



EVALUATION REPORT

FLORIDA BUILDING CODE 5TH EDITION (2014)

Manufacturer: SHEFFIELD METALS INTERNATIONAL
 5467 Evergreen Parkway
 Sheffield Village, OH 44054
 (800) 283-5262
www.sheffieldmetals.com

Issued August 22, 2015

Quality Assurance: Keystone Certifications, Inc. (QUA1824)

SCOPE

Category: Roofing
Subcategory: Metal Roofing
Code Sections: 1504.3.1, 1504.3.2
Properties: Wind Resistance

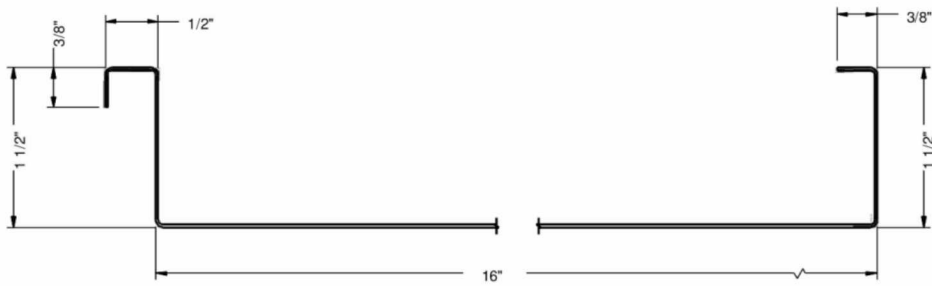
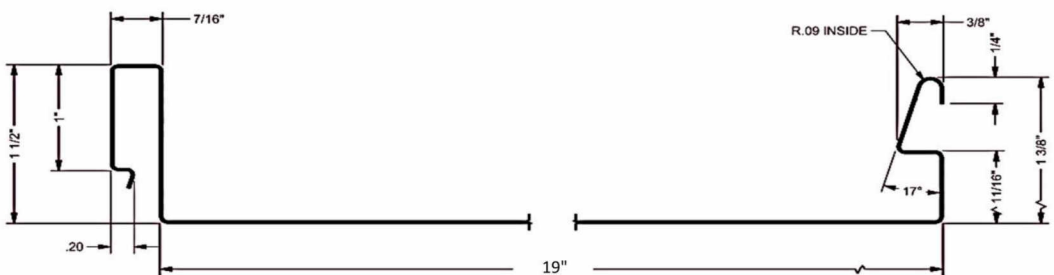
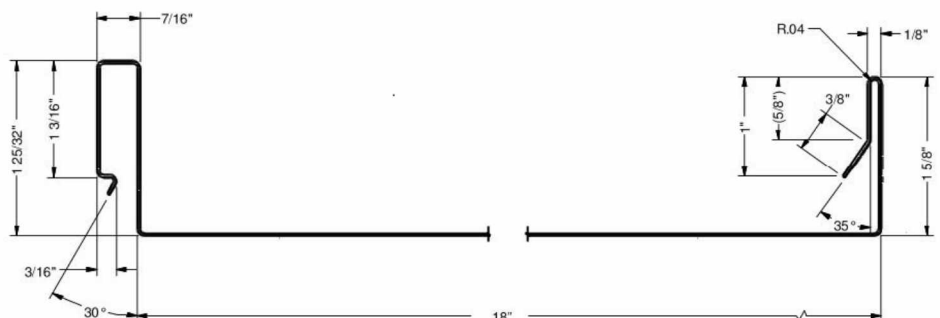
REFERENCES

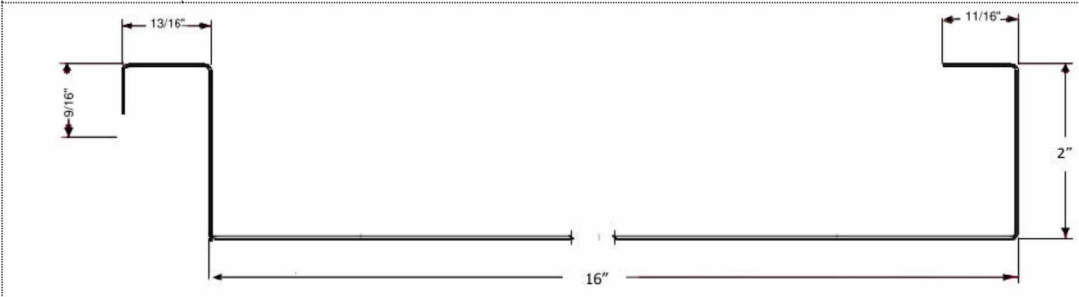
<u>Entity</u>	<u>Report No.</u>	<u>Standard</u>	<u>Year</u>
Architectural Testing (TST4311)	B5170.02-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.04-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.06-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.08-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.10-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.12-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.14-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.16-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5170.18-450-18	UL 580	2006
		UL 1897	2004
Architectural Testing (TST4311)	B5925.01-450-18	UL 580	2006
		UL 1897	2004

