OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

Colette McCleary <colette@owensroofinginc.com>

Spring Hill

David Krekelberg <dkrekelberg@dk-eng.com> Fri, Oct 9, 2026 at 4:58 PM
To: Anthony Muller <anthony@owensroofinginc.com>
Cc: Brady Knowles <Brady@owensroofinginc.com>, Katherine Muller <katherine@owensroofinginc.com>, Eban Starino <eban@owensroofinginc.com>, Colette McCleary <colette@owensroofinginc.com>

I got out there Wednesday afternoon to do a walkthrough. Everything looked fine from my perspective, I will write up my report and get the closeouts and final pay app to the church next week.

Get Outlook for iOS

From: Anthony Muller <anthony@owensroofinginc.com>
Sent: Friday, 09 October 2026 14:51:14
To: David Krekelberg <dkrekelberg@dk-eng.com>
Cc: Brady Knowles <Brady@owensroofinginc.com>; Katherine Muller <katherine@owensroofinginc.com>; Eban Starino <eban@owensroofinginc.com>; Colette McCleary <colette@owensroofinginc.com>
Subject: Re: Spring Hill

[Quoted text hidden]

AIA® Document G706A™ – 1994

Contractor's Affidavit of Release of Liens

PROJECT:
Spring Hill United Methodist Church - Chapel Roof Replacement

ARCHITECT'S PROJECT NUMBER:

OWNER: X
ARCHITECT: X
CONTRACTOR:
SURETY:
OTHER:

TO OWNER:
Mr. Rob Stone Chair of Trustees
Spring Hill United Methodist Church
1960 Spring Hill Church Road
Lillington, NC 27546

CONTRACT FOR: Roofing
CONTRACT DATED: 9.1.2025

STATE OF: North Carolina
COUNTY OF: Johnston

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS: None

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: Owens Roofing Inc
1200 Short Journey Road
Smithfield, NC 27577

BY: _____
(Signature of authorized representative)
Brady Knowles, Vice President
(Printed name and title)

Subscribed and sworn to before me on this date: 9.10.2026

Katherine Muller
NOTARY PUBLIC
Moore County
North Carolina
My Commission Expires May 23rd, 2028

Notary Public: _____
My Commission Expires: 5.23.2028

AIA Document G706A™ – 1994. Copyright © 1982 and 1994 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 16:58:35 on 03/26/2015 under Order No.5480119759_1 which expires on 01/09/2016, and is not for resale.
User Notes: (1733912932)

AIA® Document G706™ – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT:
Spring Hill United Methodist Church - Chapel Roof Replacement

ARCHITECT'S PROJECT NUMBER:

FOR: Roofing

CONTRACT DATE: 9.1.2025

OWNER: ☒
ARCHITECT: ☒
CONTRACTOR: ☐
SURETY: ☐
OTHER: ☐

TO OWNER: Mr. Rob Stone Chair of Trustees
Spring Hill United Methodist Church
1960 Spring Hill Church Road
Lillington, NC 27546

STATE OF: North Carolina
COUNTY OF: Johnston

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS: None

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment ☐ Yes ☑ No

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

CONTRACTOR: Owens Roofing Inc
1200 Short Journey Rd.
Smithfield, NC 27577

BY: _____
(Signature of authorized representative)

Brady Knowles, Vice President
(Printed name and title)

Subscribed and sworn to before me on this date: 9.10.2026

Notary Public: _____
My Commission Expires: 5.23.2028

Katherine Muller
NOTARY PUBLIC
Moore County
North Carolina
My Commission Expires May 23rd, 2028

AIA Document G706™ – 1994. Copyright © 1970 and 1994 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 16:57:29 on 03/26/2015 under Order No.5480119759_1 which expires on 01/09/2016, and is not for resale.
User Notes: (1667782739)

SECTION 006536

CONTRACTOR'S WARRANTY

PART 1 GENERAL

1.1 WARRANTY

A. We, OWENS ROOFING, INC., the contractor for the roofing system, flashings, and sheet metal installed on the Spring Hill United Methodist Church Chapel Roof Replacement under contract with Spring Hill United Methodist Church, warrant that all labor, materials, and work performed comply with the Contract Documents and authorized modifications. We further warrant that the roof will remain watertight and free from defects due to faulty materials or workmanship for a period of two years from the date of substantial completion: 10th, July, 2026. The following exclusions apply to this Warranty:

1. Defects or failures resulting from abuse by the Owner.
2. Damages caused by fire, tornado, hail, hurricane, acts of God, wars, vandalism, riots or civil commotion.
3. Defects in design involving failure of structural frame, load bearing walls, and/or foundations.

We agree to perform emergency leak repairs within 24 hours and complete permanent repairs promptly, restoring the work to a watertight condition using methods compatible with the system, industry standards, and the Manufacturer's requirements—at no cost to the Owner. For the period specified above, we will also repair any defects in the work at no cost, using methods acceptable to the Engineer, industry standards, and the Manufacturer.

B. We agree to attend one post construction field inspection no earlier than one month prior to and no later than 1 week prior to the Contractor's Warranty expiration date to complete corrective actions requested by Owner, Engineer, or Manufacturer at no additional cost to the Owner.

1.2 EXECUTED BY

A. Contractor: OWENS ROOFING, INC.

B. Authorized Signing Officer Name: BRADY KNOWLES

C. Authorized Signing Office Title: VICE PRESIDENT

D. Signature: _____ Date: 07/10/2026

1.3 NOTARIZED BY:

A. I, Marcie Godfrey (print name), a Notary Public for Johnston County of North Carolina (State), do hereby certify that Brady Knowles (officer listed above) personally appeared before me this day and acknowledged the due execution of the foregoing instrument. Withness my hand and official seal, this 10th day of July, 2026. My commission expires 29th of June, 2031.

B. Signed: _____

Marcie Godfrey
NOTARY PUBLIC
Johnston County, NC
My Commission Expires June 29, 2031

END OF SECTION

METAL ROOFING
SYSTEMS

August 17, 2026

Re: Warranty Rider, Spring Hill UMC

To whom it may concern:

Metal Roofing Systems supplied our System 2500 panel system on the above-mentioned project. Due to aesthetic issues present from the mechanical seaming process, MRS approved the use of a batten cap cover over the seams to improve product aesthetics. The batten cap, as installed, will have no negative impact on the MRS Finish warranty and will be included in the MRS 20-year weather-tightness warranty provided. Disengagement or movement of the batten cap will be covered under the MRS weather-tightness warranty. All submitted warranties will be supplied without exception on this project.

Sincerely,

Ryan Sigmon
Technical Representative/Divisional Vice President
Metal Roofing Systems
704-820-3110
rsigmon@metalroofingsystems.com

METAL ROOFING
Systems, Inc

SINGLE SOURCE
TWENTY-YEAR NDL WEATHERTIGHTNESS WARRANTY
SERIES _____ ROOFING SYSTEM

(No Dollar Limit)

MANUFACTURER: **Metal Roofing Systems**

Address: 7687 Mikron Drive
Stanley, NC 28164

Telephone: (704) 820-3110

INSTALLATION CONTRACTOR: Owens Roofing, Inc.

Address: 1200 Short Journey Rd, Smithfield NC 27577

Telephone: 919-821-0082

OWNER: SPRING HILL UNITED METHODIST CHURCH

Building Location: 1960 Spring Hill Church Rd #1960, Lillington NC 27546

ARCHITECT: DAVID KREKELBERG, PE

Address: 644 Holly Springs Road, Suite 136, Holly Springs NC 27540

Telephone: 828-507-1644

GENERAL CONTRACTOR: Owens Roofing, Inc.

