) for 18 ga. Grade 80 (80 ksi yield strength) for 26 ga. structural steel with G90 coating, both conforming to ASTM A 653	**plain**: regular spangle **painted**: two-coat 70% Kynar® 500/Hylar® 5000; siliconized polyester; vinyl plastisol; 26 ga. panels have Super Alurite®; 0.5 mil two-coat polyester backer
ALUMINUM-ZINC ALLOY COATED STEEL 26 ga. 24 ga. 22 ga. 20 ga. 18 ga.	 110.7 lb. 142.0 lb. 173.8 lb. 205.7 lb. 269.4 lb.	 112.3 lb. 143.7 lb. 175.5 lb. 207.4 lb. 271.1 lb.	Grade 50 (50 ksi yield strength) Grade 40 (40 ksi yield strength) for 18 ga. Grade 80 (80 ksi yield strength) for 26 ga. structural steel with AZ50 coating, both conforming to ASTM A 792	**plain**: regular spangle **painted**: two-coat 70% Kynar® 500/Hylar® 5000; siliconized polyester; vinyl plastisol; 26 ga. panels have Super Alurite® 0.5 mil two-coat polyester backer
ALUMINUM .032" .040" .050"	 57.4 lb. 71.7 lb. 89.6 lb.	 58.6 lb. 73.0 lb. 90.9 lb.	3004-H36 or equivalent (28 ksi yield strength) aluminum alloy conforming to ASTM B 209	**plain**: mill finish **painted**: two-coat 70% Kynar® 500/Hylar® 5000; siliconized polyester; vinyl plastisol; 0.5 mil two-coat polyester backer

GRAVITY LOAD TABLE (STEEL) (psf)

Ga.	Spans	4'-0	5'-0	6'-0	7'-0	8'-0	9'-0	10'-0	11'-0
26	1 & 2	125	80	55	41	31	25	20	NR
	3	156	100	69	51	39	31	25	NR
24	1 & 2	168	107	75	55	42	33	27	22
	3	210	134	93	68	52	41	34	28
22	1 & 2	218	139	97	71	54	43	35	29
	3	272	174	121	89	68	54	43	36
20	1 & 2	260	166	115	85	65	51	42	34
	3	324	200	144	106	81	64	52	43
18	1 & 2	342	119	152	112	85	67	55	45
	3	427	273	190	139	107	84	68	56

GRAVITY LOAD TABLE (ALUMINUM) (psf)

thk.	spans	4'-0	5'-0	6'-0	7'-0	8'-0	9'-0	10'-0	11'-0
.032"	1	160	102	71	52	40	32	26	21
	2	148	95	66	48	37	29	24	20
	3	185	119	82	60	46	37	30	24
.040"	1	221	141	98	72	55	44	35	29
	2	205	131	91	67	51	40	33	27
	3	256	164	114	84	64	51	41	34
.050"	1	276	177	123	90	69	55	44	40
	2	256	164	114	84	64	51	41	37
	3	320	205	142	105	80	63	51	46

NOTES:

1. The allowable loads are based on 1986 AISI and 1986 Aluminum Association specifications.
2. The allowable loads are based on stress only.
3. The use of V-Beam panels on roof pitches less than 2:12 (9º) is not recommended.
4. The maximum recommended individual roof panel length is 16' for aluminum panels and 32' for steel panels due to thermal movement consideration.

Jackson, GA (800) 884-4484
Grapevine, TX (800) 477-9066
Salem, OR (800) 477-8028
Headquarters - Lancaster, PA (800) 477-2741

V-BEAM SPECIFICATIONS

PART I GENERAL

1.01 SUMMARY

A. Section includes: Prefinished, prefabricated, structural exposed fastener roof or wall system and accessories.

B. Related Sections:

1. Metal decking
2. Rough carpentry, plywood, and underlayment
3. Insulation
4. Membrane roofing
5. Flashing and sheet metal
6. Joint sealers: sealants and caulk
7. Structural framing.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM A 653: Steel Sheet, Zinc-Coated by the Hot Dip Process
2. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process.
3. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate.

B. Sheet Metal and Air Condition Contractors National Association, Inc. (SMACNA)

1. SMACNA Architectural Sheet Metal Manual, 1993 Edition.

C. American Iron and Steel Institute (AISI)

1. AISI Cold Formed Steel Design Manual

D. Aluminum Association

1. Aluminum Design Manual

E. Metal Construction Association (MCA)

1. Preformed Metal Wall Guidelines

F. Code references

1. ASCE, Minimum Loads for Buildings and Other Structures
2. BOCA National Building Code
3. UBC Uniform Building Code
4. SBC Standard Building Code

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide factory formed, prefinished, lappable, exposed fastener, structural ribbed metal roof and wall system, that has been pretested and certified by manufacturer to comply with specified requirements under installed conditions.

1. The metal roofing and siding system including required trim members shall meet the specified requirements for snow loads and wind loads.
2. The panel will have 13/4" high ribs at 5 1/3" o.c. The width of the ribs shall be 11/8". The width of the valleys shall be 1 1/8".

