

NAILABLE INSULATION GUIDE

 **ACFoam**[®]
Polyiso Roof Insulation



CONNECTING FUNCTION WITH FACILITY™

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**PUT OUR PRODUCTS
TO WORK FOR YOU.**



The Cottonwood Canyon Fire Station in Brighton, UT is just one of the innovative buildings across North America that uses Atlas polyiso products.



INTRODUCTION



Atlas Roofing Corporation is an industry leader in polyiso and facer technology. Atlas has invested in its people and technology to enable the highest level of support and customer service across the industry. Because of this commitment, Atlas products come with the peace of mind associated with reliable, consistent engineering, delivered when and where they are needed.

Originating as an asphalt shingle manufacturing company in 1982, today Atlas continues to deliver superior customer service with every job. As Atlas has grown, so has the collective knowledge of its people. Atlas is able to share advancements in building science knowledge in important ways, so your projects are energy efficient, cost effective and profitable.

Focusing on a full line of flat, tapered and nailable composite polyiso roof insulation products, Atlas has eight state of the art manufacturing facilities strategically located throughout North America. Atlas Roofing Corporation proudly supplies ACFoam® polyiso roof insulation as part of roofing systems around the world. So when Atlas says it is *Connecting Function with Facility™*, it means that you get a partner that helps with all the technical details so your jobs are easier, and run more smoothly, than with any other polyiso manufacturer.





ACFoam[®] Nail Base

Nailable Roof Insulation

- Thermally efficient closed-cell ACFoam[®]-II or ACFoam[®]-III polyisocyanurate (polyiso) insulation board bonded to OSB or CDX plywood on the top face.
- Wood Layer Minimum: 7/16" APA/TECO rated OSB or 19/32" CDX plywood.
- Wood Layer Maximum: 3/4" APA/TECO rated OSB or CDX plywood.
- Polyiso Layer: 1.0" (25.4mm) minimum up to 4.0" (101.6mm) maximum.
- Offered in a variety of composite thicknesses, providing long-term thermal resistance (LTTR) values from 6.3 to 24.2.
- Available as a special order product with FSC[®] Certified (Requires ACFoam[®]-III polyiso layer), Fire-Treated, Preservative-Treated and Radiant Barrier OSB or CDX plywood.
- Manufactured using CFC-, HCFC- and HFC-free foam blowing technology with zero ozone depletion potential (ODP) and virtually no (negligible) global warming potential (GWP).
- Approved for use as a non-structural panel in new and re-roofing applications.
- Atlas Nail Base Fasteners are required for all Atlas ACFoam[®] Nailable Insulation Systems.



CODES AND COMPLIANCES

- **ASTM C1289, Type V**
- **UL Standard 1256 Classification** – Construction No. 120, 123 & 458
- **UL Standard 790 (ASTM E108)** For use with Class A, B or C Shingles, Metal or Tile Roof Coverings
- **UL Standard 263 (ASTM E119)** Fire Resistance Classification
- **FM Standard 4450/4470 Approved (1-90, 1-105)** Approved for Class 1 Insulated Roof Deck Construction. Refer to FM Approvals[®] RoofNav for Specific System Details
- **IBC Chapter 26 & NBC** Sections on Foam Insulation
- **California State** Insulation Quality Standards and Title 25 Foam Flammability Criteria (T 1231)
- **Miami-Dade County Approved** (1/32" CDX Plywood)
- **State of Florida Product Approval** (FL17989)
- **APA/TECO** Rated OSB Nailing Surface
- **U.S. Voluntary Product Standard** PS 2 Compliant



PHYSICAL PROPERTIES (POLYISO PORTION ONLY)

¹Numerical ratings are not intended to reflect performance under actual fire conditions. Flame spread index of ≤ 75 and smoke development ≤ 450 meet code requirements for foam plastic roof insulation. Codes exempt foam plastic insulation when used in FM 4450 or UL 1256. Physical properties listed above are presented as typical average values as determined by accepted ASTM test methods and are subject to normal manufacturing variation.



ACFoam[®] Nail Base

PROPERTY	TEST METHOD	RESULTS
Dimensional Stability	ASTM D2126	< 2%
Compressive Strength	ASTM D1621	20 psi (140 kPa) or 25 psi (172 kPa)
Water Absorption	ASTM C209 & D2842	< 1.0%, < 3.5%
Water Vapor Transmission	ASTM E96	< 1.0 perm (57.5ng/ (Pa*s*m ²))
Product Density	ASTM D1622	Nominal 2.0 pcf (32.04 kg/m ³)
Flame Spread	ASTM E84 (10 min.)	¹ 40-60
Smoke Development	ASTM E84 (10 min.)	¹ 50-170
Tensile Strength	ASTM D1623	> 730 psf (35 kPa)
Service Temperature	-	-100° to +250°F

THERMAL DATA

LTTR VALUE	COMPOSITE THICKNESS		² RSI	FLUTE SPANABILITY	
	IN	MM		IN	MM
6.3	1.5	38.1	1.10	4.375	111.13
9.1	2.0	50.8	1.60	4.375	111.13
12.0	2.5	63.5	2.10	4.375	111.13
15.0	3.0	76.2	2.63	4.375	111.13
18.0	*3.5	88.9	3.16	4.375	111.13
21.0	*4.0	101.6	3.70	4.375	111.13
24.2	*4.5	114.3	4.25	4.375	111.13

LTTR (long term thermal resistance) values were determined in accordance with CAN/ULC-S770. Test samples were third-party selected and tested by an accredited material testing laboratory. The LTTR results were reviewed by FM Global and certified by the PIMA Quality Mark Program.

²RSI is the metric expression of R-value (m² • K/W).

*To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.





ACFoam® CrossVent®

Nailable Cross Ventilated Roof Insulation

- Thermally efficient cross ventilated non-structural composite insulation. Consisting of ACFoam®-II or ACFoam®-III polyisocyanurate (polyiso) insulation board and OSB or CDX plywood separated with and bonded to 5 individual Expanded Polystyrene (EPS) vent spacer strips.
- Wood Layer Minimum: $\frac{7}{16}$ " APA/TECO rated OSB or $\frac{19}{32}$ " CDX plywood.
- Wood Layer Maximum: $\frac{3}{4}$ " APA/TECO rated OSB or CDX plywood.
- Vent Strip Layer: 1.0", 1.5" or 2.0" EPS.
- Polyiso Layer: 1.0" (25.4mm) minimum up to 4.0" (101.6mm) maximum.
- Offered in a variety of composite thicknesses, providing long-term thermal resistance (LTTR) values from 5.7 to 23.6.
- Made to order in 4ft × 8ft (1220mm × 2440mm) composite panels with a nominal thickness of 2.5" to 6.5".
- Atlas EPS Vent Spacers yield a 6000 psf minimum compressive resistance as well as continuous Atlas Nail Base Fastener support across the 4' dimension.
- Available as a special order product with FSC® Certified (Requires ACFoam®-III polyiso layer), Fire-Treated, Preservative-Treated and Radiant Barrier OSB or CDX plywood.
- Manufactured using CFC-, HCFC- and HFC-free foam blowing technology with zero ozone depletion potential (ODP) and virtually no (negligible) global warming potential (GWP).
- Approved for use as a non-structural panel in new and re-roofing applications.
- Atlas Nail Base Fasteners are required for all Atlas ACFoam® Nailable Insulation Systems.



CODES AND COMPLIANCES

- **ASTM C1289, Type V**
- **UL Standard 1256 Classification** – Construction No. 120, 123 & 458
- **UL Standard 790 (ASTM E108)** For use with Class A, B or C Shingles, Metal or Tile Roof Coverings
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- **FM Standard 4450/4470 Approved (1-90, 1-105)** Approved for Class 1 Insulated Roof Deck Construction. Refer to FM Approvals® RoofNav for Specific System Details
- **IBC Chapter 26 & NBC** Sections on Foam Insulation
- **California State** Insulation Quality Standards and Title 25 Foam Flammability Criteria (T 1231)
- **Miami-Dade County Approved** ($\frac{19}{32}$ " CDX Plywood)
- **State of Florida Product Approval** (FL17989)
- **APA/TECO** Rated OSB Nailing Surface
- **FHA** min. Property & **ARMA** Insulated Deck Requirements



PHYSICAL PROPERTIES (POLYISO PORTION ONLY)

¹Numerical ratings are not intended to reflect performance under actual fire conditions. Flame spread index of ≤ 75 and smoke development ≤ 450 meet code requirements for foam plastic roof insulation. Codes exempt foam plastic insulation when used in FM 4450 or UL 1256. Physical properties listed above are presented as typical average values as determined by accepted ASTM test methods and are subject to normal manufacturing variation.



ACFoam[®] CrossVent[®]

PROPERTY	TEST METHOD	RESULTS
Dimensional Stability	ASTM D2126	< 2%
Compressive Strength	ASTM D1621	20 psi (140 kPa) or 25 psi (172 kPa)
Water Absorption	ASTM C209 & D2842	< 1.0%, < 3.5%
Water Vapor Transmission	ASTM E96	< 1.0 perm (57.5ng/ (Pa*s*m ²))
Product Density	ASTM D1622	Nominal 2.0 pcf (32.04 kg/m ³)
Flame Spread	ASTM E84 (10 min.)	¹ 40-60
Smoke Development	ASTM E84 (10 min.)	¹ 50-170
Tensile Strength	ASTM D1623	> 730 psf (35 kPa)
Service Temperature	-	-100° to +250°F

THERMAL DATA

COMPOSITE THICKNESS	IN	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
	MM	64	76	89	102	114	127	140	152	165
1.0" AIRSPACE	² LTR	5.7	8.6	11.4	14.4	17.4	20.5	23.6	-	-
	³ RSI	1.00	1.50	2.01	2.53	3.06	3.60	4.15	-	-
1.5" AIRSPACE	² LTR	-	5.7	8.6	11.4	14.4	17.4	20.5	23.6	-
	³ RSI	-	1.00	1.50	2.01	2.53	3.06	3.60	4.15	-
2.0" AIRSPACE	² LTR	-	-	5.7	8.6	11.4	14.4	17.4	20.5	23.6
	³ RSI	-	-	1.00	1.50	2.01	2.53	3.06	3.60	4.15

LTR (long term thermal resistance) values were determined in accordance with CAN/ULC-S770. Test samples were third-party selected and tested by an accredited material testing laboratory. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

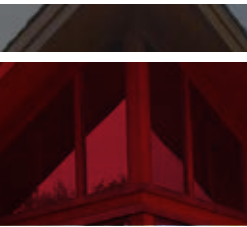
²Thermal resistance of unsealed air space does not apply. Only LTR of ACFoam[®] is reported.

³RSI is the metric expression of R-value (m² • K/W).