Address: 1200 Short Journey Rd, Smithfield NC 27577

PROJECT NAME: SPRING HILL UNITED METHODIST CHURCH – CHAPEL ROOF REPLACEMENT

Address: 1960 Spring Hill Church Rd #1960, Lillington NC 27546

Type of Product Approved and Applied Series MRS 2500 Panel Roofing

Completion Date: 7-10-2026

WARRANTY PROVISIONS FOR MATERIALS AND WORKMANSHIP

Metal Roofing Systems, Inc., hereby warrants to the Owner listed above that for a period of twenty(20) years from the date of substantial completion of the Series 2500 Roofing System (the "Roofing System"), applied to the above described Building, should leaks develop in the Roofing System due solely to manufacturing defects, ordinary wear and tear by the elements or workmanship on the part of the Installation Contractor, then subject to each and every term, condition and limitation contained herein, shall be responsible for completing such repairs to the Roofing System as are necessary to return it to watertight condition. Metal Roofing Systems will correct water leaks caused by defective workmanship.

EXCLUSIONS

This No Dollar Limit Warranty shall apply only to Roofing Systems installed in areas of normal atmospheric exposure and specifically does not cover leaks caused, in whole or in part, by any one of the following:

1. Marine (salt water) atmosphere or regular spray of either salt or fresh water.

2. Heavy fallout or exposure to corrosive chemicals, ash or fumes from any chemical plant, foundry, plating works, kiln, fertilizer manufacturing plant, paper plant or the like.

3. Any corrosive substance or condensate of any harmful substance contained, generated or released from inside the building; or condensation from the underside of the roof.

4. Worker traffic on the roof, other than traffic during the course of installation.

5. Hail, fire, lightning, wind damage, from wind pressures higher than the building was designed to accommodate, hurricane, tornado, earthquake, or any acts of God.

6. Alterations, such as, but not limited to, structures, fixtures, or utilities being placed upon or attached to the roof without prior written authorization from Metal Roofing Systems or repairs performed or materials finished by entities other than Metal Roofing Systems or the Installation Contractor.

7. Failure by the Owner or any lessee or other occupant or user of the Building to take reasonable care in maintaining the roof, such as cleaning the gutters, valleys, etc. so as to allow water to run of uninterruptedly.

8. Faulty building design or construction.

9. Birds, vermin, rodents, insects, or other animal or pests.

10. Settlement, failure or cracking of the roof deck, walls, or foundation of the building, or defects or failures of coping gravelstop due to cracking of walls or any part of the building structure.

11. Metal Roofing Systems shall have no liability or responsibility under or in connection with this Warranty if the Installation Contractor failed to use all roof curbs, mof jacks, sealants, mastics subframing, roof panels, clips, and flashings provided by Metal Roofing Systems or approved by Metal Roofing Systems , nor shall Metal Roofing Systems have any liability or responsibility in connection with this Warranty if the Installation Contractor failed to follow Metal Roofing Systems standard recommended installation instructions for the layout, design and erection of the Roofing System, or if the Roofing System is constructed in such a manner as not to permit drainage of water from all surfaces and permit standing or ponding water.

12. Any other cause beyond the control of Metal Roofing Systems.

THE WARRANTY CONTAINED HEREIN EXCLUDES ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE EXPRESSLY PROVIDED IN THIS WARRANTY. METAL ROOFING SYSTEMS AND THE INSTALLATION CONTRACTOR SHALL NOT BE LIABLE TO THE OWNER FOR ANY CLAIM BASED UPON STRICT LIABILITY, NEGLIGENCE, BREACH OF WARRANTY, TORT OR OTHER THEORY OR CAUSE OR ACTIONS, NOR SHALL THEY BE LIABLE FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES HOWEVER ARISING OR BE RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OR LOSS TO THE BUILDING, ITS CONTENTS, OR OCCUPANTS.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

NOTICE OF CLAIMS AND GENERAL PROVISIONS

All claims hereunder must be submitted, in writing, to Metal Roofing Systems within the Warranty period and within thirty (30) days of the discovery of any leak in the Roofing System. Failure of the Owner to do so shall relieve Metal Roofing Systems of any and all responsibility and/or liability under the terms hereof. If, after inspection by Metal Roofing Systems, it is determined that the leak is caused by defects in the Roofing System's material or workmanship in accordance with this Warranty, the Roofing System shall be repaired in accordance with this Warranty. Such work shall be completed within a reasonable period of time after notice to Metal Roofing Systems of the weathertightness or watertightness failure. The Owner's exclusive remedy and Metal Roofing System's liability shall be limited to repair of the Roofing System. All notices given under or pursuant to this Warranty shall be in writing and sent by certified mail, return receipt requests, to Metal Roofing Systems at the following address:

Warranty Department: **Metal Roofing Systems**
7687 Mikron Drive
Stanley, NC 28164
(704) 820-3110

During the term of this Warranty, Metal Roofing Systems, their sales representatives, and employees, shall have free access to the roofing during regular business hours upon reasonable notice to the Building Owner.

This document constitutes the entire Warranty made by Metal Roofing Systems. No modifications or amendment of this Warranty shall be binding on Metal Roofing Systems unless made in writing and signed by their authorized representatives. The terms, conditions, and provision contained in this Warranty may be waived only in writing signed by Metal Roofing Systems. No oral statements, course of conduct or course of dealing shall be deemed or constitute a waiver.

The invalidity or unenforceability of any provisions of this Warranty shall not affect the enforceability and validity of any remaining provisions, and this Warranty shall be construed in all respects as if the invalid or unenforceable provisions were omitted.

This Warranty shall be governed by and construed in accordance with the laws of the State of North Carolina.

This Warranty is tendered for the sole benefit of the Owner as named above and is not transferable or assignable.

Metal Roofing Systems shall have no obligation under this Warranty unless all invoices for materials and installation have been paid in full by or on behalf of the Building Owner.

EXECUTED AS OF THIS 3rd DAY OF August, 2025

ATTEST:

MANUFACTURER:

Metal Roofing Systems
7687 Mikron Drive
Stanley, NC 28164
(704) 820-3110

BY: _____

TITLE: Owner

40-Year Limited COOLR "Paint" Warranty
AZ50 Galvalume®, G90 Galvanized, or Aluminum

EXCLUSIVE WARRANTY

This Warranty (collectively, the "Warranty") is issued by Metal Roofing Systems, Inc. (hereinafter referred to as "MRS"), to the customer identified in this Certificate (hereinafter referred to as "Customer") and applies to the finish on AZ50 Galvalume®, G90 Galvanized, or Aluminum flat sheet and coil products (hereinafter referred to as the "Product") with PVDF based coating consisting of KYNAR 500® or Hylar 5000® resin (hereinafter referred to as the "Coating") if erected anywhere within the Continental United States including Alaska, Hawaii and Canada.

1. Subject to the provisions contained herein, MRS warrants that during the Forty (40) Year Warranty Period, MRS's COOLR stock Coatings will not chip, crack, peel, flake or check (except for such slight crazing or cracking as may occur on tightly roll-formed edges or break bends at the time of roll forming or other fabrication of pre-painted sheet or coil and which is accepted in the industry as standard). Subject to the provisions contained herein, MRS warrants that for Forty (40) years from the date of installation of panels, the Coating will not chalk in excess of ASTM D- 4214method A659 number eight (8) rating when properly maintained in accordance with Valspar's printed guidelines. Will not change color more than Five (5.0) Hunter ΔE units as determined by ASTM method D-2244 when properly maintained in accordance with Valpar's printed guidelines. Color change will be measured on an exposed painted surface that has been cleaned of surface soils and chalk, and the corresponding values measured on the original or unexposed surface. It is understood that fading or color change may not be uniform, if the surfaces are not equally exposed to the sun and elements.