LIMITATIONS

1. Fire classification is not within the scope of this evaluation.
2. This report is not for use in the HVHZ.
3. The roof deck and the roof deck attachment shall be designed by others to meet the minimum design loads established for components and cladding and in accordance with FBC requirements.
4. Roof slope shall be in accordance with FBC Section 1507.4.2.
5. Reroofing shall be in accordance with FBC Section 1510.
6. Installation of the evaluated products shall comply with this report, the FBC and the manufacturer's published application instructions. Where discrepancies exist between these sources, the more restrictive and FBC compliant installation detail shall prevail.
7. All products listed in this report shall be manufactured under a quality assurance program in compliance with Rule 61G20-3.

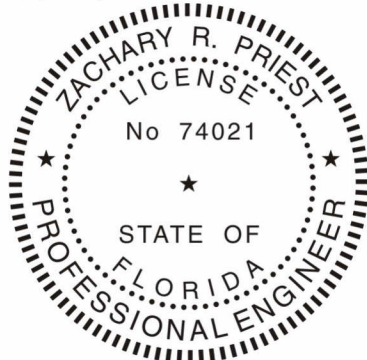
PRODUCT DESCRIPTION

SMI 1.5" Mechanical Seam	Profile:	1.5 in. mechanical seam; Max. 16 in. coverage
	Description:	Non-structural, mechanical lock standing seam roof panel
	Material:	Min. 24 ga.; $F_y = \text{min. } 50 \text{ ksi}$; Shall conform with FBC Section 1507.4.3
	Min. Slope:	2/12
		
SMI 1.5" SnapLock 550	Profile:	1.5 in. snap lock seam; Max. 19 in. coverage
	Description:	Non-structural, snap lock standing seam roof panel
	Material:	Min. 24 ga.; $F_y = \text{min. } 50 \text{ ksi}$; Shall conform with FBC Section 1507.4.3
	Min. Slope:	2/12
		
SMI 1.75" SnapLock	Profile:	1.75 in. snap lock seam; Max. 18 in. coverage
	Description:	Non-structural, snap lock standing seam roof panel
	Material:	Min. 24 ga.; $F_y = \text{min. } 50 \text{ ksi}$; Shall conform with FBC Section 1507.4.3
	Min. Slope:	2/12
		

SMI 2" Mechanical Seam	Profile:	2.0 in. mechanical seam; Max. 16 in. coverage
	Description:	Non-structural, mechanical lock standing seam roof panel
	Material:	Min. 24 ga.; F _y = min. 50 ksi; Shall conform with FBC Section 1507.4.3
	Min. Slope	0.5/12
		

COMPLIANCE STATEMENT

The products evaluated herein by Zachary R. Priest, P.E. have demonstrated compliance with the Florida Building Code 5th Edition (2014) as evidenced in the referenced documents submitted by the named manufacturer.



Zachary R. Priest
 Digitally signed by Zachary R. Priest

2015.08.22
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Zachary R. Priest, P.E.
 Florida Registration No. 74021
 Organization No. ANE9641

CERTIFICATION OF INDEPENDENCE

CREEK Technical Services, LLC does not have, nor will it acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

CREEK Technical Services, LLC is not owned, operated, or controlled by any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

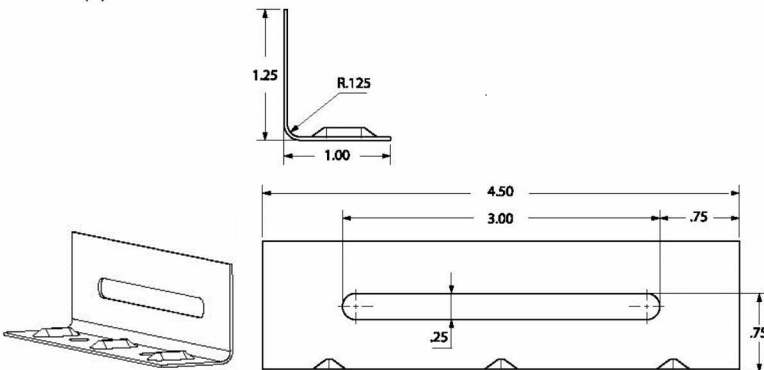
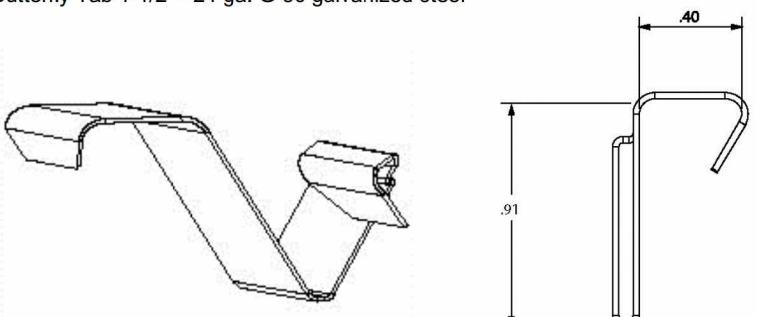
APPENDICES