NET FREE AREA PER LINEAR FOOT

AIRSPACE DIMENSIONS	1.0"	1.5"	2.0"
NET FREE AREA (NFA/LF)	9.50 sq. inch	14.25 sq. inch	19.00 sq. inch





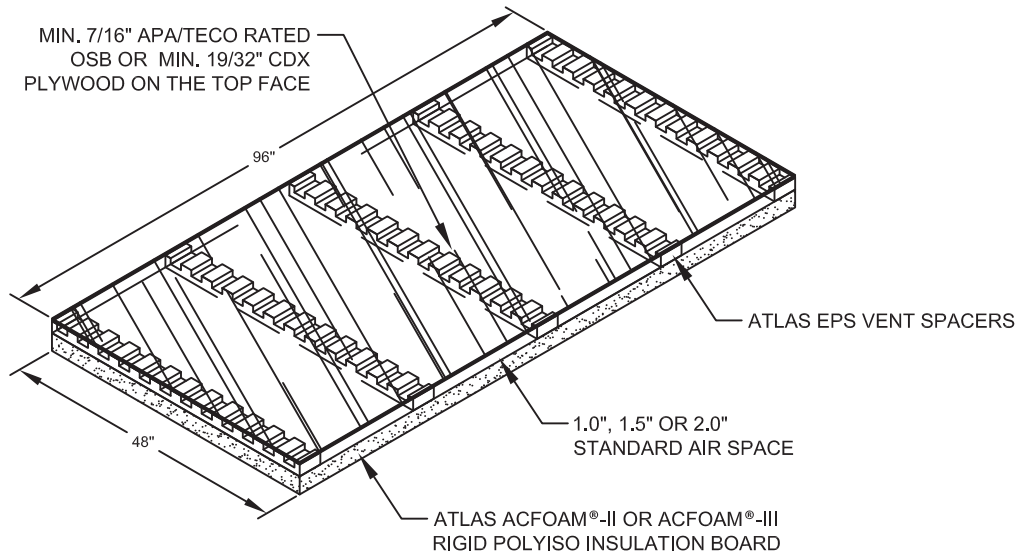
ISOMETRIC VIEW



ACFoam[®] CrossVent[®] *Nailable Cross Ventilated Roof Insulation*

CV-1.0 ISOMETRIC VIEW- STANDARD BOARD DIMENSIONS

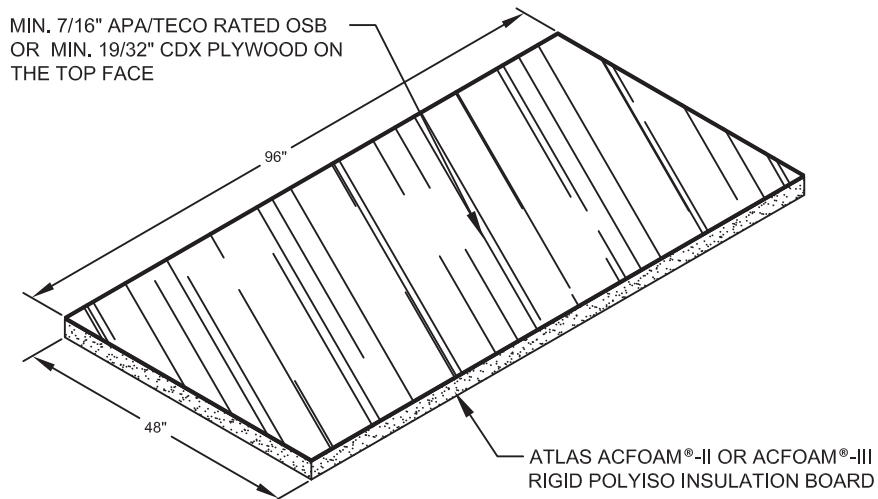
SCALE: NTS



ACFoam[®] Nail Base *Nailable Roof Insulation*

NB-1.0 ISOMETRIC VIEW- STANDARD BOARD DIMENSIONS

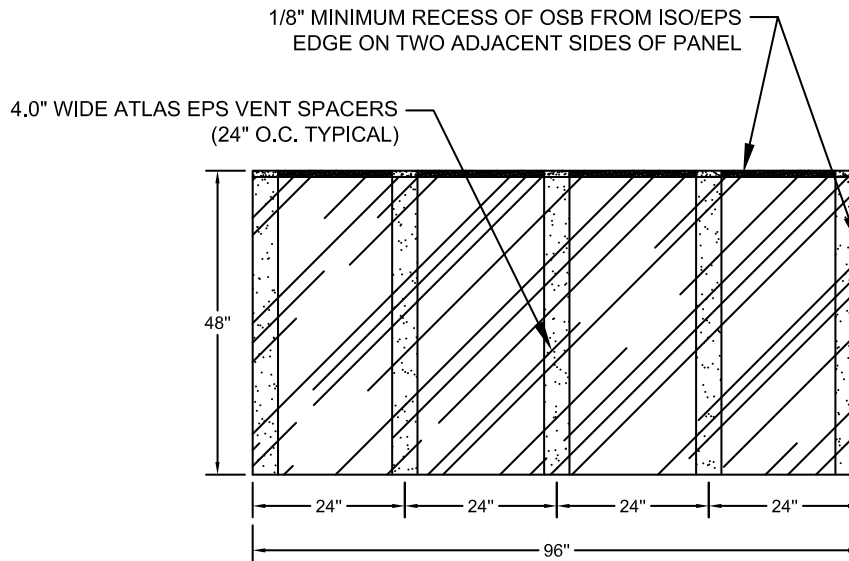
SCALE: NTS



ACFoam[®] CrossVent[®] *Nailable Cross Ventilated Roof Insulation*

CV-1.1 PLAN VIEW – STANDARD BOARD DIMENSIONS

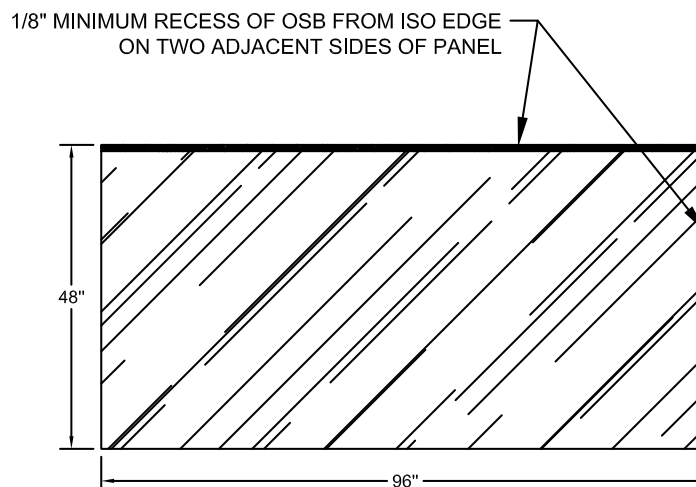
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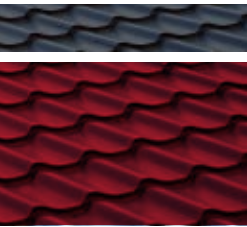


ACFoam[®] Nail Base *Nailable Roof Insulation*

NB-1.1 PLAN VIEW – STANDARD BOARD DIMENSIONS

SCALE: NTS



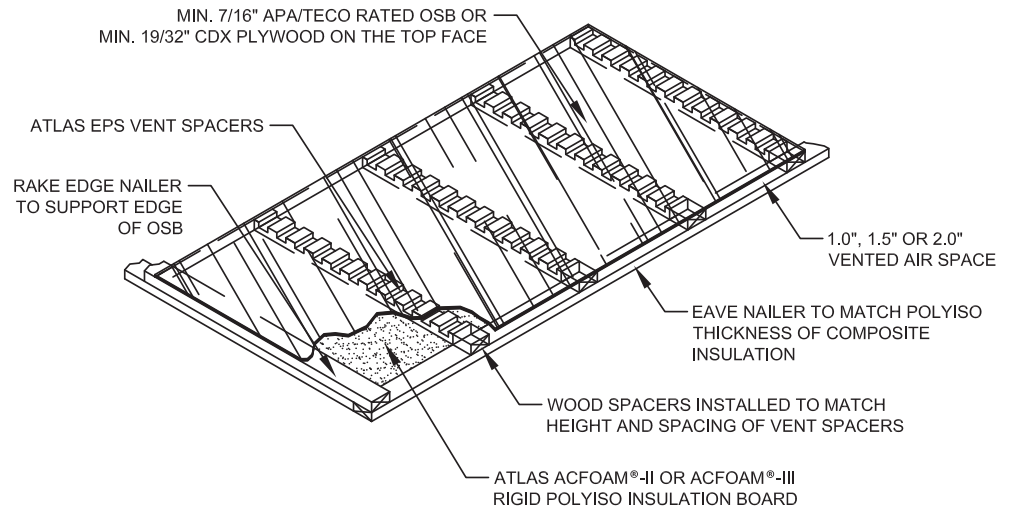


RAKE EDGE & EAVE NAILER INSTALLATION

ACFoam[®] CrossVent[®] *Nailable Cross Ventilated Roof Insulation*

CV-1.2 RAKE EDGE & EAVE NAILER INSTALLATION

SCALE: NTS



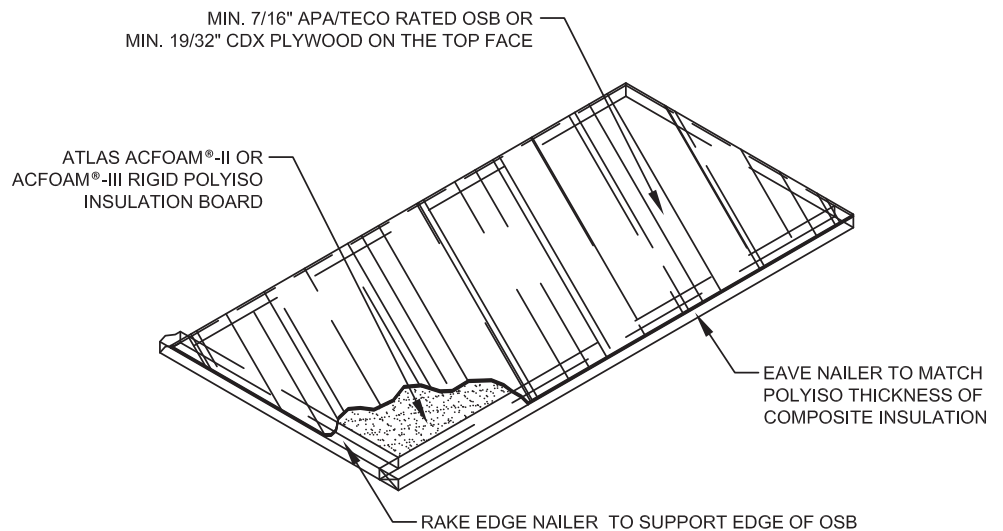
NOTES:

1. Insulation shall be trimmed from rake edge and eave to accommodate rake and eave nailers. OSB shall be supported on rake edge by nailer and on eave by wood spacers to allow for air flow at eave.
2. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

ACFoam[®] Nail Base *Nailable Roof Insulation*

NB-1.2 RAKE EDGE & EAVE NAILER INSTALLATION

SCALE: NTS



NOTES:

1. Insulation shall be trimmed from rake edge and eave to accommodate rake and eave nailers. OSB shall be supported on rake edge and eave by wood nailer.
2. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

