

SUNMODO CORPORATION MIAMI-DADE TEST REPORT

SCOPE OF WORK

TAS 100(A) TESTING ON TOPTILE, ROOF MOUNTS WITH ALUMINUM FLASHING

REPORT NUMBER

P4027.01-109-18

TEST DATE(S)

12/02/22

ISSUE DATE

01/05/23

MIAMI-DADE COUNTY NOTIFICATION NO.

ATI-22054

LABORATORY CERTIFICATION NO.

22-0428.14

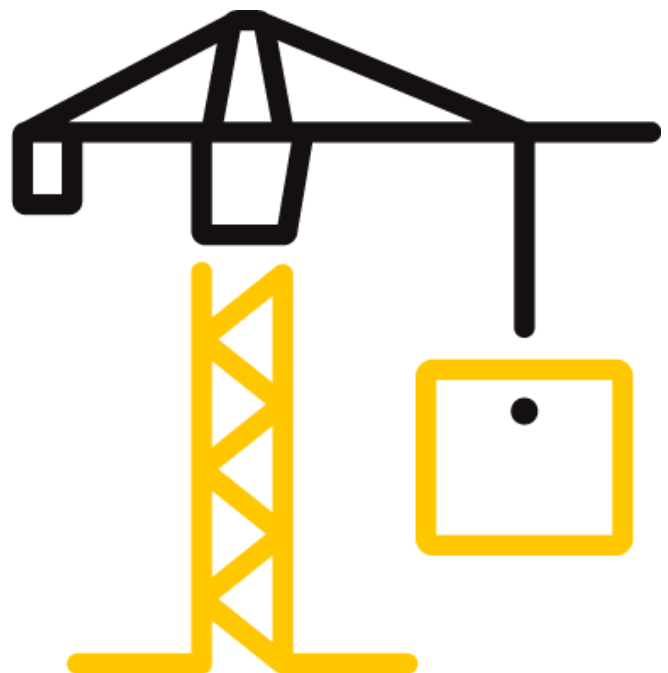
PAGES

26

DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-7808 (07/12/22)

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TEST REPORT FOR SUNMODO CORPORATION

Report No.: P4027.01-109-18

Date: 01/05/23

REPORT ISSUED TO

SUNMODO CORPORATION

14800 NE 65th Street
Vancouver, Washington 98682

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by SunModo Corporation to perform TAS 100(A) testing in accordance with Miami-Dade County requirements on TopTile, roof mounts with aluminum flashing. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends ten years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

SECTION 2

SUMMARY OF TEST RESULTS

The specimen(s) tested met the performance requirements set forth in the protocols.

For INTERTEK B&C:

COMPLETED BY:	Ken R. Stough	REVIEWED BY:	Tanya A. Dolby, P.E.
TITLE:	Project Manager – Product Testing	TITLE:	Engineering Manager – Engineering Services
SIGNATURE:		SIGNATURE:	
DATE:	01/05/23	DATE:	01/05/23

KRS:nls

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TEST REPORT FOR SUNMODO CORPORATION

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SECTION 3**TEST METHOD(S)**

The specimen was evaluated in accordance with the following:

TAS 100 (A)-95, *Test Procedure for Wind and Wind Driven Rain Resistance and/or Increased Windspeed Resistance of Soffit Ventilation Strip and Continuous or Intermittent Ventilation System Installed at the Ridge Area*

SECTION 4**MATERIAL SOURCE**

Test sample materials were provided by the client from SunModo Corporation located in Vancouver, Washington. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of ten years from the test completion date.

SECTION 5**EQUIPMENT/CALIBRATION**

Vane Axial Fan – Y003346

Stopwatch – INT00923

Windstream, water supply, and water distribution calibration were performed prior to testing. Reference Intertek B&C Calibration Report No. P2287.02-109-18, dated 12/12/22, for descriptions and results.

SECTION 6**LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Roland Jasmin	SunModo Corporation
Daniel J. Mozeliak	Intertek B&C
Tanya A. Dolby, P.E.	Intertek B&C
Ken R. Stough	Intertek B&C

TEST REPORT FOR SUNMODO CORPORATION

Report No.: P4027.01-109-18

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SECTION 7

TEST SPECIMEN DESCRIPTION

Manufacturer: SunModo Corporation

Product Type: Roof Mounts with Aluminum Flashing

Series/Model: TopTile

Product Size(s):

OVERALL AREA:	WIDTH		LENGTH	
0.1 m ² (0.8 ft ²)	millimeters	inches	millimeters	inches
Flashing size	229	9	318	12-1/2

Roof Deck Description: An 8' 0" wide by 6' 0" long roof deck on a 2:12 slope was utilized. The roof deck consisted of #2 Spruce-Pine-Fir nominal 2x6 intermediate supports sheathed with APA 32/16 span rated 15/32" CDX 5-ply plywood sheathing. The intermediate supports were spaced 24" on center. The plywood was secured to the rafters with 8d common nails spaced 6" on center around the perimeter and 12" on center at the intermediate supports.