2. This Warranty does not apply to circumstances beyond MRS's control, including:

a. Fire or other casualty or physical damage;

b. Unusual harmful fumes, foreign substances in the atmosphere or standing water. No warranty is provided for the coating on any substrate that is subjected to sea spray or installed on a property located 1500 or fewer feet from a coastline, salt or brackish water, or any salt water environment;

c. Improper treatment of or defects in the metal or in the fabrication or areas where items such as snow guards or solar panels are attached / adhered to the product.

d. Intermittent or continual submersion in water or any other liquid or solid material;

e. Damage from wind, deliberate damage, improper handling by erectors, from abrasive or chemical cleaners.

f. Mishandled Products, e.g., ANY PRODUCT WHICH HAS BEEN ABUSED, ALTERED, MODIFIED, USED IN A MANNER NOT ORIGINALLY INTENDED, OR STORED CONTRARY TO OUR INSTRUCTIONS.

g. Stored or installed in a way that allows for poor air circulation, contact with animals or animal waste.

h. Embossing that fractures or severely stretches the film (i.e. film is diminished at the point of emboss by greater than 0.2 mils.

3. This Warranty does not cover damage or deterioration resulting from moisture contamination or entrapment or any other contamination detrimental to the coating, which occurs prior to installation of the Products, including, without limitation, contamination occurring during shipment of the Product to the jobsite or during storage at the jobsite. This Warranty does not cover failure due to corrosion of substrate.

4. EXCLUDED ATMOSPHERIC CONDITIONS
This Warranty does not apply to sheet exposed at any time to corrosive, aggressive, harmful or other abnormal atmospheric conditions, including but not limited to:

A. Areas subject to fallout exposure to corrosive chemicals, ash, fumes, cement dust, animal waste, or it's decomposition by-products, fallout from copper, lead, nickel or silver mining or refining operations and carbon black;

B. Conditions/circumstances where corrosive fumes or condensation are generated or released inside the building;

C. Areas subject to water run-off from lead or copper flashing or piping or areas in contact with lead or copper or lumber containing same;

5. All Warranty work will be performed by MRS, or any company, dealer, contractor, applicator, or distributor selected by MRS. Since there may be a color variance between the replacement or repainted Product and the originally installed Product due to normal weathering (i.e. exposure to sunlight and extremes of temperature and weather) of the originally installed Products, this condition shall not be indicative of a defect.

6. NOT WITHSTANDING ANYTHING TO THE CONTRARY CONTAINED HEREIN, MRS'S LIABILITY MINIMUN TO BE COST REQUIRED FOR MATERIAL AND LABOR FOR REPLACEMENT OF FAILED SHEET METAL, AND SHALL NOT EXCEED THE LESSER OF THE FOLLOWING: (I) THE CUSTOMER'S LIABILITY DIRECTLY ATTRIBUTABLE TO A BREACH OF THIS WARRANTY, OR (II) THE REFINISHING OR REPLACEMENT OF THE FAILED COATED MATERIAL, OR AT MRS'S OPTION, REFUND OF THE PURCHASE PRICE WHICH SHALL NOT EXCEED AN AMOUNT EQUAL TO ONE HUNDRED PERCENT (100%) OF THE AMOUNTS PAID TO MRS BY THE CUSTOMER FOR THE PURCHASE OF THE DEFECTIVE PRODUCT AND LABOR TO RE-INSTALL THE ROOF. MRS SHALL NOT BE LIABLE FOR INJURY TO PROPERTY OTHER THAN THE FLAT SHEET AND/OR COIL PRODUCTS COATED WITH FLUOROCARBON PAINT SYSTEMS, IN THE CONDITION AND AS PURCHASED BY CUSTOMER FROM MRS, IN ALL INSTANCES, SHALL HAVE THE SOLE AND EXCLUSIVE RIGHT TO DETERMINE WHETHER OR NOT REFINISHING OR REPLACEMENT OF THE FAILED AREAS IS REQUIRED, AND TO FULFILL ITS OBLIGATION UNDER THE WARRANTY, MRS RESERVES THE RIGHT TO NEGOTIATE AND APPROVE ANY FINAL CONTRACT LET FOR REFINISHING AND REPLACEMENT AS THE CASE MAY BE.

7. This Warranty applies only to products manufactured by the customer within six (6) months from shipment thereof by MRS.

8. Claims under this Warranty must be presented by the customer to MRS in writing during the warranty period and within thirty (30) days after Customer becomes aware that any warranted condition has occurred. Time is of the essence and failure to give notice within the specified time shall discharge MRS from any obligations under this Warranty. MRS must be given a reasonable opportunity to do an on-site inspection to determine if there is a coating failure.

9. The laws of the State of North Carolina shall exclusively govern the rights and duties of the parties to this Warranty. Any controversy or claim arising out of or related to this Warranty, or the breach thereof shall be brought before a court of competent jurisdiction in North Carolina under the substantive and procedural laws of the State of North Carolina

10. Customer acknowledges that MRS is not the manufacturer or applicator of the coating warranted herein and agrees that all issues arising from or related to the exceptions set forth herein shall be determined finally and conclusively as to Customer, by the original manufacturer.

11. Due to pigment limitations, Regal Red, Matte Black and L/S Antique Black are covered by a number eight (8) rating for chalk, and five (5) ΔE units for fade for a period of ten (10) years from installation. Copper and other metallic colors have no rating available for color change.

12. This Warranty applies solely to MRS "inventoried stock" colors. Custom matched colors and non-inventoried items may have different Warranty terms, or not be warranted.

13. For this Warranty to apply, the Customer must retain certain records. In order for MRS to process a claim, we will need to be told the original coil or skid tag number.

14. THIS WARRANTY IS GIVEN AS THE SOLE AND EXCLUSIVE WARRANTY AND EXCLUSIVE REMEDY BY OR AGAINST MRS, AND NO OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR PURPOSES, ARE MADE, AND ANY SUCH OTHER WARRANTIES ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION CONTAINED IN THIS INSTRUMENT. CUSTOMER WAIVES THE BENEFIT OF ANY RULE THAT THE DISCLAIMERS OF WARRANTY SHALL BE CONSTRUED AGAINST THE SELLER, AND AGREES THAT THE DISCLAIMERS IN THIS INSTRUMENT SHALL BE CONSTRUED LIBERALLY IN FAVOR OF MRS SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. MRS HEREBY DISCLAIMS ALL LIABILITIES FOR DAMAGES BASED ON THEORIES OF NEGLIGENCE AND STRICT PRODUCT LIABILITY. THIS WARRANTY IS EXTENDED TO CUSTOMER AND IS TRANSFERABLE AND ASSIGNABLE TO A SUBSEQUENT OWNER OF THE SUBJECT BUILDING. THIS WARRANTY MAY NOT BE ENLARGED IN ITS SCOPE BY ANY REPRESENTATIVE, SALES PERSON, AGENT OR OTHER EMPLOYEE OF MRS, EXCEPT AS OTHERWISE EXPLICITLY PROVIDED HEREIN. THE CUSTOMER SHALL NOT PERMIT ANYONE TO CLAIM OR IMPLY THAT THIS WARRANTY EXTENDS OR CAN BE "PASSED THROUGH" TO ANYONE OTHER THAN THE CUSTOMER. THIS PROVISION IS A MATERIAL TERM OF THIS WARRANTY AND ITS VIOLATION OR BREACH BY CUSTOMER OR ANY OF CUSTOMER'S AGENTS OR REPRESENTATIVES, SHALL VOID AND CANCEL THIS WARRANTY FOR ALL PURPOSES. IN THE EVENT THIS WARRANTY IS TRANSFERRED OR ASSIGNED TO A SUBSEQUENT OWNER OF THE SUBJECT BUILDING, SUCH SUBSEQUENT OWNER SHALL COMPLY WITH ALL OF THE TERMS AND CONDITIONS OF THIS WARRANTY.