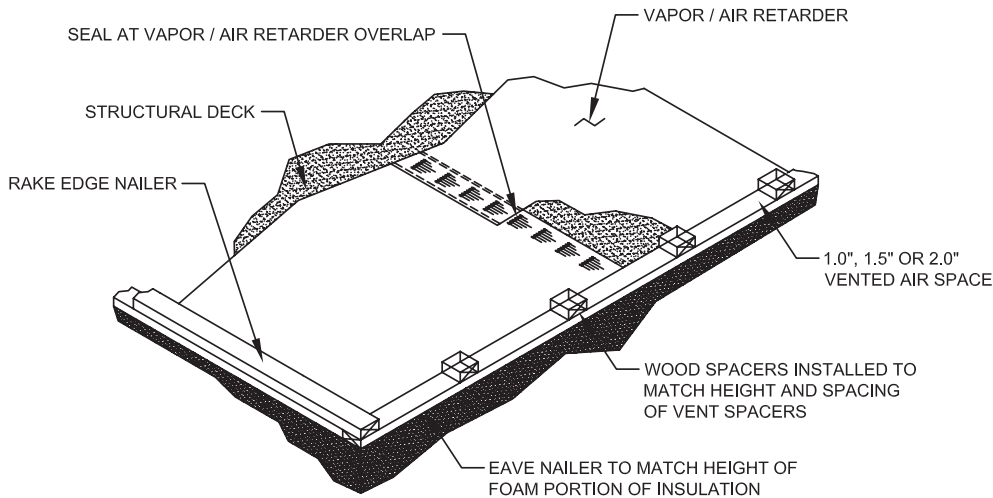
VAPOR/AIR RETARDER INSTALLATION



ACFoam® CrossVent® Nailable Cross Ventilated Roof Insulation

CV-1.3 VAPOR/AIR RETARDER INSTALLATION

SCALE: NTS



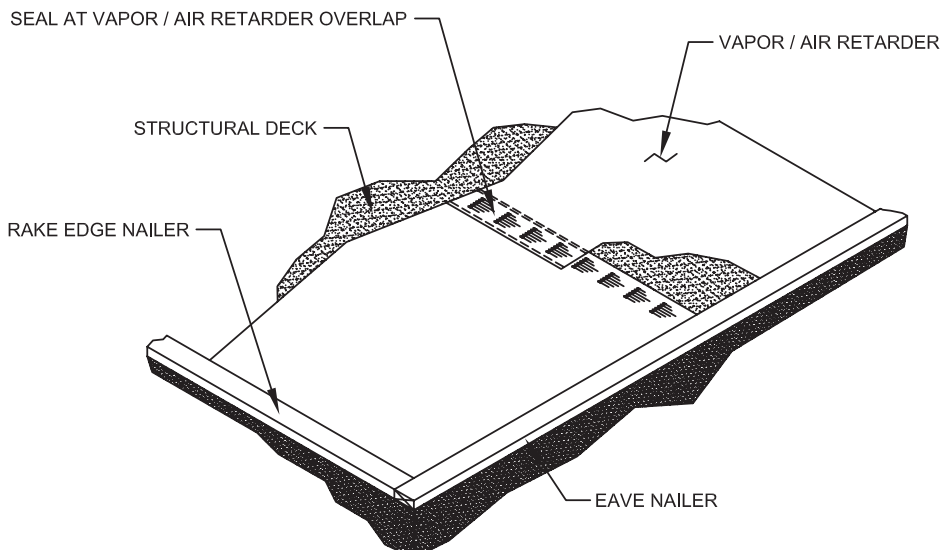
NOTES:

1. Atlas recommends that the designer consider carefully the need for a vapor/air retarder in order to limit moisture/airflow into the roof system. Determining the need for and location of the vapor/air retarder remains solely the responsibility of the architect, engineer or design professional.
2. A suitable vapor retarder shall have a minimum permeance rating of 0.5 or less as determined by ASTM E96.
3. Follow vapor/air retarder manufacturer's installation instructions for seaming and perimeter edge terminations.
4. A two-layer insulation application significantly reduces moisture/airflow into the roof system.
5. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

ACFoam® Nail Base Nailable Roof Insulation

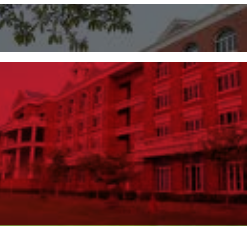
NB-1.3 VAPOR/AIR RETARDER INSTALLATION

SCALE: NTS



NOTES:

1. Atlas recommends that the designer consider carefully the need for a vapor/air retarder in order to limit moisture/airflow into the roof system. Determining the need for and location of the vapor/air retarder remains solely the responsibility of the architect, engineer or design professional.
2. A suitable vapor retarder shall have a minimum permeance rating of 0.5 or less as determined by ASTM E96.
3. Follow vapor/air retarder manufacturer's installation instructions for seaming and perimeter edge terminations.
4. A two-layer insulation application significantly reduces moisture/airflow into the roof system.
5. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

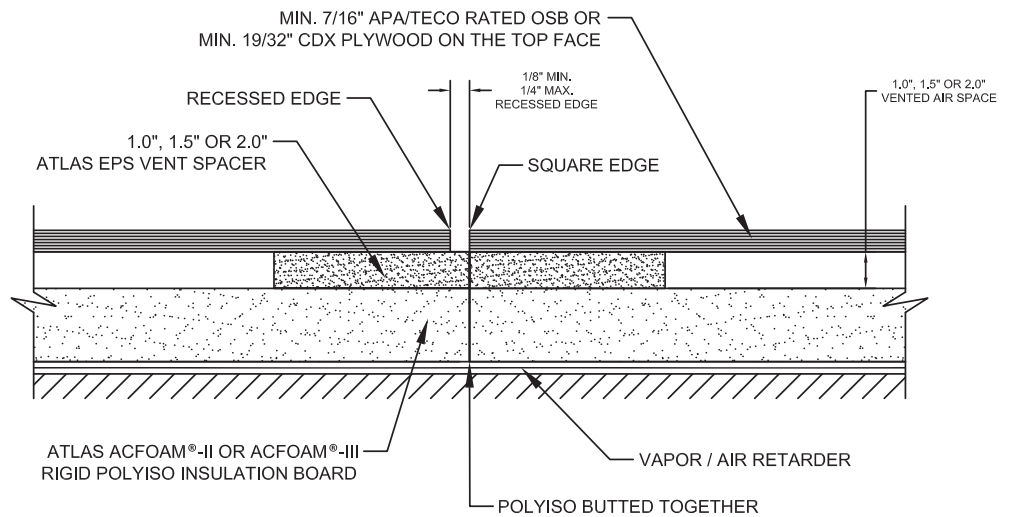


RECESSED EDGE DETAIL

ACFoam® CrossVent® Nailable Cross Ventilated Roof Insulation

CV-1.4 RECESSED EDGE DETAIL

SCALE: NTS



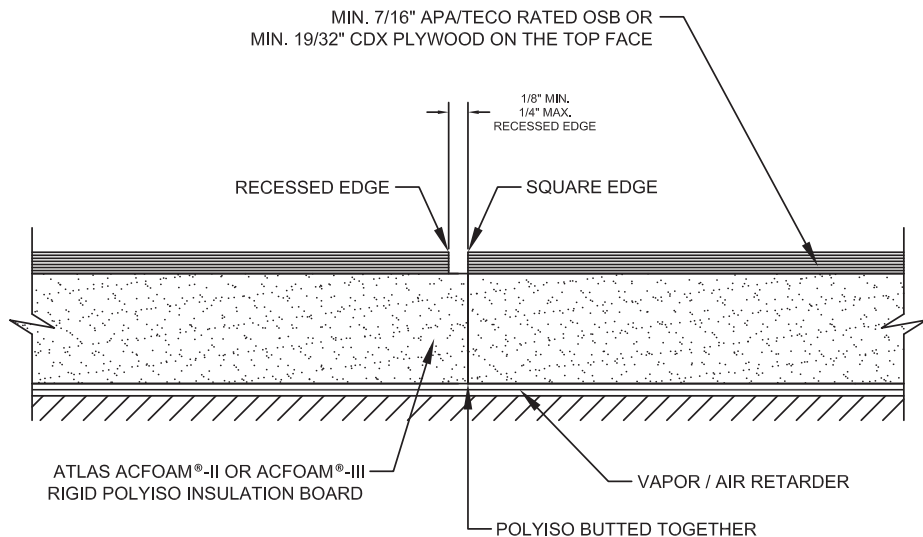
NOTES:

1. ACFoam® CrossVent® shall be installed over an approved roof deck with the 8 ft. dimension parallel to the eave.
2. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

ACFoam® Nail Base Nailable Roof Insulation

NB-1.4 RECESSED EDGE DETAIL

SCALE: NTS



NOTES:

1. ACFoam® Nail Base shall be installed over an approved roof deck with the 8 ft. Dimension parallel to the eave.
2. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

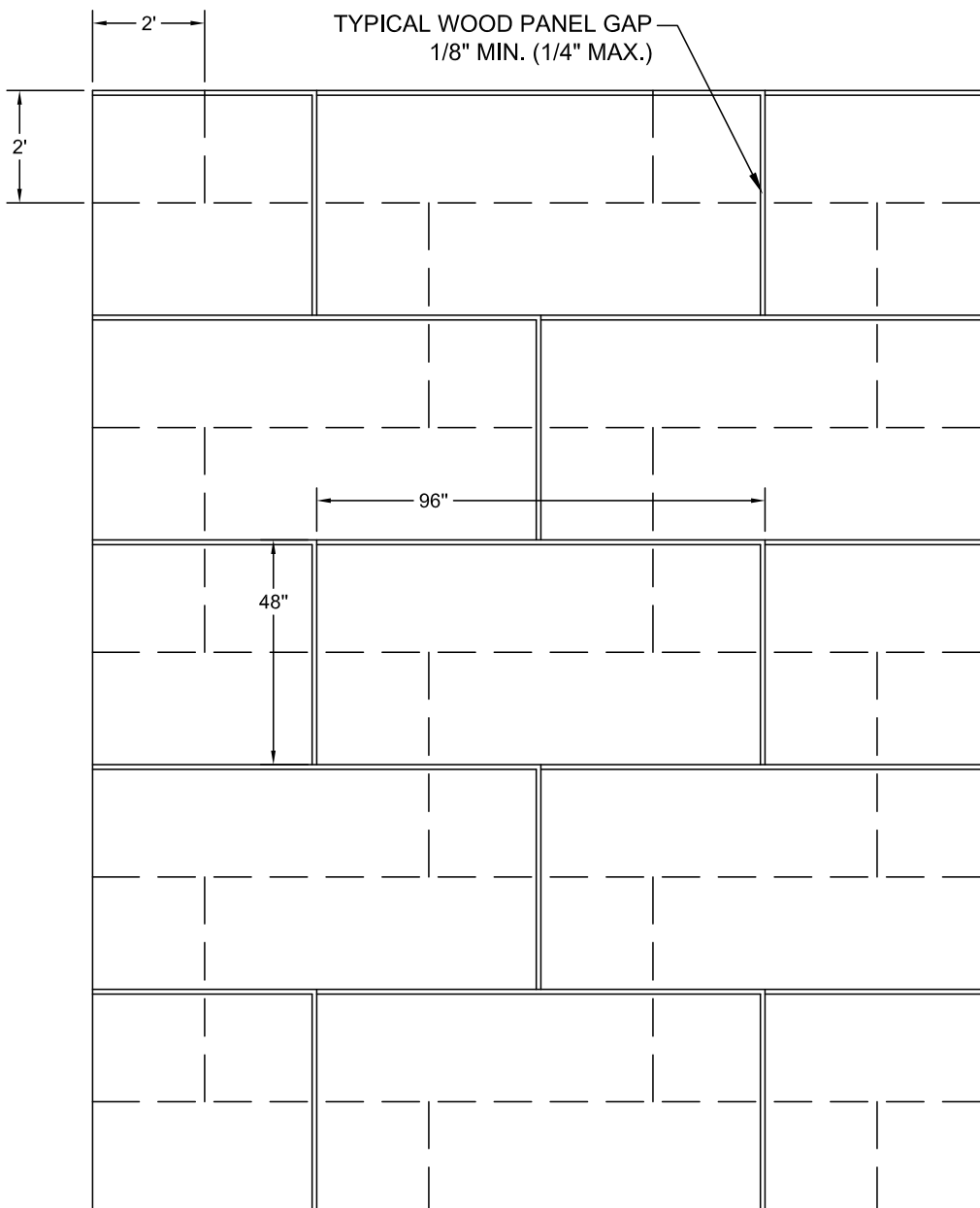
MULTI-LAYER APPLICATION



ACFoam[®] CrossVent[®] *Nailable Cross Ventilated Roof Insulation*

ML-1.0 MULTI-LAYER APPLICATION

SCALE: NTS



NOTES:

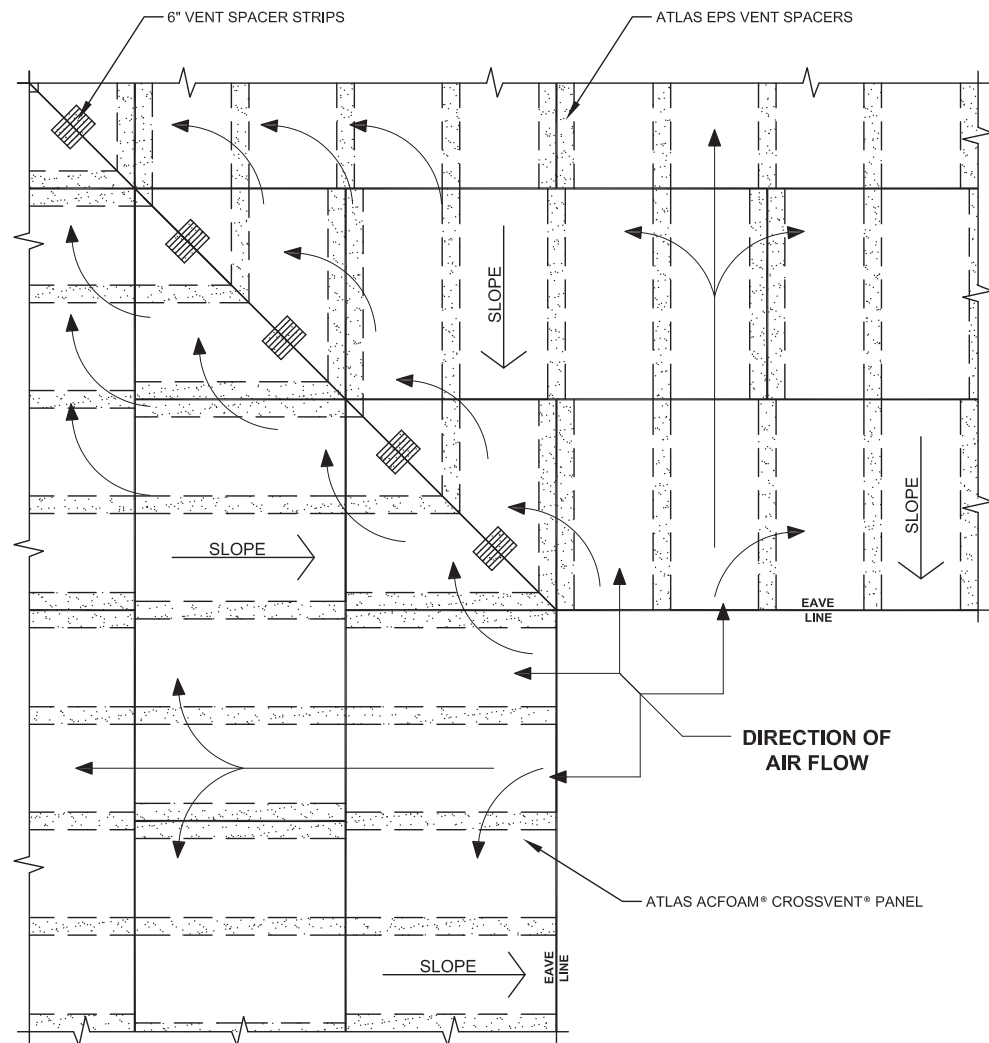
1. 2'-0" Staggered installation of nailable insulation over an optional layer of Atlas ACFoam[®]-II or Atlas ACFoam[®]-III rigid polyiso insulation board.
2. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

TYPICAL ROOF VALLEY INSTALLATION

ACFoam® CrossVent®
Nailable Cross Ventilated Roof Insulation

CV-1.5 TYPICAL ROOF VALLEY INSTALLATION

SCALE: NTS



NOTES:

Install 4" x 6" Atlas vent spacers on both sides of valley center line as shown for OSB support. Fasten through each spacer strip into structural deck using Atlas Nail Base Fasteners. Atlas vent spacers can be cut from unused ACFoam® CrossVent® spacer strips or obtained through an Atlas sales office.

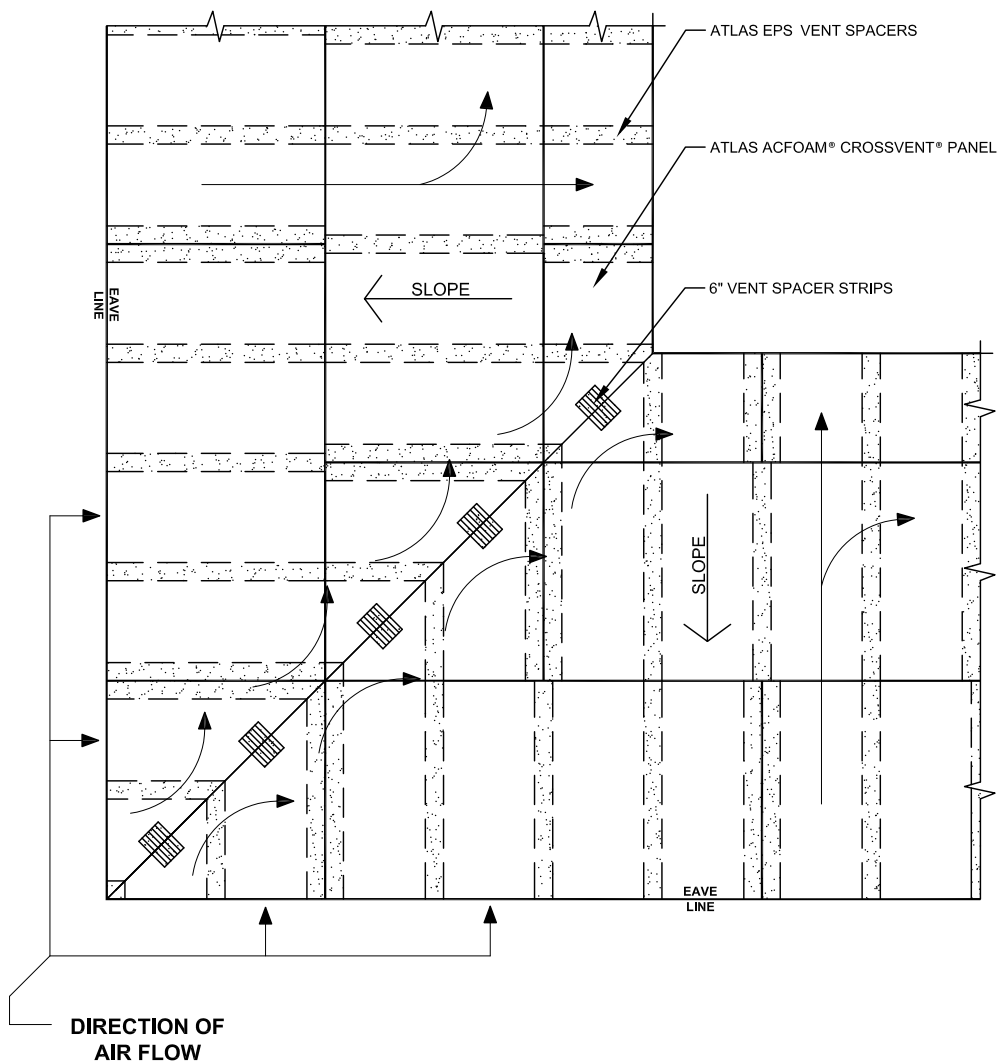
TYPICAL ROOF HIP INSTALLATION



ACFoam[®] CrossVent[®] Nailable Cross Ventilated Roof Insulation

CV-1.6 TYPICAL ROOF HIP INSTALLATION

SCALE: NTS



NOTES:

Install 4" x 6" Atlas vent spacers on both sides of hip center line as shown for OSB support. Fasten through each spacer strip into structural deck using Atlas Nail Base Fasteners. Atlas vent spacers can be cut from unused ACFoam[®] CrossVent[®] spacer strips or obtained through an Atlas sales office.

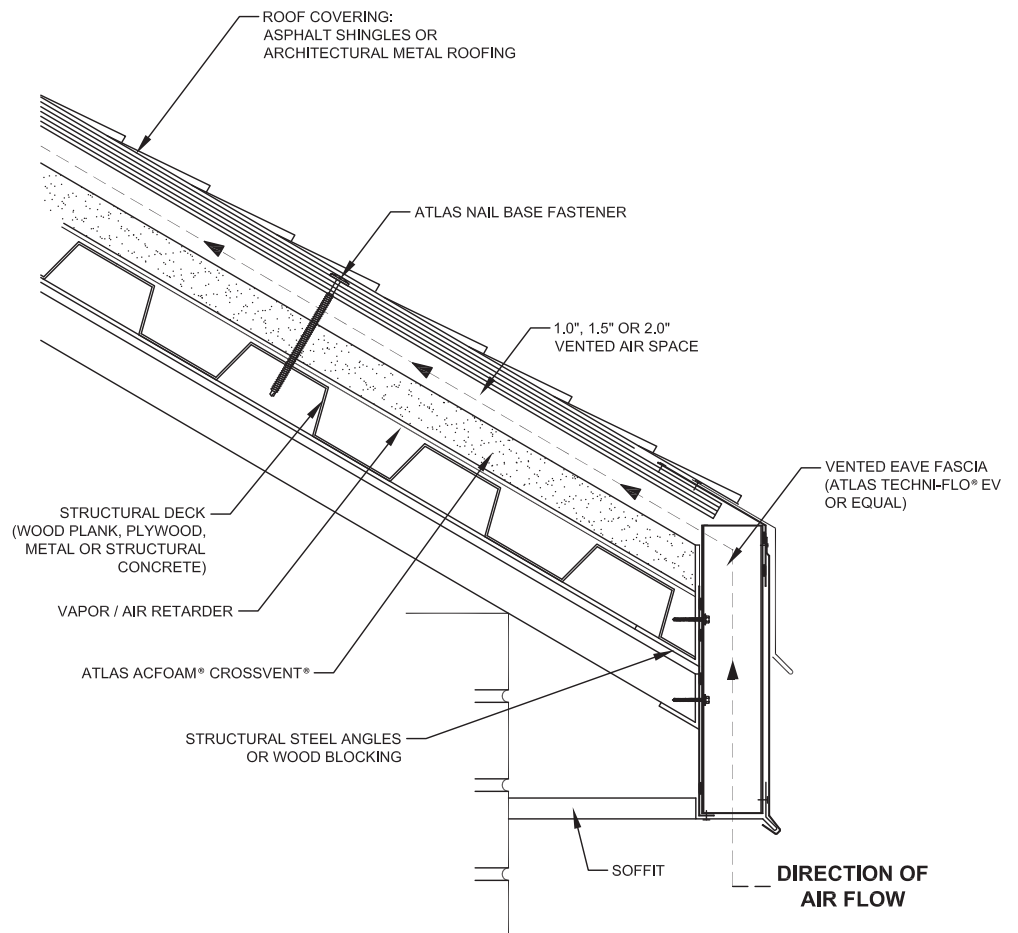


TYPICAL EAVE VENT

ACFoam[®] CrossVent[®] *Nailable Cross Ventilated Roof Insulation*

CV-1.7 TYPICAL EAVE VENT

SCALE: NTS



NOTES:

1. Refer to fastening requirements on page 24 for approved deck types.
2. Fastener penetration minimums:
Wood Plank: 1" penetration into deck;
Plywood: 1/2" through deck;
Metal: 3/4" through deck (upper flange only);
Structural Concrete (2500 psi min.):
1" Penetration into deck.
3. Atlas recommends that the designer consider carefully the need for a vapor/air retarder in order to limit moisture/air flow into the system. Determining the need for and location of the vapor/air retarder remains solely the responsibility of the architect, engineer or design professional.
4. For tile, slate or other heavy roof covering, thicker OSB, such as 3/4", may be required. Consult roof covering manufacturer or design professional.
5. The net free area of the vented eave fascia should meet or exceed the air space dimension of the ACFoam[®] CrossVent[®].
6. The net free area for the ridge vent should meet but not exceed the net free area of the air space in the ACFoam[®] CrossVent[®].
7. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.
8. Techni-Flo[®] EV is not intended for attachment to open ended metal truss or metal bar joist applications.