Underlayment and Prepared Roof Covering Description: The underlayment consisted of a single layer of an ASTM D226 Type II, 30# felt paper with a 19-inch (483 mm) headlap; all endlaps were 4 inches (102 mm). The underlayment was attached to the deck in a grid pattern of 12 inches (305 mm) between the overlaps, with 6-inch (152 mm) spacing at the overlaps. All fasteners securing the underlayment were T50 crown staples. Standard mission / barrel shaped terracotta tile measuring 8" wide by 16" long were installed over the felt paper in a laid tight method with a 13" reveal. The pan tiles were nailed directly to the deck with two 1-3/4" roofing nails per tile. The cap tiles were nailed to #2 Spruce-Pine-Fir nominal 2x4 vertical stringers with two 2" roofing nails per tile. The stringers were attached to the deck with #12 x 4-1/2" screws spaced 12" on center. Stringers were left out of the section of roof where the stanchion penetrated the tile. The eave of the tile roof was sealed with expanding spray foam to seal for testing.

TopTile Mount Description/Installation: The test specimens consisted of an aluminum flashing and an aluminum stanchion. The aluminum flashing consisted of 0.030" thick aluminum flashing with an EPDM boot. The boot utilized a 13/16" diameter hole for the stanchion. The stanchion was constructed from 1-1/4" wide by 7" long hexagonal shaped aluminum. The stanchion was secured directly on top of the felt paper and to the roof deck with an integral 1/4" x 2-1/8" lag screw. The stanchion was additionally secured to the roof deck with three #14 x 7" wood screws through the pre-drilled holes in the stanchion. The test sample was installed by Intertek B&C per the recommended manufacturer's installation instructions. Two replicates were installed to the roof deck.

Conditioning: The test deck was allowed to condition for 18 hours prior to testing.

TEST REPORT FOR SUNMODO CORPORATION

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SECTION 8

TEST RESULTS

Protocol TAS 100(A)-95, Test Procedure for Wind and Wind Driven Rain Resistance and/or Increased Windspeed Resistance of Soffit Ventilation Strip and Continuous or Intermittent Ventilation System Installed at the Ridge Area.

Test Date(s): 12/02/22

The temperature during testing was -1°C (30°F). The results are tabulated as follows:

Test Procedure: The wind speed intervals were conducted as follows:

Interval No.	Wind Speed (mph)	Time (min)	Water Spray
1	35	15	On
2	0	5	Off
3	70	15	On
4	0	5	Off
5	90	15	On
6	0	5	Off
7	110	5	On
8	0	5	Off

Test Results: The TAS 100(A) test results are as follows:

Wind Speed	Results
35 mph	0.00 oz.
70 mph	0.00 oz.
90 mph	0.00 oz.
110 mph	0.00 oz.

Allowable: 14.70 oz.

Result(s): Pass

Note 1: Tested at a 2:12 roof pitch.

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SECTION 9

PHOTOGRAPHS



Photo No. 1
Topside before Testing

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Date: 01/05/23



Photo No. 2
Underside before Testing

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Date: 01/05/23



Photo No. 3
35 MPH Topside



Photo No. 4
35 MPH Underside

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Report No.: P4027.01-109-18

Date: 01/05/23



Photo No. 5
70 MPH Topside



Photo No. 6
70 MPH Underside

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Photo No. 7
90 MPH Topside



Photo No. 8
90 MPH Underside

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Photo No. 9
110 MPH Topside



Photo No. 10
110 MPH Underside

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Date: 01/05/23



Photo No. 11
Post Test Topside



Photo No. 12
Post Test Underside



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130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

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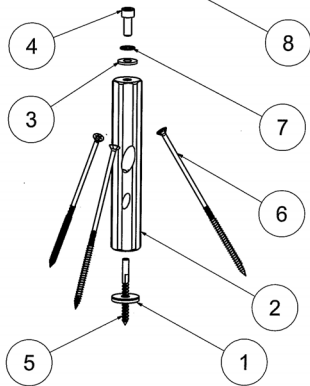
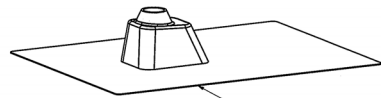
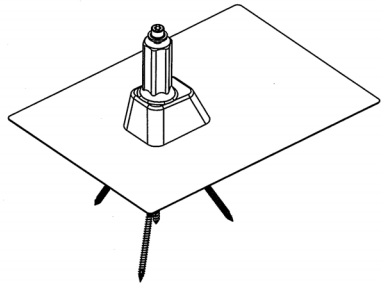
Report No.: P4027.01-109-18

Date: 01/05/23

SECTION 10

DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.