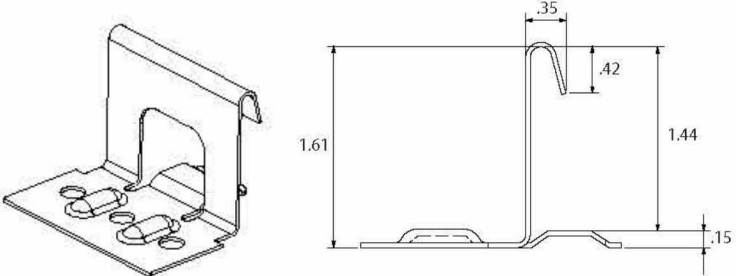
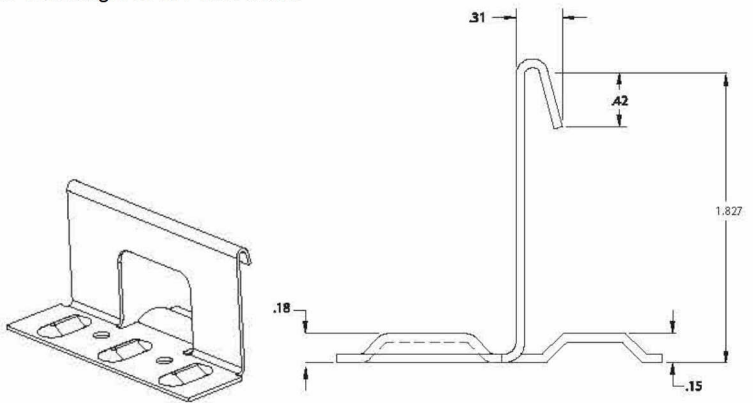
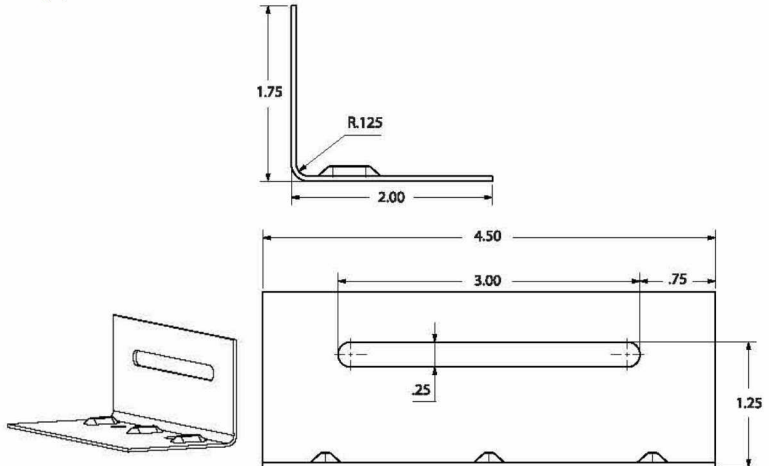
- 1) APPENDIX A – Installation (3 pages)
- 2) APPENDIX B – Approved Roof Systems (3 pages)
- 3) APPENDIX C – Design Wind Loads(4 pages)

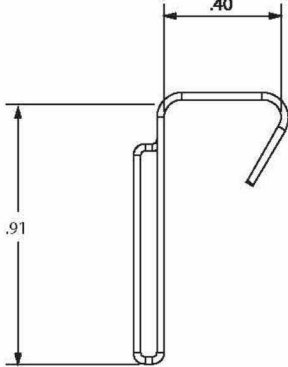
INSTALLATION

Note - Refer to the [APPROVED ROOF SYSTEMS](#) section of this report for specific installation details of a selected system.

Unless otherwise specified in this report the following installation details shall be met for the named products:

Component	Product	Installation Detail
Fasteners	SFS Intec Weather Gard® #10 Type A: Pancake Head 2/2 Quadrex Drive	Shall penetrate through the sheathing a minimum 3/8-inch. Shall be corrosion resistant in accordance with FBC section 1507.4.4.
	SFS Intec Weather Gard® #12 Self-Drill: Pancake Head 2/2 Quadrex Drive	Threads shall penetrate through the deck a minimum 3/8-inch. Shall be corrosion resistant in accordance with FBC section 1507.4.4.
	SFS Intec Dekfast™ #12 PH screws	Shall attach insulation to steel or wood deck. Shall penetrate through the top rib of the steel deck a minimum 3/4-inch. Shall penetrate through the wood sheathing a minimum 1-inch. Shall be corrosion resistant in accordance with FBC section 1507.4.4.
Insulation Plates	SFS Intec Galvalume Steel Hex Plate	Installed in accordance with the manufacturer's installation instructions.
Insulation	Approved polyisocyanurate insulation board	Any <i>Approved</i> polyisocyanurate insulation board for use in the FBC. Minimum 1-inch thick base layer with optional minimum 1/2-inch or taper subsequent layers of polyisocyanurate insulation secured with fasteners and plates in accordance with the manufacturer's installation instructions. Butt edges and stagger joints of adjacent panels.
Underlayment	ASTM D 226 Type II	Installed in accordance with the manufacturer's installation instructions and the FBC.
Moisture/Fire Barrier	VersaShield®	Installed in accordance with the manufacturer's installation instructions and the FBC.
Clips	1-1/2" Butterfly Clip Assembly	<p>Butterfly Base 1-1/2" - 22 ga, G-90 galvanized steel, through fastened to deck with two (2) fasteners</p> 
		<p>Butterfly Tab 1-1/2" - 24 ga. G-90 galvanized steel</p> 