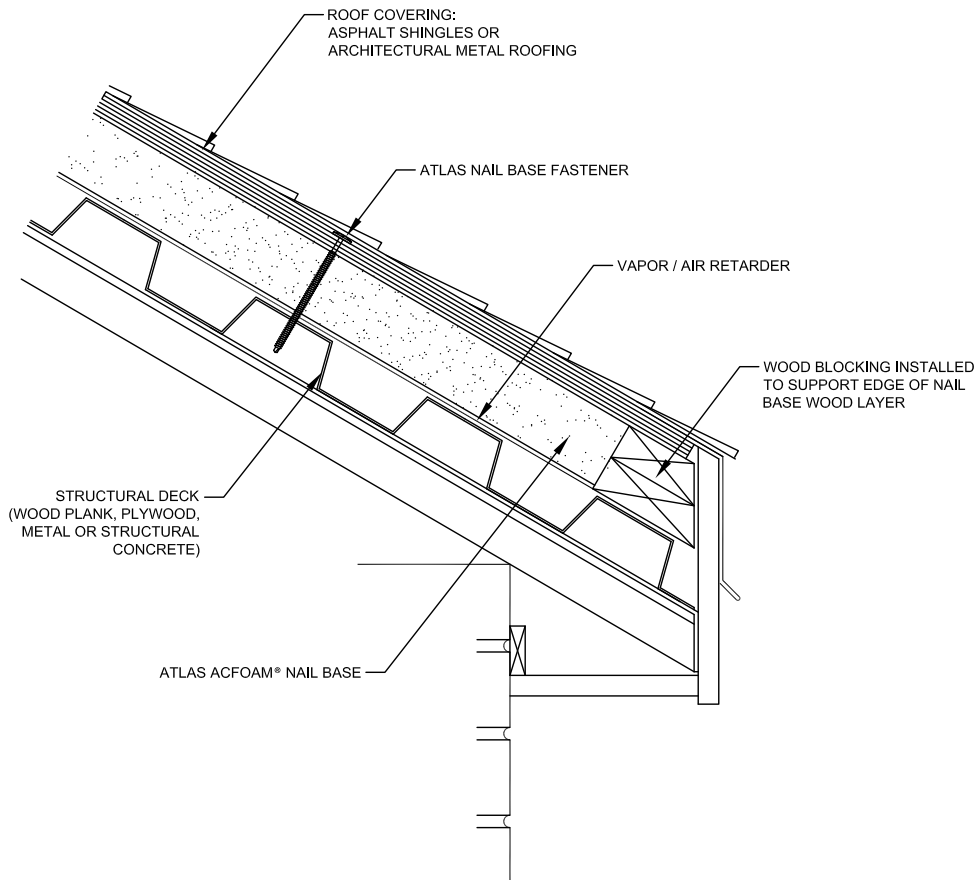
TYPICAL EAVE DETAIL



ACFoam[®] Nail Base *Nailable Roof Insulation*

NB-1.5 TYPICAL EAVE DETAIL

SCALE: NTS



NOTES:

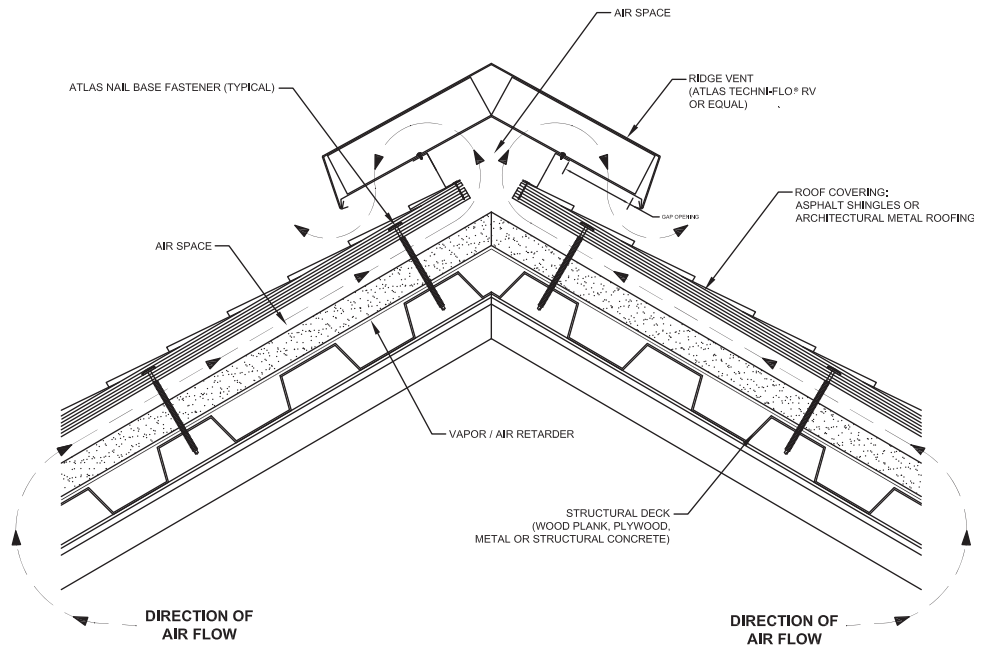
1. Refer to fastening requirements on page 24 for approved deck types.
2. Fastener penetration minimums:
Wood Plank: 1" penetration into deck;
Plywood: 1/2" through deck;
Metal: 3/4" through deck (upper flange only);
Structural Concrete (2500 psi min.):
1" penetration into deck.
3. Atlas recommends that the designer consider carefully the need for a vapor/air retarder in order to limit moisture/air flow into the system. Determining the need for and location of the vapor/air retarder remains solely the responsibility of the architect, engineer or design professional.
4. For tile, slate or other heavy roof covering, thicker OSB, such as 3/4", may be required. Consult roof covering manufacturer or design professional.
5. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

TYPICAL RIDGE VENT

ACFoam® CrossVent® Nailable Cross Ventilated Roof Insulation

CV-1.8 RIDGE VENT DETAIL

SCALE: NTS



NOTES:

1. Refer to fastening requirements on page 24 for approved deck types.
2. Fastener penetration minimums:
Wood Plank: 1" penetration into deck;
Plywood: 1/2" through deck;
Metal: 3/4" through deck (upper flange only);
Structural Concrete (2500 psi min.):
1" penetration into deck.
3. Atlas recommends that the designer consider carefully the need for a vapor/air retarder in order to limit moisture/air flow into the system. Determining the need for and location of the vapor/air retarder remains solely the responsibility of the architect, engineer or design professional.
4. For tile, slate or other heavy roof covering, thicker OSB, such as 3/4", may be required. Consult roof covering manufacturer or design professional.
5. To calculate the appropriate ridge vent gap opening: Divide the total eave (intake) linear footage by the total ridge (exhaust) linear footage and multiply that number by the air space dimension in ACFoam® CrossVent® (round down to the nearest 1/4").
6. To minimize the effects of thermal bridging, Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

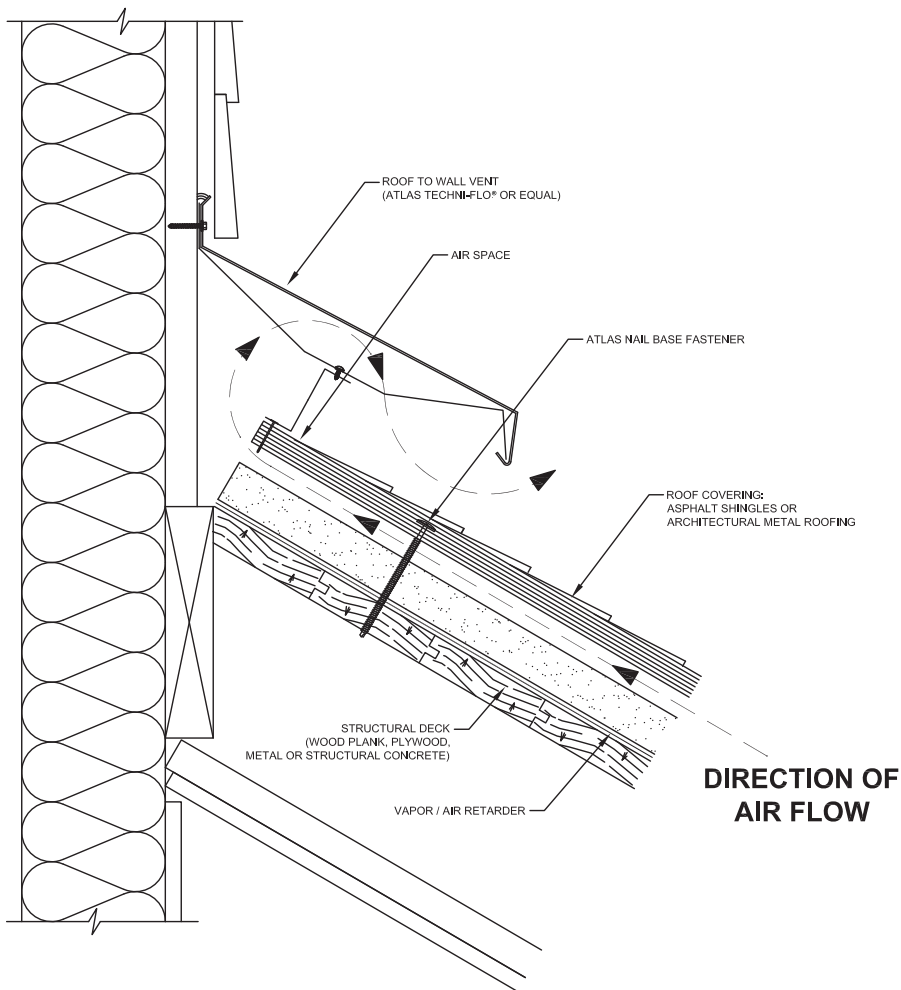
ROOF/WALL VENT DETAIL



ACFoam[®] CrossVent[®] *Nailable Cross Ventilated Roof Insulation*

CV-1.9 ROOF/WALL VENT DETAIL

SCALE: NTS



NOTES:

1. Refer to fastening requirements on page 24 for approved deck types.
2. Fastener penetration minimums:
Wood Plank: 1" penetration into deck;
Plywood: 1/2" through deck;
Metal: 3/4" through deck (upper flange only);
Structural Concrete (2500 psi min.):
1" Penetration into deck.
3. Atlas recommends that the designer consider carefully the need for a vapor/air retarder in order to limit moisture/air flow into the system. Determining the need for and location of the vapor air retarder remains solely the responsibility of the architect, engineer or design professional.
4. For tile, slate or other heavy roof covering, thicker OSB, such as 3/4", may be required. Consult roof covering manufacturer or design professional.
5. To calculate the appropriate roof to wall vent opening: Divide the total eave (intake) linear footage by the total roof to wall (exhaust) linear footage and multiply that number by the air space dimension in CrossVent[®] (round down to the nearest 1/4").
6. Atlas strongly recommends the use of multiple layers when the total desired or specified R-value requires an insulation thickness greater than 2.7" thick.