THE LIABILITY OF SELLER MRS SHALL NOT EXTEND TO PERSONAL INJURY, PROPERTY DAMAGE, LOSS OF PROFIT, DELAY OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE FAILURE OF ANY PRODUCT OR COATING TO CONFORM WITH THE PROVISIONS OF THIS LIMITED WARRANTY.

MRS SHALL NOT IN ANY EVENT BE LIABLE TO THE CUSTOMER OR ANY OTHER PERSON OR ENTITY FOR ANY ACTIONS, CLAIMS, CAUSES OF ACTION, DAMAGES, EXPENSES AND/OR LIABILITIES ARISING FROM OR RELATED TO THE DESIGN, USE OR FAILURE OF THE PRODUCT OR COATING, FOR THE INTERUPTION OF THE CUSTOMER'S OR ANY OTHER PERSON'S OR ENTITY'S OPERATIONS OR BUSINESS, FOR THE COST OF LABOR EXPENDED BY OTHERS ON ANY DEFECTIVE PRODUCT OR COATING OR FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES WHATSOEVER OR LOSS OF PROFIT OR OTHER FINANCIAL LOSS ARISING OUT OF THE USE OR FAILURE OF THE PRODUCT OR COATING, EVEN IF MRS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH ACTIONS, CLAIMS, CAUSES OF ACTION, DAMAGES, EXPENSE, LOSS AND/OR LIABILITIES, WHETHER ARISING FROM BREACH OF CONTRACT, BREACH OF WARRANTY, TORT, INCLUDING NEGLIGENCE, STRICT LIABILITY OR OTHERWISE TO ANYONE BY REASON OF THE FACT THAT SUCH PRODUCT OR COATING SHALL HAVE BEEN DEFECTIVE.

SIGNATURE:

This Warranty is not valid unless signed by an authorized employee or agent of Metal Roofing Systems, Inc.

METAL ROOFING SYSTEMS, INC.

By: _____ Name

Printed: Gavin Seale

Title: Owner/Partner

Date: 8-3-2026

Issued To: SPRING HILL UNITED METHODIST CHURCH

Installer: OWENS ROOFING INC

For: Metal Panels and Trim

Job: SPRING HILL UNITED METHODIST CHURCH – CHAPEL ROOF REPLACEMENT

1960 Spring Hill Church Rd #1960, Lillington NC 27546

Color: Mansard Brown

Completion Date: 7-10-2026

R091808

Owens Roofing Inc.
1200 Short Journey Rd. Smithfield, NC 27577 (919) 821-0082

Date: January 7, 2026

Project: Spring Hill United Methodist Church - Chapel Roof Replacement

To: **DK Engineering, PLLC**
644 Holly Springs Road, Suite 136
Holly Springs, NC 27540
NC Firm License P-3102
dkrekelberg@dk-eng.com
(828) 507-1644

From: C. McCleary

WE TRANSMIT:	[ ]	**herewith**	[X]	**in accordance with your request**
FOR YOUR:	[X]	**approval**	[X]	**distribution to parties**
	[ ]	**file**	[x]	**review and comment**
	[ ]	**record**	[X]	**signature**

THE FOLLOWING:

Section	Submittal Item	Quote item if known	Details Used for / Clarifications
074113 - 002 - SD	Roofing Panel	MRS 2500 System	ORI will build our Downspouts, Gutters, and Fascia to their details
074113 - 002 - Calc.	Engineering calculations	Digiitally signed/dated 12/08/25	

REMARKS

____APPROVED
_X__APPROVED AS NOTED
____FOR INFORMATION ONLY
____REVISE AND RESUBMIT
____REJECTED

Reviewed for general conformance with the contract documents. Contractor remains responsible for dimensions, quantities, coordination, fabrication processes, installation, means and methods, and compliance with codes and standards. Deviations from the contract documents must be clearly identified and approved in writing. Review does not relieve contractor of responsibilities under the contract.
Review is for design intent only. Contractor retains responsibility for accuracy, field verification, coordination, and compliance with contract documents. Approval of a submittal does not authorize deviations from the contract unless specifically identified and approved. Contractor shall notify reviewer of any discrepancies, omissions, or conflicts prior to proceeding with work.

DK Engineering, PLLC

Reviewer: _____ Date: 1/7/2026

DKE - See comments on details below.

METAL ROOFING
Systems, Inc

Faster. Smarter. Better. Period.

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

Spring Hill United Methodist Church Chapel Roof Replacement

Lillington, NC

TABLE OF CONTENTS

01	COVER SHEET
02	PRODUCT DATA
03	INSTALLATION GUIDE
04	ROOF PLANS
05-08	DETAILS

THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED

Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

METAL ROOFING Systems, Inc
7687 Mikron Drive
Spring Lake, NC 28364
(704) 820-3110
(704) 820-0113 (Fax)

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

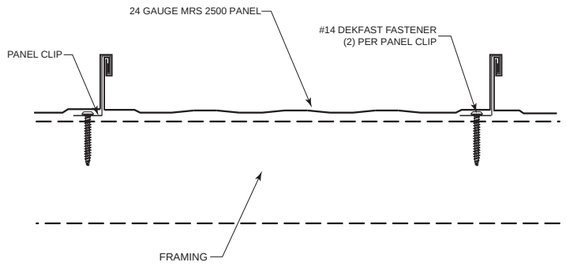
Scale: AS SHOWN

Spring Hill United Methodist Church Chapel Roof Replacement
Lillington, NC

Drawing Title: COVER SHEET

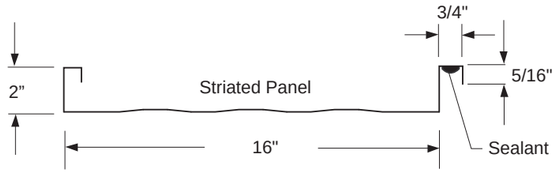
SHEET: 01
OF: 08

Metal Roof System



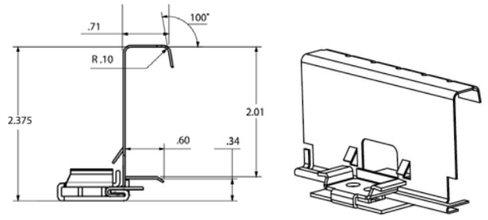
SYSTEM: MRS 2500 PANEL
MATERIAL: 24 GA. GALVALUME
COLOR: STANDARD

Roof Panel Profile



SYSTEM: MRS 2500 PANEL
MATERIAL: 24 GA. GALVALUME
COLOR: STANDARD

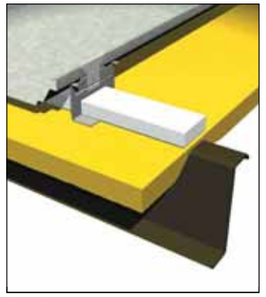
Roof Panel Clips



2" HIGH FLOATING CLIP

Upper tab fabricated from 22 gauge G-90 Galvanized.
Base material 16 gauge G-90 Galvanized.