DETAIL, TOPTILE DECK MOUNT
K10461-XXX

PE STAMP:



PE SIGNATURE:

PE DATE:

05/13/2022

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Report #: P4027.01-109-18

Date: 12/14/2022

Verified by: *Ken L. Stoyl*

PRODUCT APPROVED
as complying with the Florida
Building Code
NOA-No. **21-1025.03**

Approval Date **05/26/2022**

By *[Signature]*
Miami-Dade Product Control

SunModo Corp.

14800 NE 65TH STREET, VANCOUVER WA 98682

Phone: (360) 844-0048
info@sunmodo.com

TITLE

TOPTILE DECK MOUNT

UNITS:

IN, LB, DEG

DATE:

05/13/2022

SHEET SIZE:

D

DRAWING NUMBER

D10253

SCALE:

NTS

SHEET:

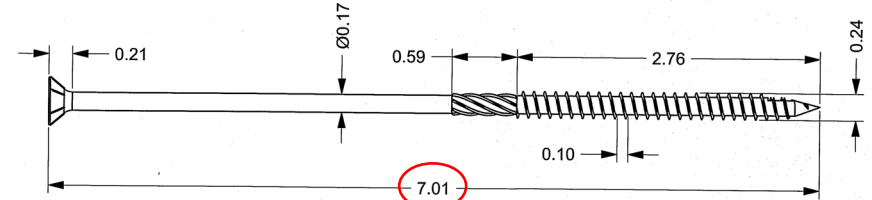
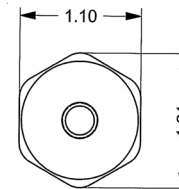
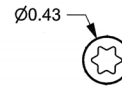
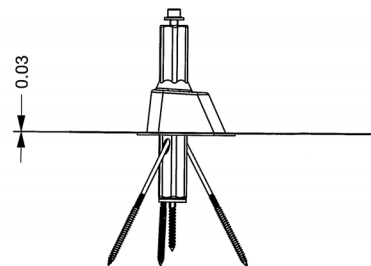
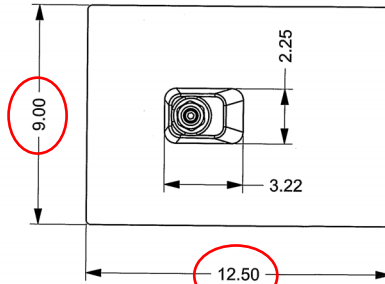
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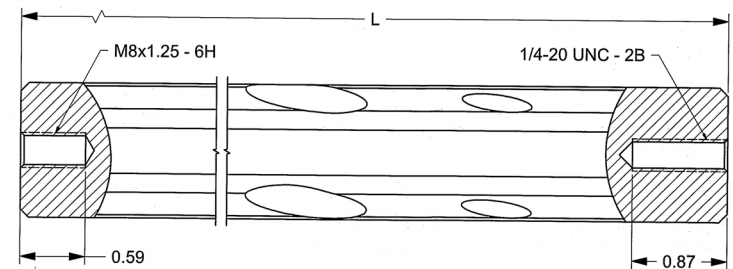
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REV

A



DETAIL, WOOD SCREW
B15058-007



DETAIL, STANCHION
A20452-XXX

K10461-XXX PARTS LIST				
ITEM	PART NUMBER	DESCRIPTION	MATERIAL	QTY
1	A20451-001	WASHER	ALUMINUM 6010 + SILICONE	1
2	A20452-XXX	HEX STANCHION, XXX" TOPTILE DECK	ALUMINUM 6005-T5	1
3	B10036-002	M8 FENDER WASHER	STAINLESS STEEL	1
4	B10054-003	SOCKET HEAD SCREW M8X20mm	STAINLESS STEEL	1
5	B15054-001	HANGER BOLT 1/4X2.0	STAINLESS STEEL	1
6	B15058-007	#14 x 7" GOLD STAR GENERAL PURPOSE WOOD SCREWS	STAINLESS STEEL	3
7	B50040-001	M8 INTERNAL-TOOTH LOCK WASHER	STAINLESS STEEL	1
8	C10026-002	AL FLASHING WITH EPDM SEALANT COVER	ALUMINUM 6010 + EPDM	1