Component	Product	Installation Detail
Clips	1-1/2" SnapLock Clip	<p>20 ga., G-90 galvanized steel, through fastened to deck with two (2) fasteners. 2.0-inch length x 2.01-inch width.</p> 
	1-3/4" SnapLock Clip	<p>18 ga., G-90 galvanized steel, through fastened to deck with two (2) fasteners. 3.5-inch length x 2.01-inch width.</p> 
	2" Butterfly Clip Assembly	<p>Butterfly Base 2" - 18 ga, G-90 galvanized steel, through fastened to deck with two (2) fasteners.</p> 

Component	Product	Installation Detail
		Butterfly Tab 2" - 22 ga. G-90 galvanized steel 

APPROVED ROOF SYSTEMS

The following notes shall be observed when using the assembly tables below.

1. Maximum Design Pressures (*MDP*) were calculated using a 2:1 margin of safety per FBC Section 1504.9.
2. Refer to [LIMITATIONS](#) and sections of this evaluation when using the table(s) below.
3. Refer to [INSTALLATION](#) section of this report for installation detail when the information is not explicitly stated for the selected assembly.
4. The on-center (o.c.) spacing given is the maximum allowable attachment spacing for the rated system.
5. Unless otherwise specified, the Steel Deck shall be designed by others in accordance with FBC requirements and shall be minimum 22 ga ($F_y = \text{min.}33$ ksi) Wide Rib Deck (Type WR) conforming to ANSI/SDI-RD1.0 & FBC.
6. Unless otherwise specified, Wood Deck shall be designed by others in accordance with FBC requirements and shall be minimum 15/32-inch thick APA Span-Rated plywood sheathing at maximum 24-inch span.

Roof System Numbers and Definitions	
1.5MS-S#	SMI 1.5" Mechanical Seam over Steel Deck (New or Existing)
1.5MS-W#	SMI 1.5" Mechanical Seam over Wood Deck (New or Existing)
1.5SL-W#	SMI 1.5" SnapLock 550 over Wood Deck (New or Existing)
1.75SL-S#	SMI 1.75" SnapLock over Steel Deck (New or Existing)
1.75SL-W#	SMI 1.75" SnapLock over Wood Deck (New or Existing)
2.0MS-S#	SMI 2.0" Mechanical Seam over Steel Deck (New or Existing)
2.0MS-W#	SMI 2.0" Mechanical Seam over Wood Deck (New or Existing)

Approved Systems for SMI 1.5" Mechanical Seam over Steel Deck (New or Existing)						
System No.	Deck	Insulation	Underlayment	Moisture/Fire Barrier	Panel Attachment	<i>MDP</i> (psf)
1.5MS-S1	Min. 22 ga.	-	ASTM D 226 Type II	OPTIONAL VersaShield®	1-1/2" Butterfly Clip Assembly 18-inches o.c. and attached with two (2) Weather Gard® #12 Self-Drill: Pancake Head 2/2 Quadrex Drive screws. Panel is mechanically seamed 180 degrees.	-91.75
1.5MS-S2	Min. 22 ga.	Min. 1 in. <i>Approved</i> polyisocyanurate insulation board	ASTM D 226 Type II	OPTIONAL VersaShield®	1-1/2" Butterfly Clip Assembly 18-inches o.c. and attached with two (2) Dekfast™ #12 PH screws. Panel is mechanically seamed 180 degrees.	-129.25

Approved Systems for SMI 1.5" Mechanical Seam over Wood Deck (New or Existing)					
System No.	Deck	Underlayment	Moisture/Fire Barrier	Panel Attachment	MDP (psf)
1.5MS-W1	Min. 15/32" CDX Plywood	ASTM D 226 Type II	OPTIONAL VersaShield®	1-1/2" Butterfly Clip Assembly 24-inches o.c. and attached with two (2) Weather Gard® #10 Type A: Pancake Head 2/2 Quadrex Drive screws. Panel is mechanically seamed 180 degrees.	-106.75