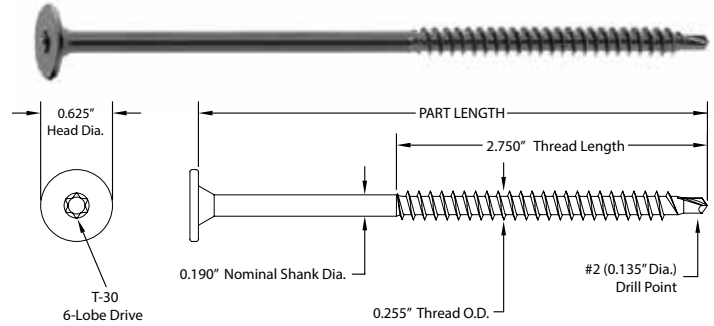


Atlas Nail Base Fastener

Nailable Insulation Fastener

DESCRIPTION: Standard or Light Duty insulation fastener with #2 Light Duty Drill Point. Specially engineered for attaching Atlas ACFoam® Nail Base and ACFoam® CrossVent® to corrugated steel and wood deck substrates. Atlas Nail Base Fasteners are required for proper mechanical attachment of all ACFoam® nailable insulation systems.

Material: Case Hardened Tempered Carbon Steel
Head Style/Drive: Pancake Head with T-30 Internal Drive
Head Diameter: 0.635"
Shank Diameter: 0.190"
Thread Length: 2.750"
Overall Length: 3" thru 18"
Point: #2 (0.135" dia.) Drill Point
Coating: Epoxy E-Coat (black)
 Passes more than 15 cycles (Kesternich) in accordance with DIN 50018



PHYSICAL PROPERTIES

TENSILE STRENGTH	SHEAR STRENGTH	HEAD PULL-THRU VALUE ¹ ($\frac{1}{16}$ " OSB)
3,380 lbf.	2,900 lbf	545 lbf

LATERAL LOAD RESISTANCE¹

MAIN MEMBER	SIDE MEMBER	LOAD
22 Ga. Corrugated Steel	Nail Base	411 lbf
$\frac{7}{16}$ " OSB	Nail Base	112 lbf

WITHDRAWAL VALUES IN STEEL¹ (80 KSI MIN.)

Type B Corrugated	22 Ga.	20 Ga.	18 Ga.
lbf	510	645	920

WITHDRAWAL VALUES IN WOOD¹

Specific Gravity	0.67	0.55	0.5	0.46	0.43	0.36	0.31
lb/in.	1429	1173	1067	981	917	768	661

¹Head-Pull-Thru, "Withdrawal", and "Lateral Load" data reflect average ultimate values.

NOTE: All tests were conducted by an independent testing laboratory. Test results are offered only as a guide and are not guaranteed in any way by Atlas Roofing Corporation.



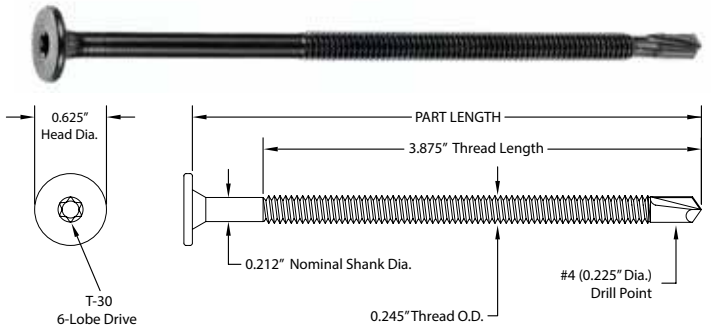


Atlas Nail Base Fastener ^{HD}

Heavy Duty Nailable Insulation Fastener

DESCRIPTION: Heavy Duty Nailable Insulation Fastener with #4 Heavy Duty Drill Point. Specially engineered for attaching Atlas ACFoam[®] Nail Base and ACFoam[®] CrossVent[®] to thick steel substrates. Atlas Nail Base Fasteners are required for proper mechanical attachment of all ACFoam[®] Nailable Insulation Systems.

Material: Case hardened and Tempered Carbon Steel
Head Style/Drive: Pancake Head with T-30 Internal Drive
Head Diameter: 0.625"
Shank Diameter: 0.212"
Thread Length: 3.875"
Overall Length: 6" thru 13.75"
Point: #4 (0.225" dia.) Heavy Duty Drill Point
Coating: Epoxy E-Coat (black)
 Passes more than 15 cycles (Kesternich) in accordance with DIN 50018



PHYSICAL PROPERTIES

TENSILE STRENGTH	SHEAR STRENGTH	HEAD PULL-THRU VALUE ¹ (1/16" OSB)
6,000 lbf.	3,400 lbf	545 lbf

WITHDRAWAL VALUES IN STEEL¹

Structural Steel	16 Ga.	13 Ga.	12 Ga.	3/16"	1/4"
lbf	770	1130	1690	3100	4500

¹"Head-Pull-Through" and "Withdrawal" data reflect average ultimate values.

NOTE: All tests were conducted by an independent testing laboratory. Test results are offered only as a guide and are not guaranteed in any way by Atlas Roofing Corporation.

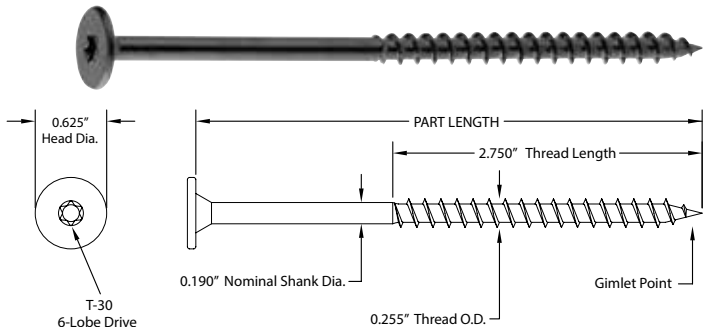


Atlas Nail Base Fastener ^{TP}

Thread Point Nailable Insulation Fastener

DESCRIPTION: Thread Point Nailable Insulation Fastener with Gimlet Thread Point. Specially engineered fastener for attaching Atlas ACFoam[®] Nail Base and ACFoam[®] CrossVent[®] to wood and timber substrates. Atlas Nail Base Fasteners are required for proper mechanical attachment of all ACFoam[®] Nailable Insulation Systems.

Material: Case hardened and Tempered Carbon Steel
Head Style/Drive: Pancake Head with T-30 Internal Drive
Head Diameter: 0.625"
Shank Diameter: 0.190"
Thread Length: 2.750"
Overall Length: 2" thru 18"
Point: Gimlet Thread
Coating: Epoxy E-Coat (black)
 Passes more than 15 cycles (Kesternich) in accordance with DIN 50018



PHYSICAL PROPERTIES

TENSILE STRENGTH	SHEAR STRENGTH	HEAD PULL-THRU VALUE ¹ (1/16" OSB)
3,380 lbf.	2,900 lbf	545 lbf

WITHDRAWAL VALUES IN WOOD¹

Structural Steel	0.67	0.55	0.50	0.46	0.43	0.36	0.31
lbf	1429	1173	1067	981	917	768	661

¹"Head-Pull-Through" and "Withdrawal" data reflect average ultimate values.

NOTE: All tests were conducted by an independent testing laboratory. Test results are offered only as a guide and are not guaranteed in any way by Atlas Roofing Corporation.



FASTENING REQUIREMENTS

FOR ACFOAM® NAILABLE INSULATIONS 4'×8' (1220MM × 2440MM)

TABLE 1 - REQUIRED NUMBER OF ATLAS NAIL BASE FASTENERS

ROOF SLOPES	ROOF AREA	3:12/6:12							7:12/12:12							14:12/24:12						
		10-30	40	50	60	70	80	90	10-30	40	50	60	70	80	90	10-30	40	50	60	70	80	90
SNOWLOAD +10 PSF DEAD LOAD - TOTAL LOAD PSF	FIELD	15	15	15	15	15	15	20	15	20	20	20	25	25	30	20	25	30	30	35	35	40
	PERIMETER	25	25	25	20	20	20	20	20	20	25	25	25	30	20	30	30	30	35	40	40	
1" WOOD OR STRUCTURAL CONCRETE	FIELD	15	15	15	15	15	15	15	15	15	20	20	20	25	25	15	20	25	25	30	30	35
	PERIMETER	20	20	20	20	20	20	20	15	20	20	20	20	25	25	15	25	25	30	30	35	35
1 9/32" PLYWOOD MINIMUM	FIELD	15	15	15	20	20	25	25	15	25	25	25	30	35	40	20	30	35	40	45	45	50
	PERIMETER	25	25	25	25	25	25	25	20	25	30	30	30	35	40	20	35	35	40	45	45	50

TABLE 1 - NOTES

- Table 1 applies to roofs in areas of wind velocity not exceeding 110 mph, Exposure C, Importance Factor I = 1.15, and a maximum mean roof height of 60ft. For overhangs, consult Atlas technical department.
- Table 1 is valid only for use with Atlas Nail Base Fasteners.
- Refer to pages 25-27 for appropriate fastening patterns.
- When plywood is used as the top surface of the ACFoam® nailable insulations, additional fastening is required. See Atlas Technical Bulletin: TB-1.
- Roof perimeter area is defined as a band equal in width to 10% of the lesser roof plan dimension or 40% of the mean roof height, whichever is less (Min. band width is 4ft.) **Note: Perimeter area also includes corners.**

TABLE 2 - REQUIRED NUMBER OF ATLAS NAIL BASE FASTENERS

ROOF SLOPES	ROOF AREA	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	14/12	15/12	16/12	17/12	18/12	20/12	22/12	24/12
		18-22 GA. STEEL	FIELD	25	25	25	25	30	30	30	30	30	30	30	30	30	30	30	30
PERIMETER	45		45	45	45	35	35	35	35	35	35	35	35	35	35	35	35	35	35
1" WOOD OR STRUCTURAL CONCRETE	FIELD	20	20	20	20	20	20	20	20	20	20	25	25	25	25	25	25	25	25
	PERIMETER	35	35	35	35	25	25	25	25	25	25	25	25	25	25	25	25	25	25
1 9/32" PLYWOOD MINIMUM	FIELD	20	20	20	20	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	PERIMETER	40	40	40	40	30	30	30	30	30	30	30	30	30	30	30	30	30	30

TABLE 2 - NOTES

- Table 2 applies to roofs with no snowload and wind velocity over 110 mph, but not exceeding 146mph, in combination with 10psf Dead Load, Exposure C, Importance Factor I = 1.15, and a maximum mean roof height of 60ft. For overhangs, consult Atlas technical department.
- Table 2 is valid only for use with Atlas Nail Base Fasteners.
- Refer to pages 25-27 for appropriate fastening patterns.
- When plywood is used as the top surface of the ACFoam® nailable insulation, additional fastening is required. See Atlas Technical Bulletin: TB-1.
- Roof perimeter area is defined as a band equal in width to 10% of the lesser roof plan dimension or 40% of the mean roof height, whichever is less (Min. band width is 4ft.) **Note: Perimeter area also includes corners.**