B. Structural Requirements: Engineer panels for structural properties in accordance with latest edition of American Iron and Steel Institute's *Cold Formed Steel Design Manual* using "effective width" concept and Aluminum Association's *Aluminum Design Manual*.

1.04 SUBMITTALS

A. Product Data: submit manufacturer's specifications, standard profile sheet, product data brochure and finish warranty.

B. Shop Drawings: shop drawings showing roof plan and elevations with layout of panels, screws, underlayment and sections of each flashing/trim condition shall be submitted for approval prior to fabrication. Drawings shall contain material type, metal thickness and finish. Drawings shall distinguish between factory and field fabrication.

C. Samples:

1. Submit sample 12" long x full width panel, showing proposed metal gauge, seam profile and specified finish.
2. Submit manufacturers standard colors for Architect's selection.

D. Certification: Submit manufacturer's certification that materials and finishes meet specification requirements.

1.05 QUALITY ASSURANCE

A. Panel manufacturer shall have a minimum of ten (10) years of experience in manufacturing exposed fastener siding panels in a permanent stationary indoor facility.

B. Panel installer shall have a minimum of two (2) years experience in the installation of exposed fastener siding and show evidence of successful completion of at least three (3) projects of similar size, scope, and complexity.

1.06 DELIVERY, STORAGE, and HANDLING

A. Panels and flashings shall be protected and properly packaged to protect against transportation damage in transit to the jobsite.

B. Upon delivery, exercise care in unloading, stacking, moving, storing, and erecting panels and flashings to prevent twisting, bending, scratching, or denting.

C. Store panels and flashings in a safe, dry environment under a waterproof covering to prevent water damage. Allow for adequate ventilation to prevent condensation. Panels and flashings with strippable film shall not be stored in direct sunlight.

D. Upon installation immediately remove strippable film from panels and flashings. Protect panels and flashings from foot traffic and from all other trades.

1.07 PROJECT CONDITIONS

A. Field dimensions shall be taken prior to fabrication to verify jobsite conditions.

B. Minimum recommended pitch for this panel is 2:12.

C. Maximum panel length is 45' (contact the factory for longer panels).

1.08 WARRANTIES

A. Panel manufacturer shall provide a twenty (20) year warranty on the paint finish covering chalking, cracking, checking, chipping, blistering, peeling, flaking, and fading.

B. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain wall and flashings in watertight conditions.

PART II PRODUCT

2.01 PRODUCT DESCRIPTION

A. V-Beam structural exposed fastener roof and wall system as manufactured by Fabral, 3449 Hempland Road, Lancaster, PA 17601; ph.: 717-397-2741; fax: 717-397-1040.

B. The V-Beam panel shall have a coverage of 32" for steel and 42 2/3" for alumimnum. Rib height shall be 13/4".

C. Panels shall be directly fastened to the substrate.

D. The panel shall have a overlapping sidelap feature.

2.02 PRODUCT SUBSTITUTIONS

A. Requests to use alternate systems shall be submitted in writing to the project designer at least ten (10) days prior to bid date. Request shall demonstrate proposed substitution meets or exceeds specified performance requirements. Certified statements, samples and descriptive data shall be included in this submittal request.

B. Manufacturers listed in this section are prequalified manufacturers. Substitution of manufacturer's products for those specified shall not be allowed at anytime during construction.

2.03 MATERIALS AND FINISHES

A. Panel materials

1. 26 ga. Grade 80 (80 ksi yield strength), 24 or 22 ga. Grade 50 (50 ksi yield strength), 18 ga. Grade 40 (40 ksi yield strength) structural steel with G90 (0.90 oz./ft.^{2}) hot dipped galvanized coating, both conforming to ASTM A 653.
2. 26 ga., Grade 80 (80 ksi yield strength), 24 or 22 ga. Grade 50 (50 ksi yield strength), 18 ga. Grade 40 (40 ksi yield strength) structural steel with AZ50 (0.50 oz./ft.^{2}) aluminum-zinc alloy coating, both conforming to ASTM A 792.
3. 0.032, 0.040, or 0.050", 3004-H36 or equivalent (28 ksi yield strength) aluminum alloy conforming to ASTM B 209.

B. Texture: panels shall be smooth.

C. Finish: Refer to manufacturer's standard color card to determine appropriate finish and color. All panels shall receive a factory-applied exterior coating (siliconized polyester) (Kynar® 500/Hylar® 5000*) (vinyl plastisol) (26 ga. panels will have Super Alurite paint) conforming to the following:

1. Metal preparation: all metal shall have the surfaces carefully prepared for painting on a continuous process coil coating line by alkali cleaning, hot water rinsing, application of chemical conversion coating, cold water rinsing, sealing with an acid rinse, and thorough drying.
2. Prime coating: a base coat of epoxy paint, specifically formulated to interact with the top-coat, shall be applied to the prepared surfaces by roll coating to a dry film thickness of 0.20 ± 0.05 mils. This prime coat shall be oven cured prior to application of finish coat.
3. Exterior coating: a finish coating (from above) shall be applied over the primer by roll coating to a dry film thickness of 0.80 ± 0.05 mils (3.80 ± 0.05 mils for vinyl plastisol) for a total dry film thickness of 1.00 ± 0.10 (4.00 ± 0.10 mils for vinyl plastisol). This finish coating shall be oven-cured.
4. Interior coating: a washcoat shall be applied on the reverse side over the primer by roll coating to a dry film thickness of 0.30 ± 0.05 mils for a total dry film thickness of 0.50 ± 0.10 mils. The washcoat shall be oven-cured.
5. Color: the color of the exterior finish shall be _____ as chosen from the manufacturer's standard color chart.
6. Physical properties: the coating shall conform to the manufacturer's standard performance criteria as listed by certified test reports for fade, chalk, abrasion, humidity, adhesion, pollution resistance, and others as required and standard within the industry.

2.04 ACCESSORIES

A. Flashing and Trim

1. All flashing and trim shall be of the same material, gauge, finish, and color as the wall panels and fabricated in accordance with standard SMACNA procedure and details.
2. Fabricate gutters and downspouts in the same gauge, material, finish, and color as the wall panels.

B. Fasteners

1. All screws shall be aluminum, plated steel, or stainless steel. They shall have a combination steel and EPDM washer.
2. Screws for panel to girt shall be of the type and size _____ and of sufficient length to penetrate the supporting member by 1". All fasteners shall be applied in accordance with the fastening schedule for V-Beam.
3. Screws for flashings and sidelaps shall be #14 HHA x 1" sheet metal stitch screws. All accessories, flashings, and sidelaps shall be fastened 12" o.c.

C. Caulking shall be a polyurethane where it is exposed and there is no thermal movement. All caulking or sealing shall be done in a neat manner with excess caulking or sealant removed from exposed surfaces.

D. Caulking shall be non-skinning, non-hardening gun grade butyl sealant or butyl sealant tape with a minimum thickness of 1/8" where it is concealed and where thermal movement must be accommodated. All caulking or sealing shall be done in a neat manner with excess caulking or sealant removed from exposed surfaces.

E. Closures shall be pre-molded polyethylene to match the profile of the Ultra-Rib panel and shall be in lengths as supplied by the panel manufacturer.

F. Vapor Retarder:

1. Retarder with a permeance of 0.05 or less as determined by ASTM E 98.

2.05 RELATED MATERIALS

A. Refer to other sections listed in Related Sections paragraph for related materials.

2.06 FABRICATION

A. Panels are lappable. It is recommended that individual aluminum roof panels not exceed 16' in length and steel roof panels not exceed 32' in length for thermal movement reasons.

B. Panels shall be roll formed on a stationary industrial type rolling mill to gradually shape the sheet metal. Portable rollformers, rented or owned by the installer, are not acceptable.

C. Fabricate flashings from the same material as the roof and wall system.

2.07 SOURCE QUALITY

A. Source Quality: obtain metal panels and accessories from a single manufacturer.

B. Fabrication tolerances

1. Rib height: 1½" ± 1/8".
2. Panel shearing length: ± ¼" maximum.
3. Follow tolerances in MCA's Preformed Metal Wall Guidelines.

C. Tests and inspections

D. Verification of performance

PART III EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product cartons for installation.

3.02 EXAMINATION

A. Installer shall:

1. Inspect purlin, girt, and/or deck layout to verify that they comply with shop drawing and are smooth, even, sound, and free of depressions.
2. Report variations and potential problems in writing to the architect.

3.03 INSTALLATION

A. Conform to the standard set forth in the SMACNA architectural sheet metal manuals and the approved shop drawings detailed for the project.

B. Install panels plumb, level, and straight with the ribs parallel, conforming to the design as indicated.

C. Install panel system so it is watertight, without waves, warps, buckles or distortions, and allow for thermal movement considerations.

D. Abrasive devices shall not be used to cut on or near wall panel system.

E. Apply sealant tape or caulking as necessary at flashing and panel joints to prevent water penetration.

F. Remove any strippable film immediately upon exposure to direct sunlight.

G. Vapor retarder: The joints, perimeter, and all openings shall be sealed per the manufacturer's instructions to provide a continuous vapor retarder.

H. Underlayment (solid substrate):

1. Provide one layer of 30# felt with horizontal overlaps and endlaps staggered between layers.
2. Provide ice and water shield membrane at all valley and eave conditions as well as any area at less than a 3:12 slope.
3. Lay parallel to ridge line with 2½" horizontal laps and 6" vertical laps.

3.04 CLEANING

A. Dispose of excess materials and debris from jobsite.

B. Remove filings, grease, stains, marks, or excess sealants from wall panel system to prevent staining.

C. Protect work from damage from other trades until final acceptance.

* Kynar® 500 is a registered trademark of Elk Atochem North America, Inc.
Hylar® 5000 is a registered trademark of Ausimont USA, Inc.