TOPTILE DECK SPECIFICATION:

(4) 1/4" X 7" SCREW S.S. WOOD SCREW, EMBED FULLY INTO DECK

MINIMUM DECK = 15/32"

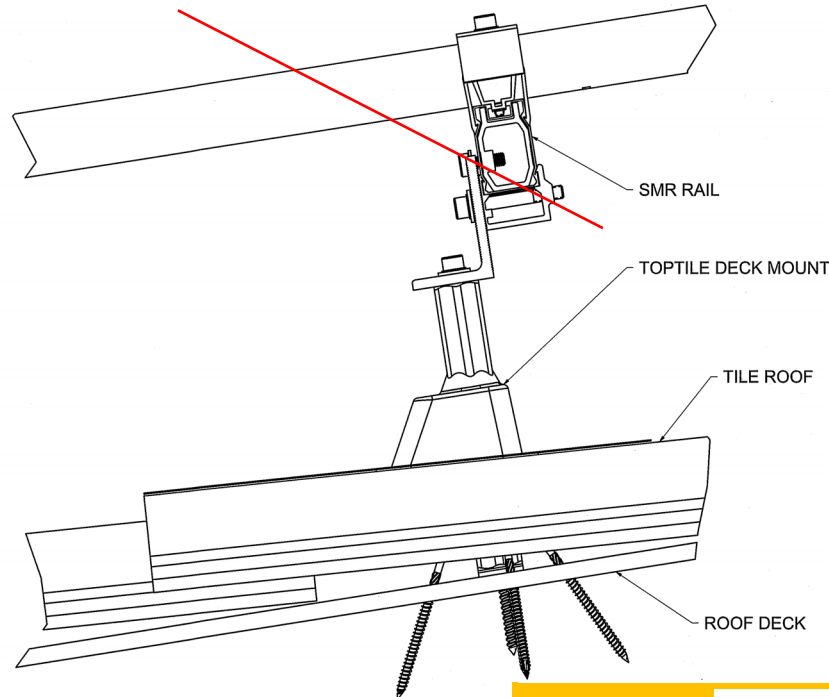
TOTAL ALLOWABLE FASTENER UPLIFT = 316 lbs (FOS=3, 4 FASTENERS)

TOTAL ALLOWABLE FASTENER LATERAL = 29 lbs (FOS=3)

MINIMUM FASTENER EDGE DISTANCE = 0.375"

MINIMUM FASTENER END DISTANCE = 1.750"

LIMITATION: ROOF ATTACHMENT SPACING SHALL NOT RESULT IN REACTION LOADS THAT EXCEED THE CAPACITY OF THE ROOF OR THE ATTACHMENT PRODUCTS AS LISTED IN THIS DRAWING AND RELATED DOCUMENTS. ROOF DECK ATTACHMENTS TO SUPPORTS MUST BE VERIFIED BY THE ENGINEER OF RECORD AT THE TIME OF CONSTRUCTION PERMIT.



PE STAMP:



PE SIGNATURE:

PE DATE:

05/13/2022

SunModo Corp.

14800 NE 65TH STREET, VANCOUVER WA 98682

Phone: (360) 844-0048

info@sunmodo.com

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Report #: P4027.01-109-18

Date: 12/14/2022

Verified by: *Ken L. Stuyt*

PRODUCT APPROVED
as complying with the Florida
Building Code
NOA-No. **21-1025.03**

Approval Date **05/26/2022**

By *[Signature]*
Miami-Dade Product Control

TITLE

TOPTILE DECK MOUNT ATTACHMENT DETAIL

DRAWING NUMBER

D10253

REV

A

UNITS:

IN, LB, DEG

DATE:

05/13/2022

SHEET SIZE:

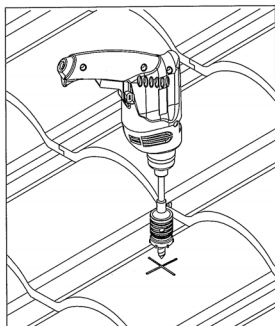
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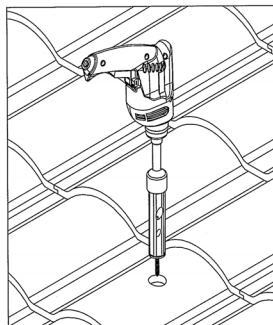
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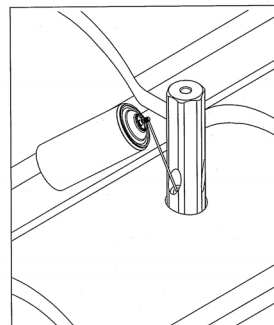
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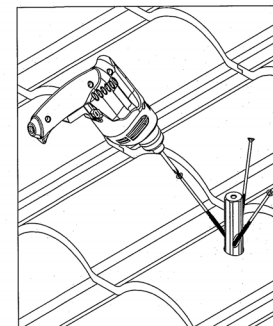
STEP 1:
LOCATE AND MARK THE DESIRED LOCATION OF THE TOPTILE MOUNT. USING A HAND DRILL GUIDE AND A 1-1/2" TILE HOLE SAW, DRILL A HOLE INTO THE TILE. REMOVE TILE DUST FROM AROUND THE HOLE IN THE TILE AND UNDERLAYMENT.



STEP 2:
USE A 28mm (1-1/8") SOCKET TO INSTALL THE TOPTILE STANCHION. TORQUE UNTIL THE TOPTILE STANCHION IS FULLY SEATED.



STEP 3:
INSERT THE STRAW NOZZLE INTO THE 3 HOLES ON THE SIDES OF THE STANCHION AND SPRAY GREAT STUFF FIREBLOCK ONTO THE UNDERLAYMENT. SPRAY AROUND THE STANCHION AND THE HOLE IN THE TILE. AN ALTERNATIVE FLORIDA APPROVED ROOF SEALANT CAN BE USED IN PLACE OF THE GREAT STUFF FOAM.



STEP 4:
INSTALL THE 3 WOOD SCREWS INTO THE STANCHION. DUE TO THE SIDE DRIVING FORCE OF INSTALLING THE SCREWS INTO THE SIDES OF THE STANCHION, CARE SHOULD BE TAKEN TO KEEP THE STANCHION PLUMB.

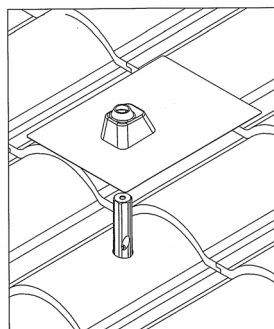


Report #: P4027.01-109-18
Date: 12/14/2022
Verified by: *Ken L. Stuyk*

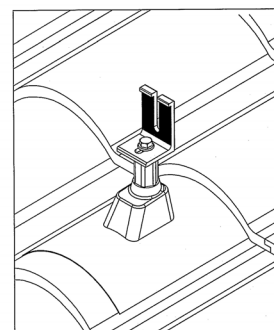
PRODUCT APPROVED
as complying with the Florida
Building Code
NOA-No. **21-1025.03**

Approval Date **05/26/2022**

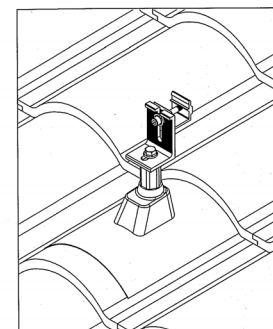
By *[Signature]*
Miami-Dade Product Control



STEP 5:
FOR CURVED TILED ROOFS HAND FORM THE FLASHING TO MATCH THE TILE CONTOUR. INSTALL FLASHING OVER STANCHION AND UNDER THE EDGE OF THE TILE LOCATED ABOVE.



STEP 6:
INSTALL THE L-FOOT WITH ITS M8 BOLT ONTO THE TOP OF THE STANCHION; USE A 6mm HEX DRIVER AND TORQUE TO 10 FT-LBS.



STEP 7:
USE THE L-FOOT ADAPTOR TO ATTACH THE RAIL TO THE TOPTILE MOUNT AND TORQUE TO 10 FT-LBS.

PE STAMP:



PE SIGNATURE: *[Signature]*

PE DATE:
05/13/2022

SunModo Corp.

14800 NE 65TH STREET, VANCOUVER WA 98682

Phone: (360) 844-0048
info@sunmodo.com

TITLE

TOPTILE DECK MOUNT INSTALLATION

DRAWING NUMBER

D10253

REV

A

UNITS:

IN, LB, DEG

DATE:

05/13/2022

SHEET SIZE:

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SCALE:

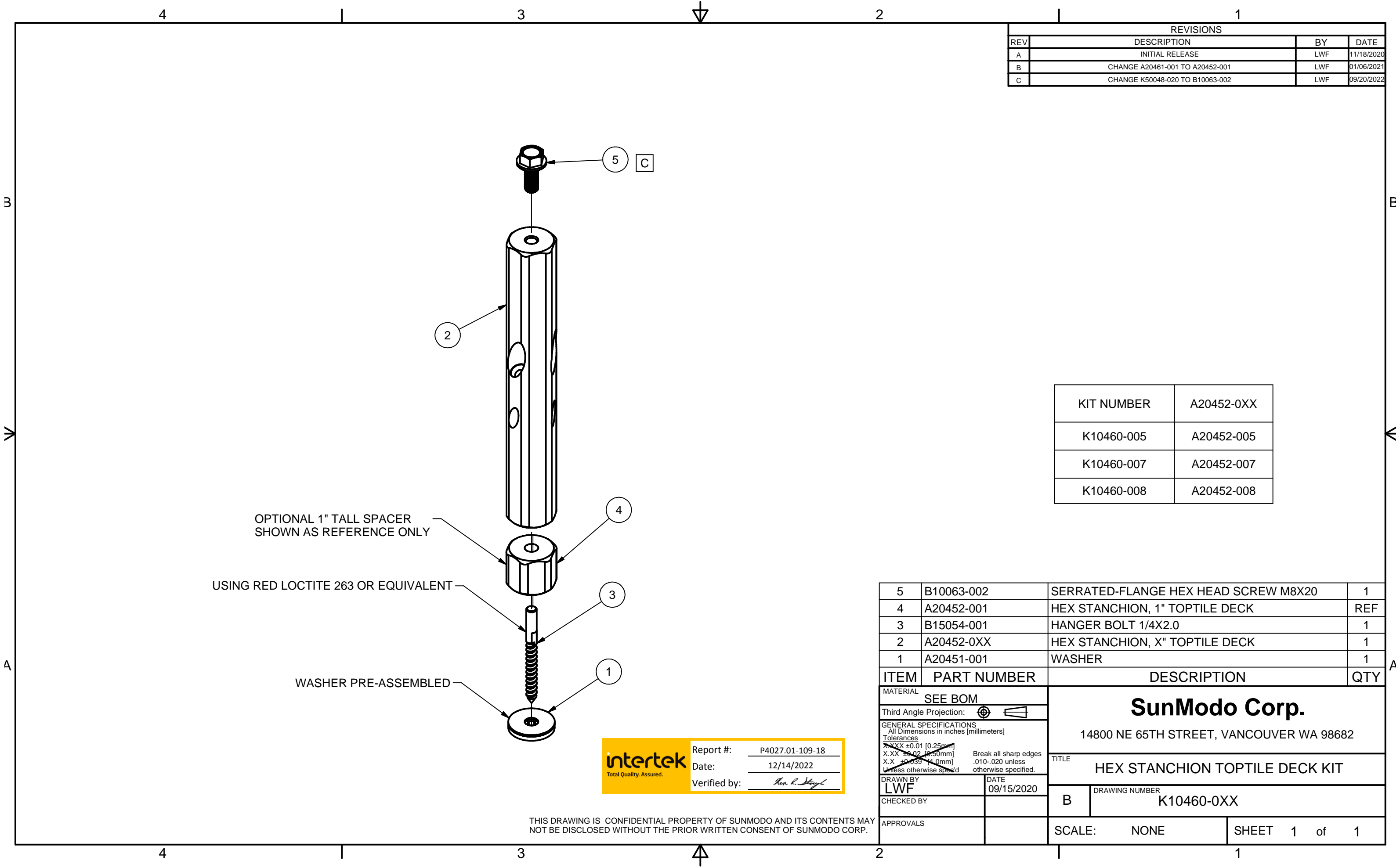
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SHEET:

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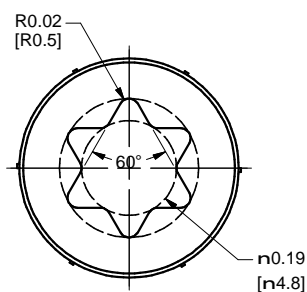
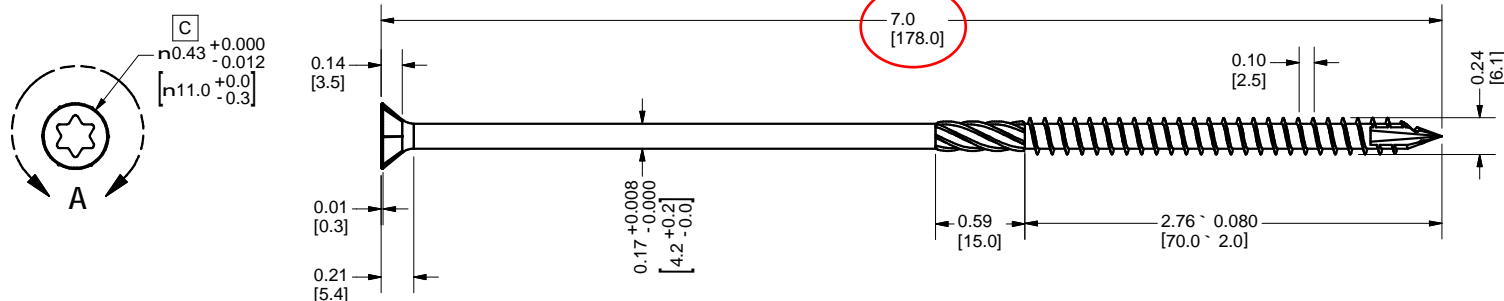
NOTES: UNLESS OTHERWISE SPECIFIED