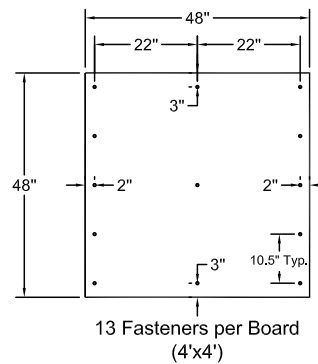
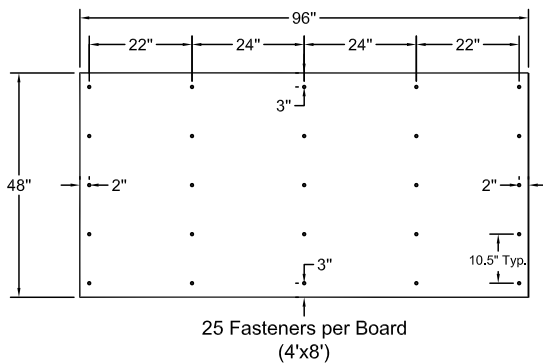
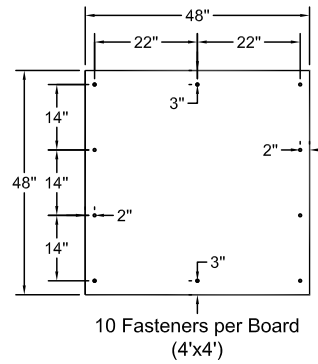
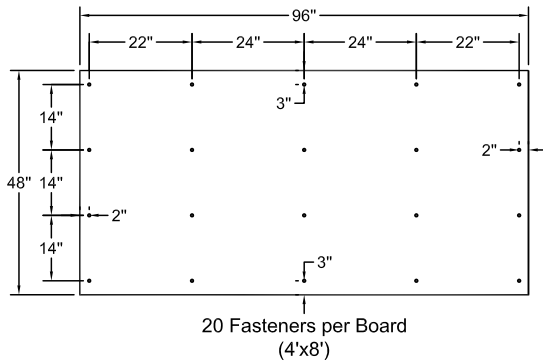
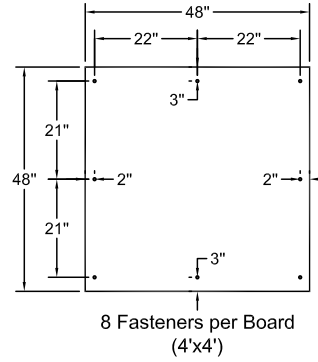
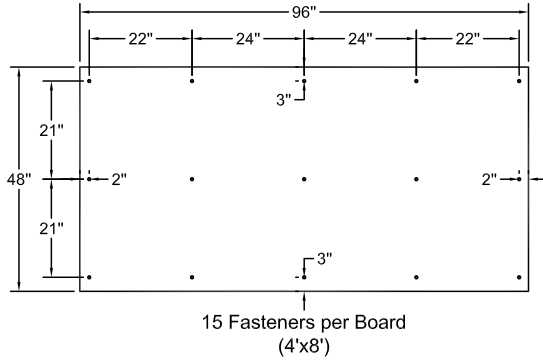
APPROVED DECKS

- 18-22 ga. Steel Deck (3/4" through deck [top flange]).
- Structural Concrete (2500 psi min.) 3/8" pre-drilled pilot hole required (1" penetration into deck).
- 1" minimum wood plank and T&G (1" penetration into deck).
- 1 9/32" minimum plywood (1/2" through deck).
- FM 1-60, 1-90, 1-105:15 Fasteners (min.) for CrossVent®, and Nail Base Insulation (Steel Deck and Structural Concrete).
- For projects requiring FM wind rating, FM approved assembly, including deck and roof covering, is required.

ATLAS NAIL BASE FASTENER INSTALLATION RECOMMENDATIONS:

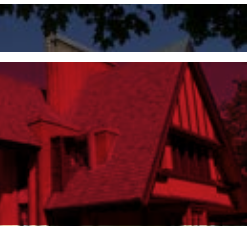
- The fasteners should be installed using an 1800-2500 RPM(max) screw gun with a hardened drive bit. Standard electric drill guns are not recommended for installation of Atlas Nail Base Fasteners.
- Metal decks are acceptable deck types provided they are between 18 ga.(max) and 22 ga.(min.). Be sure to determine the gauge of the deck. For 16 ga. or heavier, consult the Atlas Technical Department.

STANDARD FASTENING PATTERNS

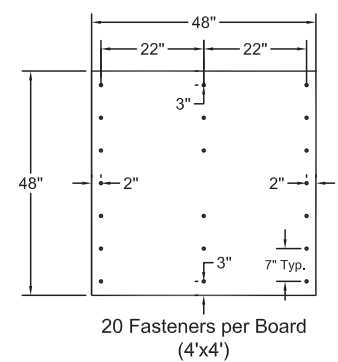
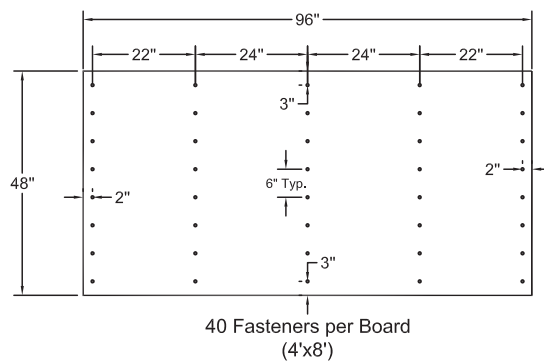
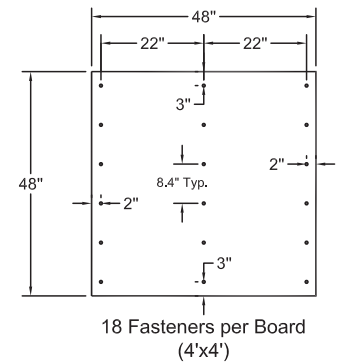
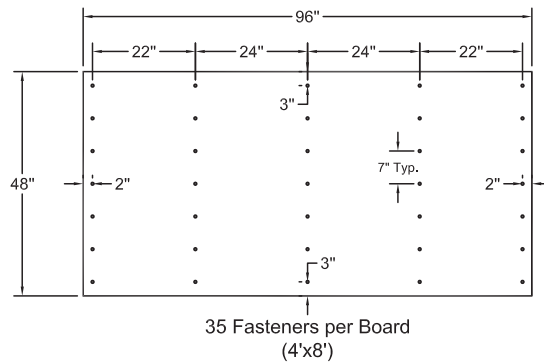
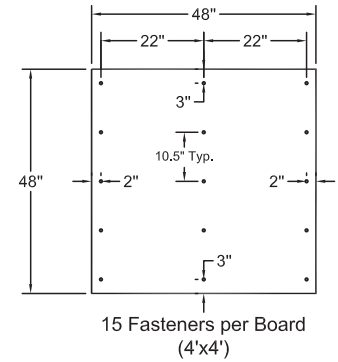
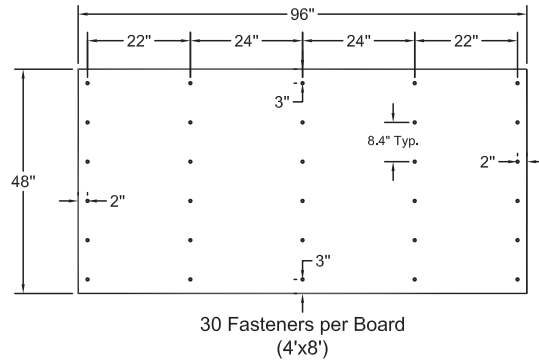


NOTES:

1. Minimum thickness of the ACFoam® CrossVent® shall be 2.5" to meet FM 1-60, 1-90 or 1-105 requirements.
2. Minimum thickness of the ACFoam® Nail Base Insulation shall be 1.5" to meet FM 1-60, 1-90 or 1-105 requirements.
3. Atlas Nail Base Fasteners required as part of Atlas ACFoam® nailable insulation systems.



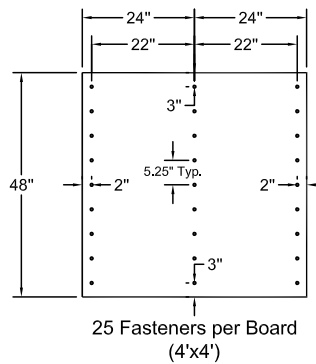
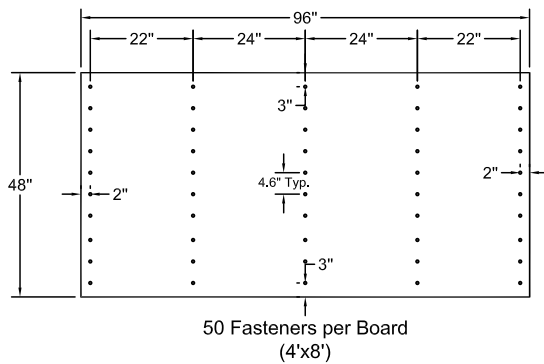
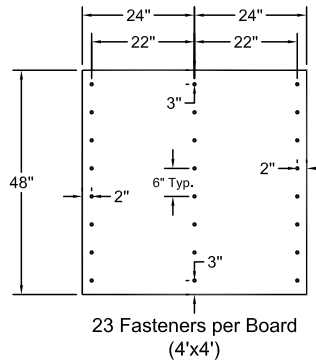
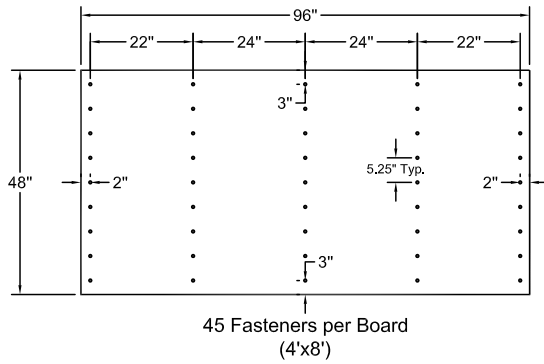
STANDARD FASTENING PATTERNS



NOTES:

1. Minimum thickness of the ACFoam® CrossVent® shall be 2.5" to meet FM 1-60, 1-90 or 1-105 requirements.
2. Minimum thickness of the ACFoam® Nail Base Insulation shall be 1.5" to meet FM 1-60, 1-90 or 1-105 requirements.
3. Atlas Nail Base Fasteners required as part of Atlas ACFoam® nailable insulation systems.

STANDARD FASTENING PATTERNS



NOTES:

1. Minimum thickness of the ACFoam® CrossVent® shall be 2.5" to meet FM 1-60, 1-90 or 1-105 requirements.
2. Minimum thickness of the ACFoam® Nail Base Insulation shall be 1.5" to meet FM 1-60, 1-90 or 1-105 requirements.
3. Atlas Nail Base Fasteners required as part of Atlas ACFoam® nailable insulation systems.