- Easy to install over purlins, joists or trussed purlins
- UL and FM ratings available
- Sturdy 25 psi expanded polystyrene
- Block dimensions 3/8" x 4"
- Blocks are crush resistant and won't absorb moisture

Thermal Block insulation system provides an improved thermal barrier standing seam roof.

Panel Clip Fasteners

#14 DekfastFasteners

Materials:
- Steel thickness from 22 ga (.028 in.) through 18 ga (.045 in.): Min penetration: 3/4"
- Plywood: Min thickness: 3/4" FR treated; min through penetration: 1/4"
- Wood 2x (1-1/2" thick): Min penetration: 1"
- Structural concrete: Min penetration: 1"



Head: #3 Phillips
Head Height: .118" max
Head Dia: .448" max
Thread Major Dia: .238"
Shank Dia: .180"

Strength (lbs ult.):
Tensile: 3600
Torsional: 110 in-lbs min
Shear: 2630

Pull-out: (lbs avg.):
22 ga: 540
20 ga: 630
18 ga: 900
4000 psi concrete (1" penetration): 850
3/4" plywood (through penetration): 590
2x dimensional lumber (1" penetration): 605

Butyl Tape



Technical Information:

Tensile Strength (ASTM C907)	15 – 18 psi	Water Penetration (ASTM E1240)	None
Cone Penetration	8.0 – 9.5 mm @ 77°F	Solids Content (ASTM C771-74)	100%
Color	Off-white	Low Temp. Flexibility	No Adverse Effects
Specific Gravity	1.55 – 1.65	Sag (AAMA 800)	None
Elongation (ASTM C908)	>1000%	Peel Adhesion (ASTM D3330)	>8 psi
Application Temp. Range	-5°F – 120°F	Staining	None
Service Temp. Range	-40°F – 200°F	Shelf Life	18 Months

Titebond Sealant

Titebond®



Meets or exceeds the requirements of:
Passes ASTM C920, Type S, Grade NS, Class 50, Use NT, M, T, G and A
ASTM C510, ASTM C639, ASTM C661, ASTM C679, ASTM C717, ASTM C719, ASTM C793, ASTM C794, ASTM C1183, ASTM C1193, ASTM C1246, ASTM D412, ASTM D624 and ASTM G155.
Passes Federal Specification TT-S-00230C, Type II, Class A
Passes CAN/CGSB-19 13-M87, Classification MCG-2-25-A-N, No.81026
AAMA 808.3-92 Exterior Perimeter and AAMA 802.3-92 Type II
Back-Bedding Compound and
USDA approved for use in meat and poultry areas

Physical Properties

Type: Advanced polymer (reactive)
State : Medium-viscosity caulk
Color : Over 50 colors
Solids : 99%
Viscosity : 500,000
Calculated VOC (less water): 9 g/L (<2% wt.)
Weight/gallon : 13.85 lbs.
Flashpoint : > 200°F
Freeze/thaw stability : Stable
Storage life : More than 12 months in tightly closed containers @ 75°F (24°C)

Coverage (maximum): Approximate length of bead according to bead diameter:

Container	1/4" bead	3/8" bead	1/2" bead
10.1 oz. Cartridge	31 ft.	13.5 ft.	7.5 ft.
20 oz. Sausage Pack	61 ft.	27 ft.	15 ft.

MCA Metal Construction Association

OILCANNINGPOSITIONPAPER

"Oil canning" can be defined as a perceived waviness in the flat areas of roofing and siding panels. Generally the period and amplitude of the wave depend on the continuous width of the flat.

Oil canning is an inherent part of light gauge cold formed metal products, particularly those with broad flat areas. Profiles having wide flat surfaces are often referred to as "architectural" roofing and siding panels. Such panels are distinguished from corrugated shapes as the latter are more fluted in design, have much narrower flats, and are less likely to exhibit oil canning.

BACKGROUND

Oil canning has a number of causes:

1. Metal Coil:

Residual stresses induced during coil production can contribute. Examples of other contributing factures are:

a. Full center -- the coil is longer in the middle of the strip: This is the most common example. (The gradation manifests as ripples or buckles near mid coil.)

b. Wavy edge -- the coil is longer on the edge of the strip.

c. Camber -- the deviation of a side edge from a straight line. (This is not always a problem.)

These conditions exist to some extent in all metal and tend to become more exaggerated as the strength level of the rolled sheet product increases and also for thinner and wider sheet product. When excessive, each circumstance can cause oil canning after roll forming by the manufacturer.

2. Fabrication:

a. Slitting -- the slitting of a master coil can release and redistribute residual forces. The coil's response can create or increase oil canning. The economics of rolling and coating wider coils makes slitting almost mandatory.

b. Forming -- New residual stresses can be created during some forming operations. Architectural panel profiles typically require more forming along sides than in the middle, and more often require more forming along one side than the other. This dictates that forming commences along the sides. This sequential "working" of the sheet will have a tendency to "trap" uneven metal contained within the coil in the panel central areas (corrugated ribbed profiles are most often worked from the center out, thereby "pushing" the uneven metal to the edges).

3. Installation:

a. Misalignment of the support system -- structural supports that are produced, fabricated and installed within allowable tolerances can create a "non-planar" or contoured bearing surface. Stresses induced when panels conform to this surface can contribute to oil canning.

b. Over engagement of panels -- Most panels accommodate transverse thermal expansion by flexing of webs and by "take up" at side joints. When panels are over engaged, these relief features are hindered or eliminated. In the extreme the "over engagement" process itself can generate waviness. Either cause can contribute to oil canning.

c. Over driving of fasteners -- This operation creates stresses in the panel and provides a "reading line" at the fasteners.

d. Longitudinal Expansion -- The surface temperature of exposed panels cycles throughout the year and even fluctuates daily. The temperature and the cycle depend on many variables, e.g. project location and orientation, cloud cover, panel inclination, surface finish or color, system thermal insulation characteristics. The panels' physical response is to expand or contract. If panels are restrained by "thru-fasteners", clips, or perimeter details, they try to accommodate or relieve thermal forces through several mechanisms, i.e. "slotting" around fasteners, out-of-plane "bowing", local distortion of flat areas -- "waviness". The magnitude of thermal force depends on the restraint provided (hence the panel stiffness and support stiffness), on the base materials' physical properties, and on the temperature differential between the support structure and the external skin.

Waviness can be amplified when there is uneven fastener restraint along the panel. Such restraint is common on "concealed fastener" systems having fasteners along one edge and an interlock along the other. Waviness caused by thermal forces differs from other forms of oil canning in that waves can appear and disappear as the sun rises and moves around the building.

e. Movement of the primary structure -- Excessive differential deflection, racking, drift, or settlement within the primary structure can cause noticeable waviness within panel flats. This distortion can be temporary or sustained.

f. Handling -- Carrying of panels in the flat or twisting of panels can induce a wavy appearance to a previously flat panel. Twisting can occur if one corner of a panel is used to lift a panel or to remove the panel from a bundle.

Coil producers and panels manufacturers attempt to minimize these conditions and produce quality products. On going research seeks improved production methods. Regardless all of the above factors can and do occur and can cause oil canning in architectural roofing or siding product. While a number of factors are dictated by the panel design, there are steps that the designer, panel manufacturer, and erector can take to reduce the chances of oil canning:

1. Coil:

Tension or stretcher leveling, a process whereby the metal is "stretched" in coil form beyond its yield point, will provide a flatter surface less prone to oil canning. In general the heavier the gauge the less likely a product is oil can. The possibility of oil canning can be reduced by ordering tension leveled and resquared material.