SMI 1.5" SnapLock 550 over Wood Deck (New or Existing)					
System No.	Deck	Underlayment	Moisture/Fire Barrier	Panel Attachment	MDP (psf)
1.5SL-W1	Min. 15/32" CDX Plywood	ASTM D 226 Type II	OPTIONAL VersaShield®	1-1/2" SnapLock Clip 24-inches o.c. and attached with two (2) Weather Gard® #10 Type A: Pancake Head 2/2 Quadrex Drive screws.	-129.25

Approved Systems for SMI 1.75" SnapLock over Steel Deck (New or Existing)						
System No.	Deck	Insulation	Underlayment	Moisture/Fire Barrier	Panel Attachment	MDP (psf)
1.75SL-S1	Min. 22 ga.	-	ASTM D 226 Type II	OPTIONAL VersaShield®	1-3/4" SnapLock Clip 24-inches o.c. and attached with two (2) Weather Gard® #12 Self-Drill: Pancake Head 2/2 Quadrex Drive screws.	-76.75
1.75SL-S2	Min. 22 ga.	Min. 1 in. <i>Approved</i> polyisocyanurate insulation board	ASTM D 226 Type II	OPTIONAL VersaShield®	1-3/4" SnapLock Clip 24-inches o.c. and attached with two (2) Dekfast™ #12 PH screws.	-76.75

Approved Systems for SMI 1.75" SnapLock over Wood Deck (New or Existing)					
System No.	Deck	Underlayment	Moisture/Fire Barrier	Panel Attachment	MDP (psf)
1.75SL-W1	Min. 15/32" CDX Plywood	ASTM D 226 Type II	OPTIONAL VersaShield®	1-3/4" SnapLock Clip 24-inches o.c. and attached with two (2) Weather Gard® #10 Type A: Pancake Head 2/2 Quadrex Drive screws.	-114.25

Approved Systems for SMI 2.0" Mechanical Seam over Steel Deck (New or Existing)						
System No.	Deck	Insulation	Underlayment	Moisture/Fire Barrier	Panel Attachment	MDP (psf)
2.0SMS-S1	Min. 22 ga.	-	ASTM D 226 Type II	OPTIONAL VersaShield®	2" Butterfly Clip Assembly 24-inches o.c. and attached with two (2) Weather Gard® #12 Self-Drill: Pancake Head 2/2 Quadrex Drive screws. Panel is mechanically seamed 180 degrees.	-91.75
2.0SMS-S2	Min. 22 ga.	Min. 1 in. <i>Approved</i> polyisocyanurate insulation board	ASTM D 226 Type II	OPTIONAL VersaShield®	2" Butterfly Clip Assembly 24-inches o.c. and attached with two (2) Dekfast™ #12 PH screws. Panel is mechanically seamed 180 degrees.	-91.75

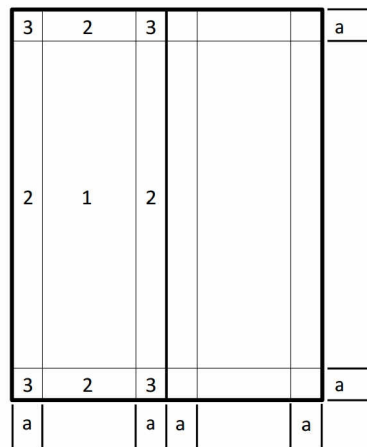
Approved Systems for SMI 2.0" Mechanical Seam over Wood Deck (New or Existing)					
System No.	Deck	Underlayment	Moisture/Fire Barrier	Panel Attachment	MDP (psf)
2.0SMS-W1	Min. 15/32" CDX Plywood	ASTM D 226 Type II	OPTIONAL VersaShield®	2" Butterfly Clip Assembly 24-inches o.c. and attached with two (2) Weather Gard® #10 Type A: Pancake Head 2/2 Quadrex Drive screws. Panel is mechanically seamed 180 degrees.	-84.25

DESIGN WIND LOADS

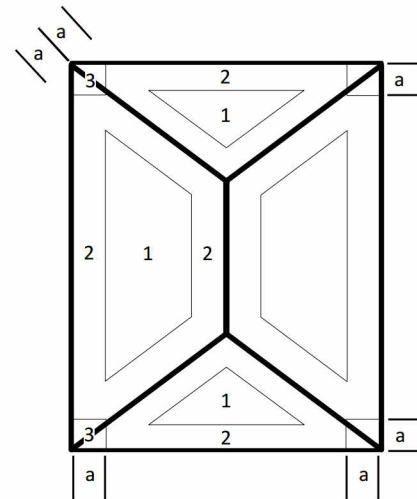
The following tables provide design wind loads for components and cladding in accordance with Section 1609 of the FBC and ASCE 7-10 under the following provisions:

1. For Hip roofs between 2:12 and 5.6:12, Zone 3 shall be treated as Zone 2.
2. Wind speeds for risk category I, II, III, and IV buildings shall be as defined in Section 1609 of the FBC.
3. Exposure B, C, and D shall be as defined in section 1609 of the FBC.
4. Design wind load provided only for gable/hip roofs with roof slopes between 2:12 and 6.1:12
5. All calculations are based on an effective wind area of 10-ft² or less.
6. Topographic factors such as escarpments or hills have been excluded from the analysis
7. Overhangs have been excluded from the analysis.
8. Wind directionality factor, $K_d = 0.85$
9. V_{ult} is shown in the tables below. Design wind loads are calculated using $V_{asd} = V_{ult} \sqrt{0.6}$ per 1609.3.1.
10. Projects with mean roof heights greater than 60-ft shall be evaluated by a licensed design professional
11. Zones 1, 2, and 3 shall be defined as shown below. Dimension "a" shall be 10% of the least horizontal dimension or (0.4 x Mean Roof Height), whichever is smaller, but not less than either 4% of the least horizontal dimension or 3ft

Gable



Hip



Gable/Hip Roofs in Exposure B (Roof slope between 2:12 and 6.1:12)											
Building Type	Zone	Mean Roof Height (ft)	Basic Wind Speed (mph)								
			120	130	140	150	160	170	180	190	200
Enclosed	1	20	-14.2	-16.7	-19.3	-22.2	-25.3	-28.5	-32.0	-35.6	-39.5
		25	-14.2	-16.7	-19.3	-22.2	-25.3	28.5	-32.0	-35.6	-39.5
		30	-14.2	-16.7	-19.3	-22.2	-25.3	-28.5	-32.0	-35.6	-39.5
		40	-15.4	-18.1	-21.0	-24.1	-27.4	-31.0	-34.7	-38.7	-42.9
		50	-16.5	-19.3	-22.4	-25.7	-29.2	-33.0	-37.0	-41.2	-45.7
		60	-17.3	-20.3	-23.5	-27.0	-30.7	-34.6	-38.8	-43.3	-47.9
	2	20	-24.7	-29.0	-33.7	-38.7	-44.0	-49.7	-55.7	-62.0	-68.7
		25	-24.7	-29.0	-33.7	-38.7	-44.0	-49.7	-55.7	-62.0	-68.7
		30	-24.7	-29.0	-33.7	-38.7	-44.0	-49.7	-55.7	-62.0	-68.7
		40	-26.9	-31.5	-36.6	-42.0	-47.8	-53.9	-60.4	-67.3	-74.6
		50	-28.6	-33.6	-39.0	-44.7	-50.9	-57.5	-64.4	-71.8	-79.5
		60	-30.0	-35.3	-40.9	-46.9	-53.4	-60.3	-67.6	-75.3	-83.5
	3	20	-36.6	-42.9	-49.8	-57.2	-65.0	-73.4	-82.3	-91.7	-101.6
		25	-36.6	-42.9	-49.8	-57.2	-65.0	-73.4	-82.3	-91.7	-101.6
		30	-36.6	-42.9	-49.8	-57.2	-65.0	-73.4	-82.3	-91.7	-101.6
		40	-39.7	-46.6	-54.1	-62.1	-70.6	-79.7	-89.4	-99.6	-110.3
		50	-42.3	-49.7	-57.6	-66.2	-75.3	-85.0	-95.3	-106.1	-117.6
		60	-44.4	-52.1	-60.5	-69.4	-79.0	-89.2	-100.0	-111.4	-123.4
Partially Enclosed	1	20	-19.1	-22.4	-26.0	-29.8	-33.9	-38.3	-42.9	-47.8	-53.0
		25	-19.1	-22.4	-26.0	-29.8	-33.9	-38.3	-42.9	-47.8	-53.0
		30	-19.1	-22.4	-26.0	-29.8	-33.9	-38.3	-42.9	-47.8	-53.0
		40	-20.7	-24.3	-28.2	-32.4	-36.8	-41.6	-46.6	-51.9	-57.6
		50	-22.1	-25.9	-30.1	-34.5	-39.3	-44.3	-49.7	-55.4	-61.3
		60	-23.2	-27.2	-31.5	-36.2	-41.2	-46.5	-52.1	-58.1	-64.4
	2	20	-29.6	-34.8	-40.3	-46.3	-52.6	-59.4	-66.6	-74.2	-82.3
		25	-29.6	-34.8	-40.3	-46.3	-52.6	-59.4	-66.6	-74.2	-82.3
		30	-29.6	-34.8	-40.3	-46.3	-52.6	-59.4	-66.6	-74.2	-82.3
		40	-32.2	-37.7	-43.8	-50.2	-57.2	-64.5	-72.3	-80.6	-89.3
		50	-34.3	-40.2	-46.6	-53.5	-60.9	-68.8	-77.1	-85.9	-95.2
		60	-36.0	-42.2	-48.9	-56.2	-63.9	-72.2	-80.9	-90.1	-99.9
	3	20	-41.5	-48.7	-56.4	-64.8	-73.7	-83.2	-93.3	-103.9	-115.2
		25	-41.5	-48.7	-56.4	-64.8	-73.7	-83.2	-93.3	-103.9	-115.2
		30	-41.5	-48.7	-56.4	-64.8	-73.7	-83.2	-93.3	-103.9	-115.2
		40	-45.0	-52.8	-61.3	-70.3	-80.0	-90.3	-101.3	-112.8	-125.0
		50	-48.0	-56.3	-65.3	-75.0	-85.3	-96.3	-107.9	-120.3	-133.3
		60	-50.3	-59.1	-68.5	-78.7	-89.5	-101.0	-113.3	-126.2	-139.8