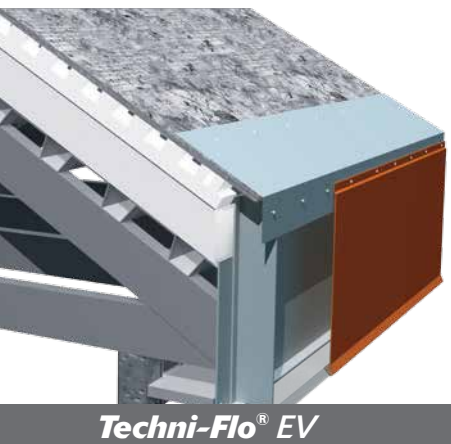
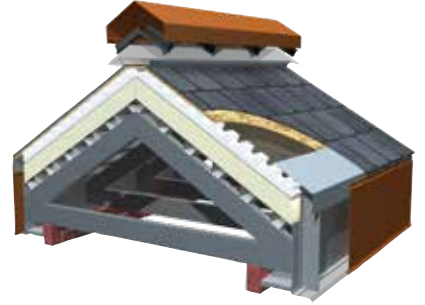


Techni-Flo[®] EV

Engineered Eave Vent

Techni-Flo[®] EV (eave vent) features a unique design that promotes positive air intake at the eave, limiting heat build-up, helping to evacuate moisture, thereby ensuring a longer roof system life. Pre-slotted fastening holes on the roof flange and cover allow for thermal movement, as well as ensure proper fastening location.

The Techni-Flo[®] EV is just one part of the Techni-Flo[®] Engineered Ventilation System. When combined with the Techni-Flo[®] RV and ACFoam[®] CrossVent[®] Nailable Polyiso insulation, it creates a state-of-the-art ventilation system, specifically designed to create consistent air intake and exhaust under the roof covering, all based on the design conditions of the project. Properly designed and engineered ventilation through the roof system is essential for roof system durability in both commercial and residential steeped-sloped roofing systems.



FEATURES & BENEFITS

PRODUCT VERSATILITY

- Engineered and fabricated to individual job requirements.
- Custom colors available.
- Available in .40", .50" and .63" aluminum, 24 ga. steel and alternative materials, such as cedar exterior laminates.

COST SAVING BENEFITS

- Eliminates the need for overhangs and vented soffits, reducing extra labor costs.
- Pre-slotted fastening holes on roof flange and cover allow for thermal movement and ensure proper fastening location.
- Provided in 12' lengths for faster installation and fewer splice joints.

COMPREHENSIVE WARRANTY*

- Ridge and eave vents will withstand winds up to 130mph¹.
- Vents will be manufactured free of any defects.
- Finish will not fade or crack. Covers repair or replacement of the ridge and eave for 20 years.
- Vents will continue to provide designed ventilation for the duration of the warranty*.

*See the warranty for terms and conditions.

Techni-Flo[®] EV is not intended for attachment to open ended metal truss or metal bar joist applications.

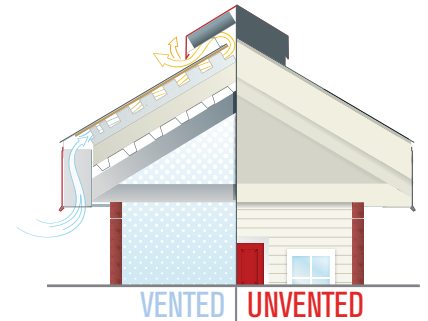
¹Design enhancements required for 130 mph wind speed coverage include, but are not limited to, a minimum .050" aluminum or .063" aluminum cover.

Techni-Flo® RV *Engineered Ridge Vent*



Techni-Flo® RV (ridge vent) accommodates both standing seam and shingled roof applications, and is engineered to individual job requirements. Featuring a snap on cover for ease of installation, this all-metal ridge vent can withstand heavy snow-loads, and will not compress under stress. It also features slotted fastening holes for proper thermal movement and correct fastener placement.

The Techni-Flo® RV is just one part of the Techni-Flo® Engineered Ventilation system. When combined with the Techni-Flo® EV and ACFoam® CrossVent® Nailable Polyiso insulation, it creates a state-of-the-art ventilation system specifically designed to create consistent air intake and exhaust under the roof covering. Properly designed and engineered ventilation through the roof system is essential for roof system durability in both commercial and residential steeped-sloped roofing systems.



Techni-Flo® RV

FEATURES & BENEFITS

SIZING AND MATERIALS

- Engineered and fabricated to individual job requirements.
- Cover is available in .40", .50", and .63" aluminum and 24 ga. steel.
- Accommodates both standing seam and shingled roofs.
- Custom colors available.

EFFICIENT DESIGN

- Easy snap-on cover.
- All metal construction withstands heavy snow loads; will not compress under stress.
- Available in an alternative Field Roofed Version for shingle attachment.
- Slotted fastening holes for proper thermal movement and correct fastener placement and spacing.
- Manufactured in 12' lengths — fewer splice joints.
- Passed wind-driven rain test.

COMPREHENSIVE WARRANTY*

- Ridge and eave vents will withstand winds up to 130mph¹
- Vents will be manufactured free of any defects
- Finish will not fade or crack. Covers repair or replacement of the ridge and eave for 20 years
- Vents will continue to provide designed ventilation for the duration of the warranty*

*See the warranty for terms and conditions.

¹Design enhancements required for 130 mph wind speed coverage include, but are not limited to, a minimum .050" aluminum or .063" aluminum cover.

GENERAL INSTRUCTIONS & WARRANTY INFORMATION FOR ACFOAM® PRODUCTS

STORAGE

Factory applied packaging is intended only for protection during transit. When stored outdoors or on the job site, the insulation should be stacked on pallets at least three inches above ground level and completely covered with a weatherproof covering such as a tarpaulin. The temporary factory-applied packaging should be slit or removed to prevent accumulation of condensation. Roof insulation which has become wet or damaged should be removed and replaced with solid, dry insulation, of the same type.

INSTALLATION

Before installation begins, the roof deck should be firm, well attached, even, clean and dry. Proper attachment of the insulation is necessary to prevent roof failures. Atlas is not responsible for any damage caused by improper attachment. ACFoam® products can be attached to decks that are approved by FM Approvals and local codes. Atlas is not responsible for determining the suitability of the deck. ACFoam® products shall be kept dry before, during and after installation. Install only as much ACFoam® product as can be covered the same day with completed roofing. Although ACFoam® products have been designed to withstand normal foot traffic, protection from damage by construction traffic and/or abuse is extremely important. Roof surface protection such as plywood shall be used in areas where storage and staging are planned and heavy or repeated traffic is anticipated during or after installation. Refer to Atlas Technical Bulletin TB-5.

MULTI-LAYER INSTALLATION

A two-layer application of ACFoam® products is strongly recommended. The joints in each layer should be offset in order to avoid a vertically continuous joint through the total insulation thickness. Two layers (or more) with joints staggered can provide improved insulation performance by eliminating thermal bridges. This method also reduces condensation potential and thermal stress on the roof membrane. Refer to Atlas Technical Bulletin TB-5.

MECHANICAL ATTACHMENT

Mechanical fastening is the recommended method of attachment over nailable decks. Fastener frequency and spacing for steel, wood, cast-in-place structural concrete and poured gypsum decks are covered in the current Atlas Catalog according to the membrane system. Refer to the current FM Loss Prevention Data Sheet 1-29 for special considerations regarding perimeter and corners of the roof. Go to AtlasRoofing.com for typical fastening patterns for field area of the roof. For further recommendations regarding attachment of insulation to lightweight insulating concrete decks or poured gypsum concrete decks, follow the instructions outlined in the current NRCA Roofing Manual. ACFoam® products shall not be adhered directly to these decks by any bitumen or adhesive attachment method.

ADHESIVE ATTACHMENT

For installing ACFoam® products to a structural concrete deck, adhesive/bitumen attachment is the recommended method. When using hot bitumen on concrete decks, priming is necessary. Precautions must be taken to ensure that concrete decks have fully hydrated and do not continue to release moisture. Insulation must remain dry before, during, and after installation. Precautions must also be taken to prevent bitumen drippage. When using hot-applied bitumen for attachment of insulation to structural concrete decks and successive insulation layers, the temperature of the bitumen shall be approximately 50°F below the interply hand mopping EVT. The deck shall be dry and care must be taken to apply the bitumen in sufficient quantity to totally cover the available deck surface when applied at the correct temperature (390°F). To ensure embedment, the board shall also be "stepped in" at several points while the bitumen is still hot enough to allow positive attachment. The recommended size of ACFoam® product for hot bitumen attachment is 4'x4'. When using polyurethane adhesives or cold applied asphalt adhesive, follow the adhesive manufacturer's installation recommendations.

VAPOR/AIR RETARDERS

Moisture vapor tends to migrate from warmer to cooler areas. In building construction, vapor/air retarders are used to inhibit or block the passage of warm, moisture laden air into walls or roofing assemblies. To determine whether a vapor/air retarder is necessary, calculations based on interior relative humidity, interior temperature, and outside design temperature must be performed. Consult the NRCA Roofing Manual: Membrane Roofing Systems for more information regarding vapor/air retarders and dew point calculations. Special consideration should be given to construction generated moisture as well. For example, construction-generated moisture will be released when concrete floor slabs are placed after the roof has been installed, which can drive large quantities of moisture into the roof system. Therefore, Atlas is not responsible for damage to the insulation when exposed to construction-generated moisture or from moisture released from building materials. Refer to the NRCA Roofing Manual: Membrane Roofing Systems for recommendations for the use of a vapor retarder when construction-generated moisture is present. Consult vapor/air retarder manufacturer for recommended applications and details.

WARNING-DO NOT LEAVE EXPOSED

This product is a polyiso organic plastic foam and will burn if exposed to an ignition source of sufficient heat and intensity, or open flame, such as a welder's torch. Like other organic materials, this product will release smoke if ignited. Do not apply flame directly to ACFoam® roof insulations. This product should be used only in strict accordance with Atlas recommended uses and application instructions.

LIMITATION OF LIABILITY

Other than the aforementioned representations and descriptions, Atlas Roofing Corporation (hereafter, "Seller") makes no other representations or warranties as to the insulation sold herein. The Seller disclaims all other warranties, express or implied, including the warranty of merchantability and the warranty of fitness for a particular purpose. Seller does, however, have a limited warranty as to the LTRR-value of the insulation, the terms of which are available upon request from the Seller. The Seller shall not be liable for any incidental or consequential damages including the cost of installation, removal, repair or replacement of this product. The Buyer's remedies shall be limited exclusively to, at Seller's option, the repayment of the purchase price or resupply of product manufactured by Atlas in a quantity equal to that of the nonconforming product. Atlas distributors, agents, salespersons or other independent representatives have no authority to waive or alter the above limitation of liability and remedies.

20-YEAR LIMITED WARRANTY

In response to valid concerns of building designers regarding thermal efficiency of roof assemblies and the long-term insulating value of roof insulation, Atlas offers a 20-year, limited thermal warranty. The "ACFoam® Limited Warranty" places Atlas ACFoam® products above all others and supports the building owner, designer and contractor by backing up thermal performance. This warranty is available to the building owner at the time the building is completed and is transferable to any subsequent owner for the duration of the 20-year period.



CONTACT US:



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Suite 800
Atlanta, GA 30328
(770) 952-1442

roof.atlasrwi.com



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Fax: (604) 395-8365

2. Toronto, ON

(888) 647-1476

Fax: (877) 909-4001



3. Denver, CO

(800) 288-1476

Fax: (303) 252-4417

4. East Moline, IL

(800) 677-1476

Fax: (866) 740-6019



5. Camp Hill, PA

(800) 288-1476

Fax: (717) 975-6957

6. Phoenix, AZ

(800) 477-1476

Fax: (602) 477-8897

7. Diboll, TX

(800) 766-1476

Fax: (936) 829-5363

8. LaGrange, GA

(800) 955-1476

Fax: (706) 882-4047