1. DIMENSIONS SHOWN ARE INCHES [MILIMETERS].

B 2. MATERIAL: CARBON STEEL, COLOR ZINC-PLATED BOLT.

3. THE UNSPECIFIED RADII ARE .02".

REVISIONS			
REV	DESCRIPTION	BY	DATE
A	INITIAL RELEASE	LWF	03/08/2017
B	CHANGE MATERIAL DESCRIPTION	LWF	02/26/2020
C	ADD TOLERANCE	LWF	06/17/2021




DETAIL A

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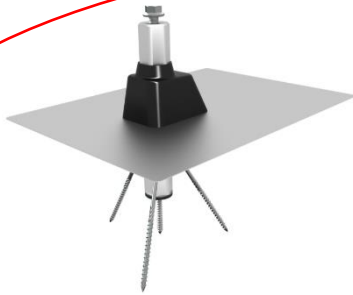
Report #: P4027.01-109-18

Date: 12/14/2022

Verified by: *Ren. L. Stuyt*

MATERIAL		<div>SunModo Corp.</div> <div>14800 NE 65TH STREET, VANCOUVER WA 98682</div>	
SEE NOTES			
Third Angle Projection: 		<div>TITLE</div> <div>#14 x 7" GOLD STAR GENERAL PURPOSE WOOD SCREWS</div> <div>B</div> <div>DRAWING NUMBER</div> <div>B15058-007</div>	
GENERAL SPECIFICATIONS			
All Dimensions in inches [millimeters]			
Tolerances			
X.XXX ±0.01 [0.25mm]			
X.XX ±0.02 [0.50mm]		Break all sharp edges .010-.020 unless otherwise specified.	
X.X ±0.039 [1.0mm]			
Unless otherwise spec'd			
DRAWN BY		DATE	
PHQ			
CHECKED BY		03/08/2017	
APPROVALS		SCALE: NONE	
		SHEET 1 of 1	

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TopTile Mount

K10461-005
TopTile Mount
Tile - 5"

K10461-107
TopTile Mount
Tile - 7"

A20452-001
1" Tall Spacer



TopTile Mount with
butyl tape

K10511-105
Tile - 5"

K10511-107
Tile - 7"

A20452-001
1" Tall Spacer



TopTile Mount without
butyl tape

K10511-Sample
Tile - 5"

A20452-001
1" Tall Spacer

Tools Required for Installation

Impact Driver



Caulk gun and silicon sealant

- ChemLink M1 (or equivalent) for wood and composite roofs
- ChemLink DuraLink (or equivalent) for metal roofs



Male hex drive impact socket adapter



13mm (1/2") 6-point Socket



TopTile Installation only:
28mm (1-1/8") 6-point Socket




TopTile Installation only:
SHDIATool Diamond Core Drill Bits 2 Inch for Hard
Stone Concrete Marble Granite Brick Laser Welded
Dry or Wet Hole Saws 50mm



TopTile Installation only:
SHDIATool Core Drill Bit Adapter 5/8"-11 Thread Male
to SDS Plus Shank



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	Date:	12/14/2022
	Verified by:	<i>Rev. L. Hays</i>

TopTile Installation only:
T25 Torx/Star Bit



TopTile Installation only:
Dow Great Stuff FireBlock Polyurethane Spray Foam
(or equivalent)



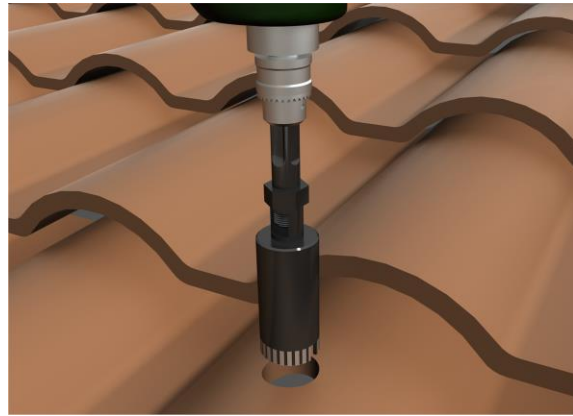
Report #:	P4027.01-109-18
Date:	12/14/2022
Verified by:	<i>Ken L. Stoyl</i>

TopTile Installation Instructions:

Tile Hole

Locate the desired location of the TopTile Mount. Using a 1-1/2" tile hole saw, drill a hole into the tile.