Gable/Hip Roofs in Exposure C (Roof slope between 2:12 and 6.1:12)											
Building Type	Zone	Mean Roof Height (ft)	Basic Wind Speed (mph)								
			120	130	140	150	160	170	180	190	200
Enclosed	1	20	-18.3	-21.4	-24.9	-28.6	-32.5	-36.7	-41.1	-45.8	-50.8
		25	-19.1	-22.4	-26.0	-29.8	-33.9	-38.3	-42.9	-47.9	-53.0
		30	-19.9	-23.4	-27.1	-31.1	-35.4	-39.9	-44.8	-49.9	-55.3
		40	-21.1	-24.8	-28.7	-33.0	-37.5	-42.4	-47.5	-52.9	-58.7
		50	-22.1	-26.0	-30.1	-34.6	-39.4	-44.4	-49.8	-55.5	-61.5
		60	-22.9	-26.9	-31.2	-35.9	-40.8	-46.1	-51.6	-57.5	-63.7
	2	20	-31.8	-37.3	-43.3	-49.7	-56.6	-63.8	-71.6	-79.8	-88.4
		25	-33.2	-39.0	-45.2	-51.9	-59.1	-66.7	-74.8	-83.3	-92.3
		30	-34.6	-40.7	-47.2	-54.1	-61.6	-69.5	-77.9	-86.8	-96.2
		40	-36.8	-43.1	-50.0	-57.4	-65.4	-73.8	-82.7	-92.2	-102.1
		50	-38.5	-45.2	-52.4	-60.2	-68.5	-77.3	-86.7	-96.6	-107.0
		60	-39.9	-46.9	-54.4	-62.4	-71.0	-80.2	-89.9	-100.1	-111.0
	3	20	-47.0	-55.2	-64.0	-73.5	-83.6	-94.4	-105.8	-117.9	-130.7
		25	-49.1	-57.7	-66.9	-76.8	-87.3	-98.6	-110.5	-123.2	-136.5
		30	-51.2	-60.1	-69.7	-80.0	-91.1	-102.8	-115.3	-128.4	-142.3
		40	-54.4	-63.8	-74.0	-84.9	-96.6	-109.1	-122.3	-136.3	-151.0
		50	-57.0	-66.9	-77.5	-89.0	-101.3	-114.3	-128.2	-142.8	-158.3
		60	-59.1	-69.3	-80.4	-92.3	-105.0	-118.5	-132.9	-148.1	-164.1
Partially Enclosed	1	20	-24.5	-28.8	-33.4	-38.3	-43.6	-49.2	-55.2	-61.5	-68.2
		25	-25.6	-30.1	-34.9	-40.0	-45.6	-51.4	-57.7	-64.2	-71.2
		30	-26.7	-31.4	-36.4	-41.7	-47.5	-53.6	-60.1	-67.0	-74.2
		40	-28.4	-33.3	-38.6	-44.3	-50.4	-56.9	-63.8	-71.1	-78.8
		50	-29.7	-34.9	-40.5	-46.4	-52.8	-59.6	-66.9	-74.5	-82.5
		60	-30.8	-36.2	-41.9	-48.1	-54.8	-61.8	-69.3	-77.2	-85.6
	2	20	-38.1	-44.7	-51.8	-59.5	-67.7	-76.4	-85.7	-95.4	-105.8
		25	-39.8	-46.7	-54.1	-62.1	-70.7	-79.8	-89.5	-99.7	-110.5
		30	-41.5	-48.7	-56.4	-64.8	-73.7	-83.2	-93.3	-103.9	-115.2
		40	-44.0	-51.6	-59.9	-68.7	-78.2	-88.3	-99.0	-110.3	-122.2
		50	-46.1	-54.1	-62.8	-72.0	-82.0	-92.5	-103.8	-115.6	-128.1
		60	-47.8	-56.1	-65.1	-74.7	-85.0	-95.9	-107.6	-119.8	-132.8
	3	20	-53.3	-62.6	-72.6	-83.3	-94.8	-107.0	-119.9	-133.6	-148.1
		25	-55.7	-65.3	-75.8	-87.0	-99.0	-111.7	-125.3	-139.6	-154.6
		30	-58.0	-68.1	-79.0	-90.7	-103.2	-116.5	-130.6	-145.5	-161.2
		40	-61.6	-72.3	-83.8	-96.2	-109.5	-123.6	-138.6	-154.4	-171.1
		50	-64.6	-75.8	-87.9	-100.9	-114.8	-129.6	-145.2	-161.8	-179.3
		60	-66.9	-78.5	-91.1	-104.6	-119.0	-134.3	-150.6	-167.8	-185.9