2. Design:

The addition of stiffening beads or other configuration "breaks-up" the flat surface and makes oil canning less apparent. Embossing will also help hide surface waviness in the metal. The selection of lower gloss coatings and lighter colors tend to minimize the visual effect of oil canning.

3. Installation:

More stringent specification regarding the alignment of the supporting structure will focus attention on this critical aspect. Instructions to the erection forces regarding proper handling, spacing and fastening should be a part of the manufacturer's delivery packet.

CONCLUSION

Oil canning is an aesthetic problem. Normally structural integrity is not affected. However, structural integrity must be reviewed if the distortion results form an extreme external influence. Since many uncontrollable factors are involved, no manufacturer can realistically assure the total elimination of oil canning. With careful attention to the production and selection of material, to the panel design, and to installation practice, oil canning can be effectively minimized.

Unless specified tolerance have been accepted by the panel provider and panel manufacturer and are incorporated into the contract documents prior to fabrication, and if reasonable precautions have been taken, oil canning is not grounds for panel rejection.

BIBLIOGRAPHY

1. American Iron & Steel Institute, "Sheet Steel Coils & Cut Lengths". Steel Products Manual, October 1979.

2. USS "USS Sheet & Strip Handbook" July 1983.

Note: This position paper was written and furnished by the Metal Construction Association (MCA).

THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED

Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

METAL ROOFING Systems, Inc
7607 Milton Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

Job#:
Drawn By: CRF
Date: JANUARY 7, 2026
Scale: AS SHOWN

Spring Hill United Methodist Church Chapel Roof Replacement

Lillington, NC

Drawing Title: PRODUCT DATA

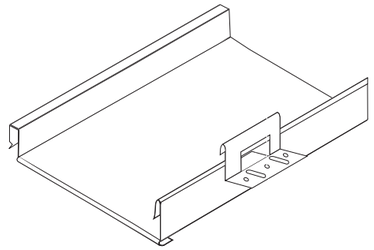
SHEET: 02
OF: 08

Roof Installation Videos

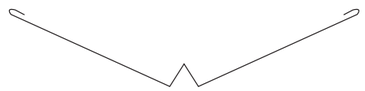
SCAN CODES TO VIEW INSTALLATION VIDEOS

FLASHING INSTALLATION

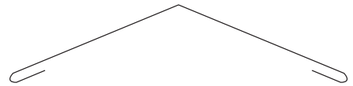
QR CODE VIDEOS



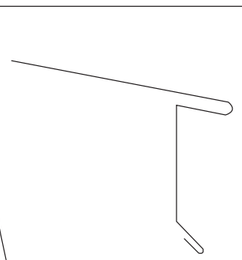
PANEL INSTALLATION



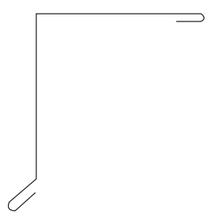
VALLEY INSTALLATION



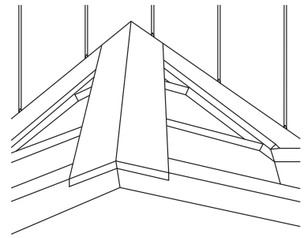
RIDGE INSTALLATION



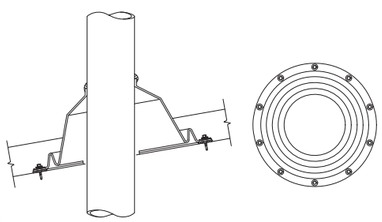
DRIP EDGE INSTALLATION



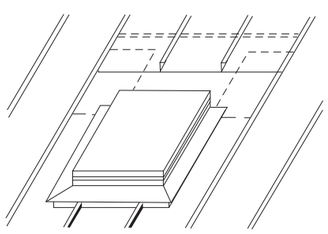
RAKE INSTALLATION



RIDGE TO VALLEY INST.



PIPE BOOT INSTALLATION



CURB INSTALLATION

THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED

Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

METAL ROOFING Systems, Inc
7687 Milton Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