Remove the tile dust from around the hole and the tile dust on the underlayment.



Underlayment Foam Application

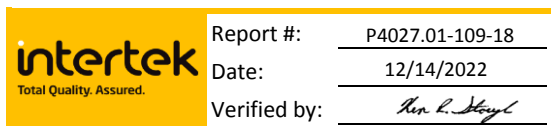
After clearing away the tile dust on the underlayment, spray a 4" to 6" circular bead of foam sealant spray onto the underlayment.

We recommend Great Stuff FireBlock, but any spray foam approved in your jurisdiction is acceptable.



Stanchion Installation

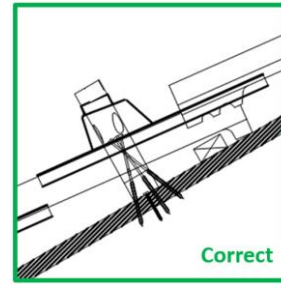
Install the Stanchion using a 38mm Socket.



TopTile “Correct” Installation

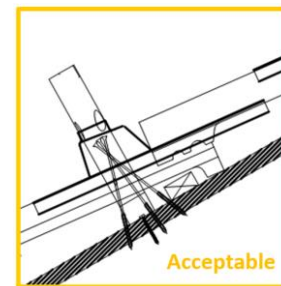
The 3 wood screw stanchion holes are above the tile and below the collar of the EPDM cover on the Flashing.

Note: Repositioning the stanchion higher or lower along the tile will increase or decrease the position of the 3 wood screw stanchion holes.



TopTile “Acceptable” Installation

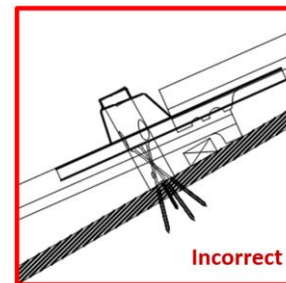
The 3 wood screw stanchion holes are above the tile, and also above the collar of the EPDM cover on the Flashing. Addition Great Stuff FireBlock spray foam can be used to prevent water infiltration.



TopTile “Incorrect” Installation


The 3 wood screw stanchion holes are below the tile profile. In this position the wood screws cannot be installed.

In this situation we recommend adding a 1” Spacer to the stanchion.



1” Spacer Assembly

If required add a 1” Spacer to the bottom of the stanchion. Remove the EPDM Washer, install the 1” Spacer, and replace the EPDM Washer with the rubber gasket facing down.

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	Verified by:	<i>Ken R. Stoyl</i>



Pilot Hole

Install the 3 wood screws into the stanchion using a T25 Torx/Star Bit.

Due to the side driving force of installing the screws into the sides of the stanchion, care should be taken to keep the stanchion plum.



Stanchion Installation

Spray a circular bead of foam sealant around the hole and the Stanchion to create a watertight seal.



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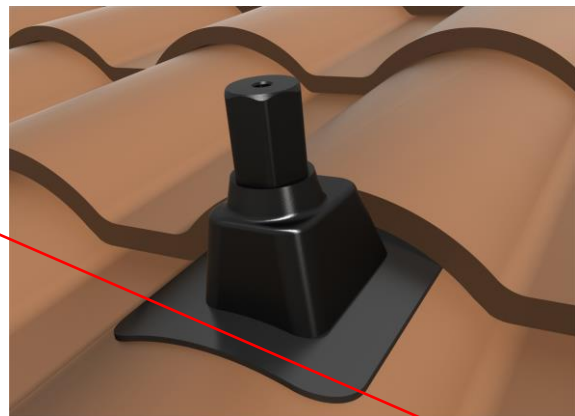
Flashing Installation

For curved tiled roofs hand form the flashing to match the tile contour. Install flashing over Stanchion and under the edge of the tile located above.



~~Flashing Installation~~

Remove the protective linear covering the butyl tape.
Install Flashing over Stanchion and onto the tile.



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TEST REPORT FOR SUNMODO CORPORATION

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SECTION 11

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/05/23	N/A	Original Report Issue