Gable/Hip Roofs in Exposure D (Roof slope between 2:12 and 6.1:12)											
Building Type	Zone	Mean Roof Height (ft)	Basic Wind Speed (mph)								
			120	130	140	150	160	170	180	190	200
Enclosed	1	20	-21.9	-25.7	-29.9	-34.3	-39.0	-44.0	-49.3	-55.0	-60.9
		25	-22.7	-26.7	-31.0	-35.5	-40.4	-45.6	-51.2	-57.0	-63.2
		30	-23.6	-27.6	-32.1	-36.8	-41.9	-47.3	-53.0	-59.1	-65.4
		40	-24.8	-29.1	-33.7	-38.7	-44.0	-49.7	-55.7	-62.1	-68.8
		50	-25.8	-30.3	-35.1	-40.3	-45.9	-51.8	-58.0	-64.6	-71.6
		60	-26.6	-31.2	-36.2	-41.6	-47.3	-53.4	-59.9	-66.7	-73.9
	2	20	-38.2	-44.8	-52.0	-59.7	-67.9	-76.6	-85.9	-95.7	-106.0
		25	-39.6	-46.5	-53.9	-61.9	-70.4	-79.5	-89.1	-99.2	-110.0
		30	-41.0	-48.1	-55.8	-64.1	-72.9	-82.3	-92.3	-102.8	-113.9
		40	-43.1	-50.6	-58.7	-67.4	-76.7	-86.5	-97.0	-108.1	-119.8
		50	-44.9	-52.7	-61.1	-70.1	-79.8	-90.1	-101.0	-112.5	-124.7
		60	-46.3	-54.3	-63.0	-72.4	-82.3	-92.9	-104.2	-116.1	-128.6
	3	20	-56.5	-66.3	-76.8	-88.2	-100.4	-113.3	-127.0	-141.5	-156.8
		25	-58.5	-68.7	-79.7	-91.5	-104.1	-117.5	-131.7	-146.8	-162.6
		30	-60.6	-71.2	-82.5	-94.7	-107.8	-121.7	-136.4	-152.0	-168.4
		40	-63.8	-74.8	-86.8	-99.6	-113.4	-128.0	-143.5	-159.9	-177.1
		50	-66.4	-77.9	-90.4	-103.7	-118.0	-133.2	-149.4	-166.4	-184.4
		60	-68.5	-80.4	-93.2	-107.0	-121.7	-137.4	-154.1	-171.7	-190.2
Partially Enclosed	1	20	-29.4	-34.6	-40.1	-46.0	-52.3	-59.1	-66.3	-73.8	-81.8
		25	-30.5	-35.8	-41.6	-47.7	-54.3	-61.3	-68.7	-76.5	-84.8
		30	-31.6	-37.1	-43.0	-49.4	-56.2	-63.5	-71.2	-79.3	-87.8
		40	-33.3	-39.0	-45.3	-52.0	-59.1	-66.8	-74.8	-83.4	-92.4
		50	-34.6	-40.6	-47.1	-54.1	-61.6	-69.5	-77.9	-86.8	-96.2
		60	-35.7	-41.9	-48.6	-55.8	-63.5	-71.7	-80.4	-89.5	-99.2
	2	20	-45.7	-53.6	-62.2	-71.4	-81.2	-91.7	-102.8	-114.5	-126.9
		25	-47.4	-55.6	-64.5	-74.0	-84.2	-95.1	-106.6	-118.8	-131.6
		30	-49.1	-57.6	-66.8	-76.7	-87.2	-98.5	-110.4	-123.0	-136.3
		40	-51.6	-60.6	-70.2	-80.6	-91.8	-103.6	-116.1	-129.4	-143.4
		50	-53.7	-63.1	-73.1	-83.9	-95.5	-107.8	-120.9	-134.7	-149.2
		60	-55.4	-65.0	-75.4	-86.6	-98.5	-111.2	-124.7	-138.9	-153.9
	3	20	-64.0	-75.1	-87.1	-99.9	-113.7	-128.4	-143.9	-160.3	-177.7
		25	-66.3	-77.8	-90.3	-103.6	-117.9	-133.1	-149.2	-166.3	-184.3
		30	-68.7	-80.6	-93.5	-107.3	-122.1	-137.9	-154.6	-172.2	-190.8
		40	-72.3	-84.8	-98.3	-112.9	-128.5	-145.0	-162.6	-181.1	-200.7
		50	-75.2	-88.3	-102.4	-117.5	-133.7	-151.0	-169.2	-188.6	-208.9
		60	-77.6	-91.1	-105.6	-121.2	-137.9	-155.7	-174.6	-194.5	-215.5

END OF REPORT