Scale: AS SHOWN

Spring Hill United Methodist Church Chapel Roof Replacement

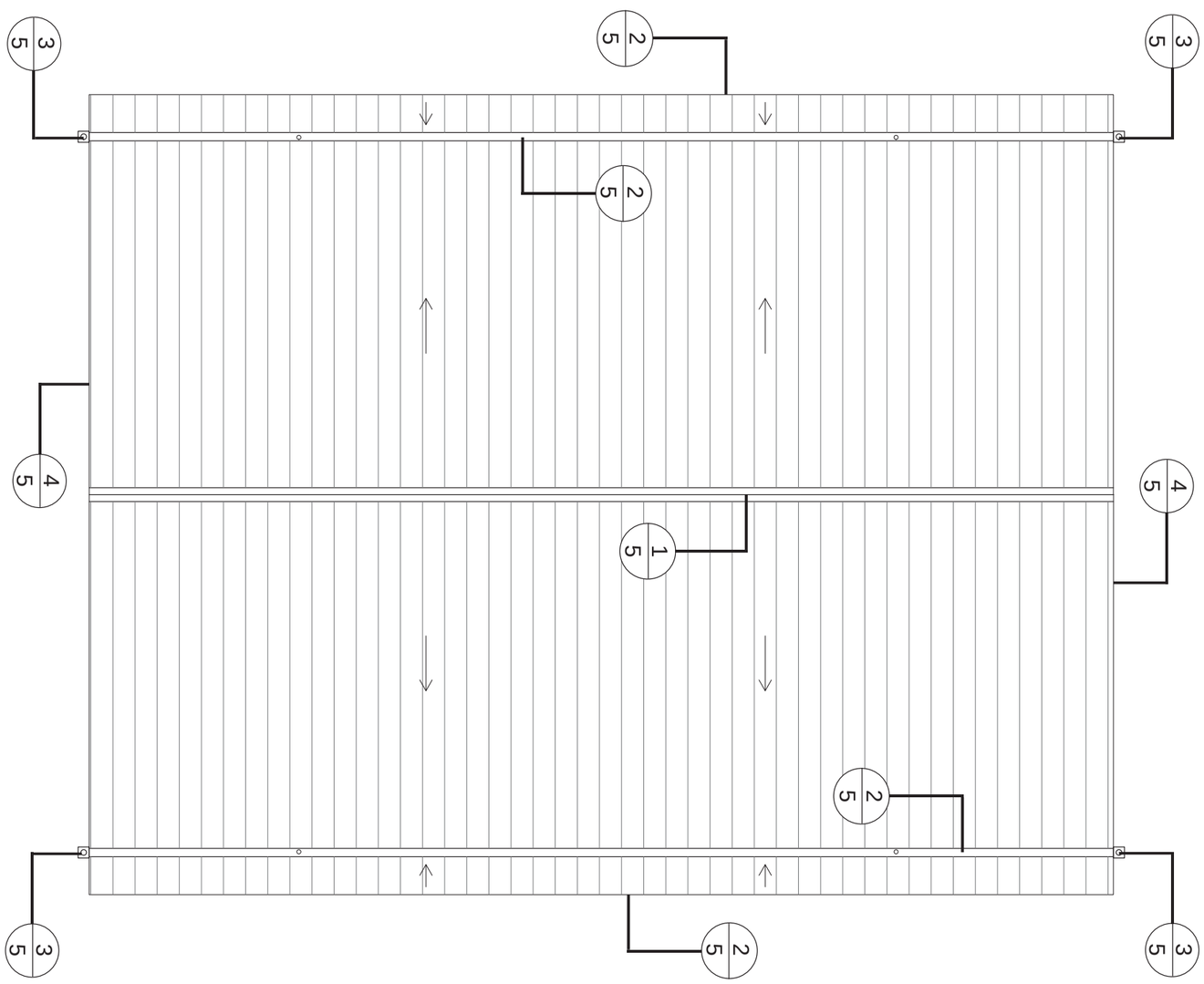
Lillington, NC

Drawing Title: INSTALLATION GUIDE

SHEET: 03

OF: 08

Roof Plan



SHEET: 04 OF: 08

Spring Hill United Methodist Church Chapel Roof Replacement

Lillington, NC

Drawing Title: ROOF PLAN

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

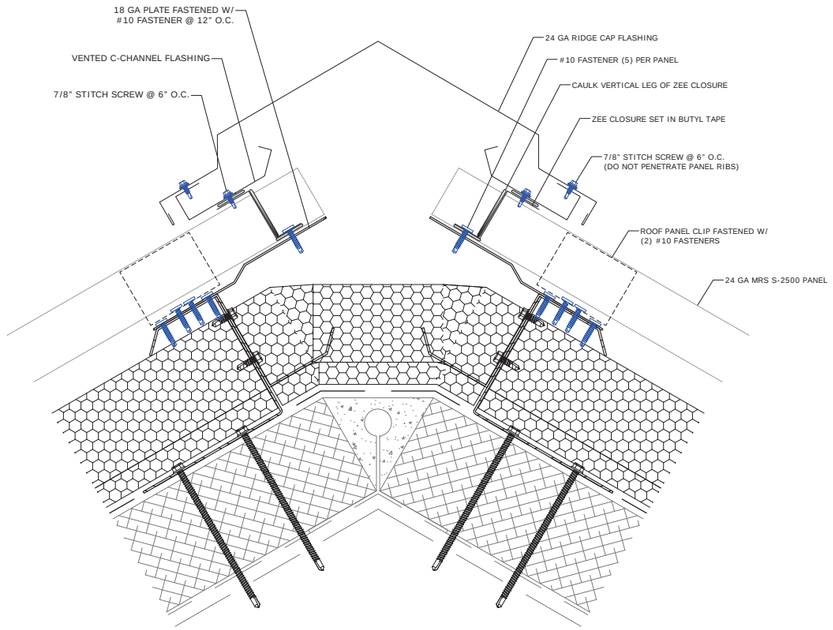
Scale: AS SHOWN

METAL ROOFING Systems, Inc
7687 Mikron Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

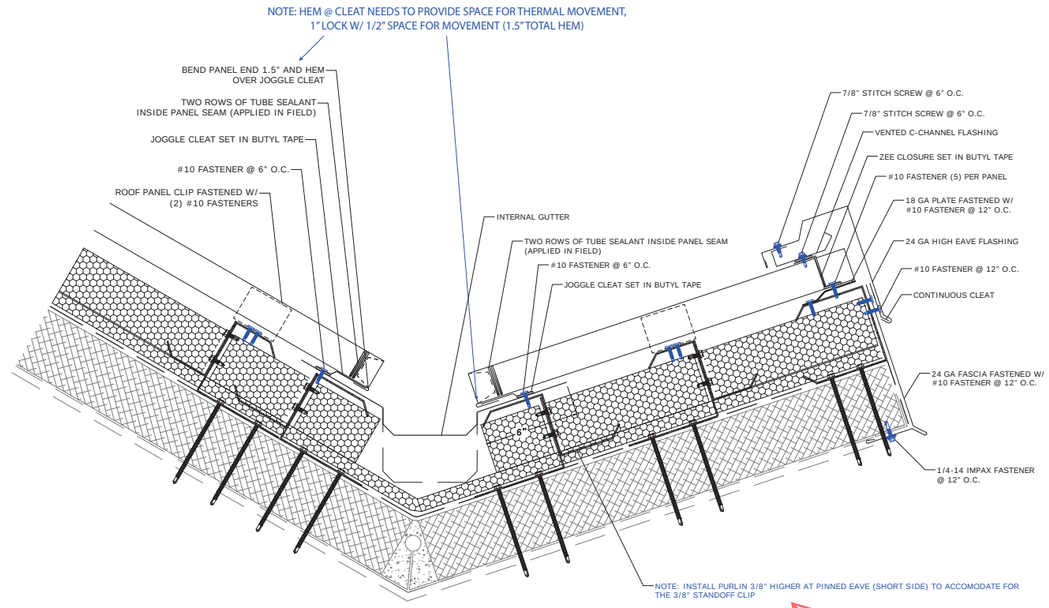
Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED



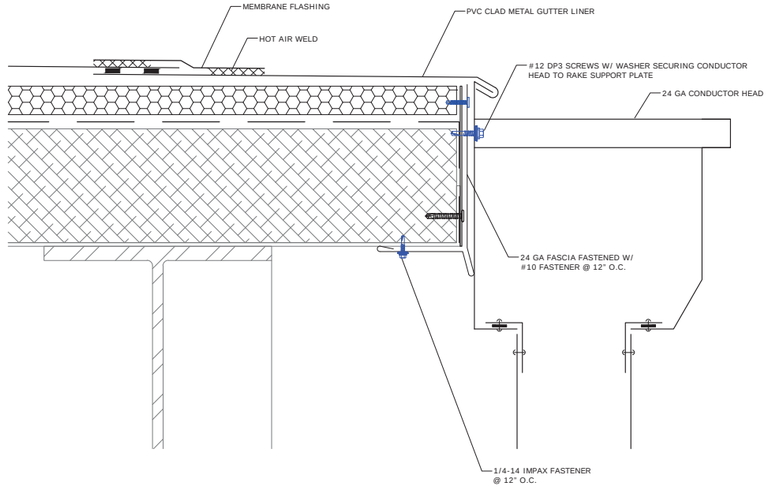
1/5 Ridge



DKE - Using joggle cleats would eliminate this requirement

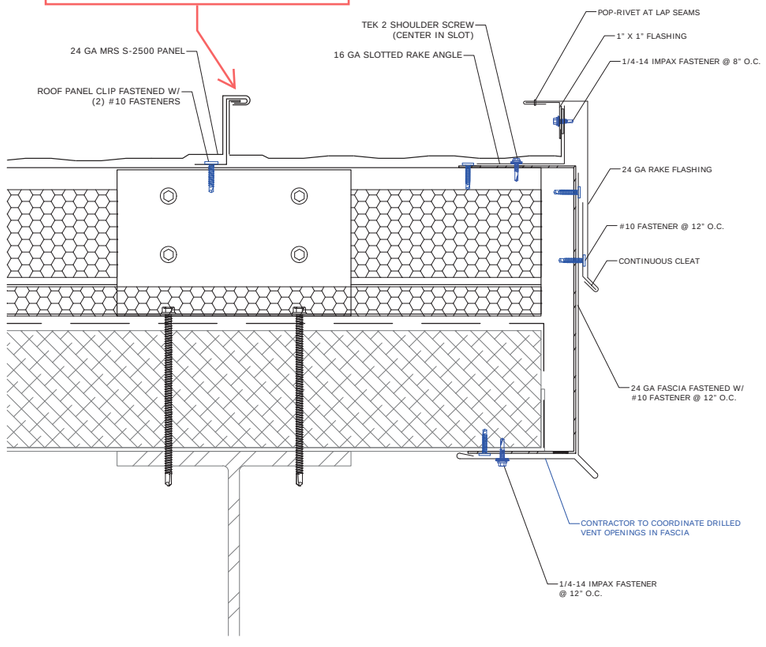
2/5 Internal Gutter/High Eave

3/5 Conductor Head



4/5 Rake

DKE - Ensure 180deg seams are used



THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED

Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

METAL ROOFING Systems, Inc
7670 Mikron Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

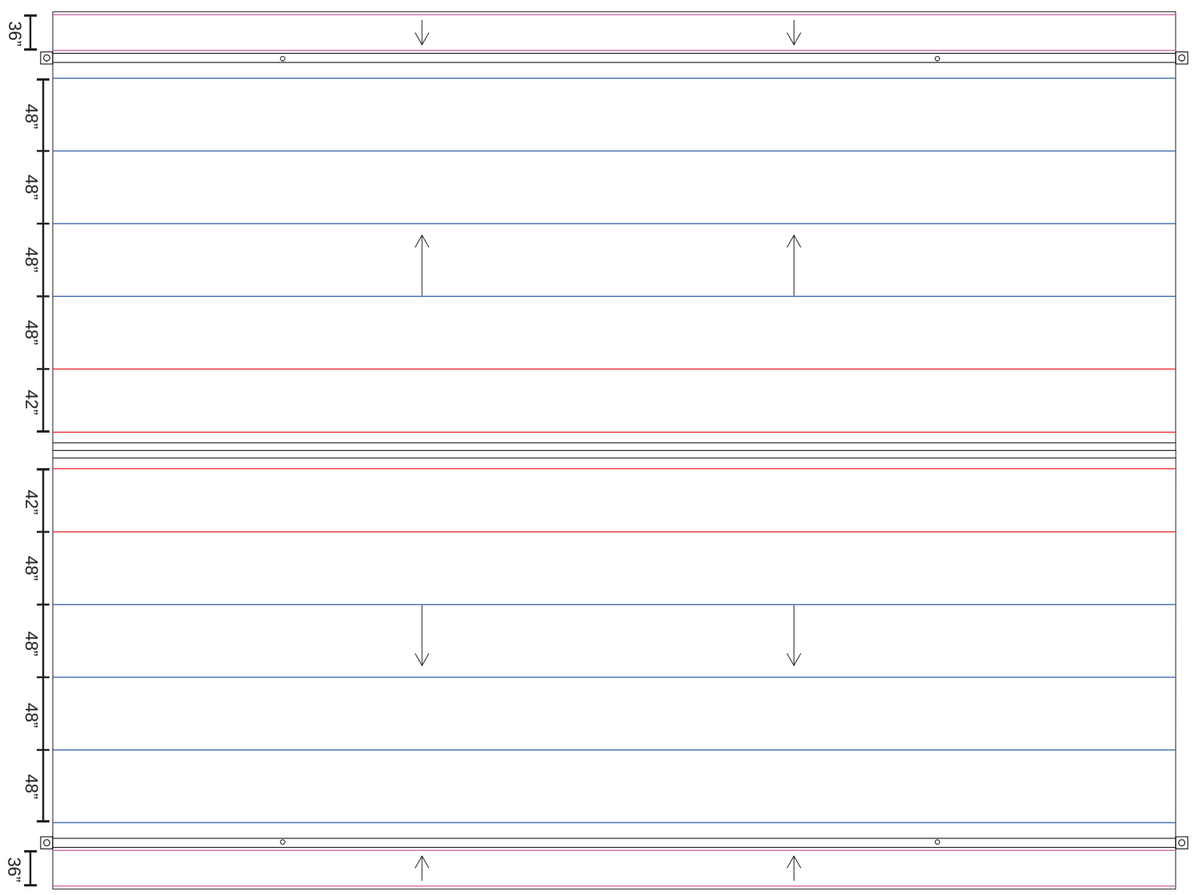
Scale: AS SHOWN

Spring Hill United Methodist Church Chapel Roof Replacement
Lillington, NC

Drawing Title: DETAILS 1

SHEET: 05
OF: 08

Framing Spacing Plan



SHEET: 06 OF: 08

Spring Hill United Methodist Church Chapel Roof Replacement

Lillington, NC

Drawing Title: FRAMING SPACING PLAN

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

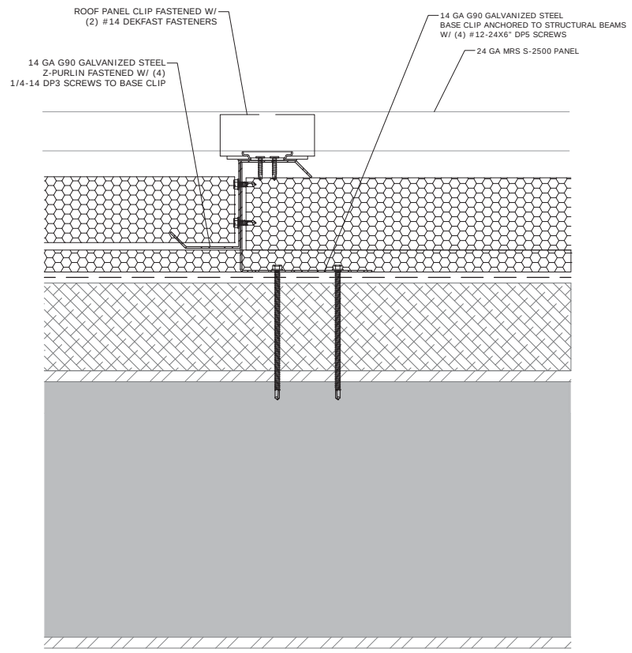
Scale: AS SHOWN

METAL ROOFING Systems, Inc
7687 Mikron Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

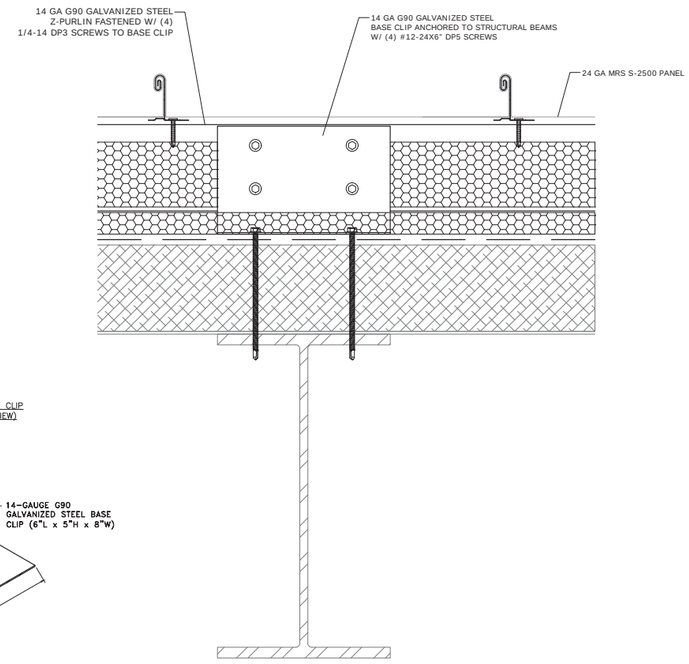
Roofing Contractor:

ORI OWENS ROOFING INC. COMMERCIAL & INDUSTRIAL ROOFING

THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED



1/7 Framing Assembly



RETROFIT BASE CLIP
(ISOMETRIC VIEW)

2/7 Framing Assembly

THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED

Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

METAL ROOFING Systems, Inc
7670 Mikron Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

Scale: AS SHOWN

Spring Hill United Methodist Church Chapel Roof Replacement

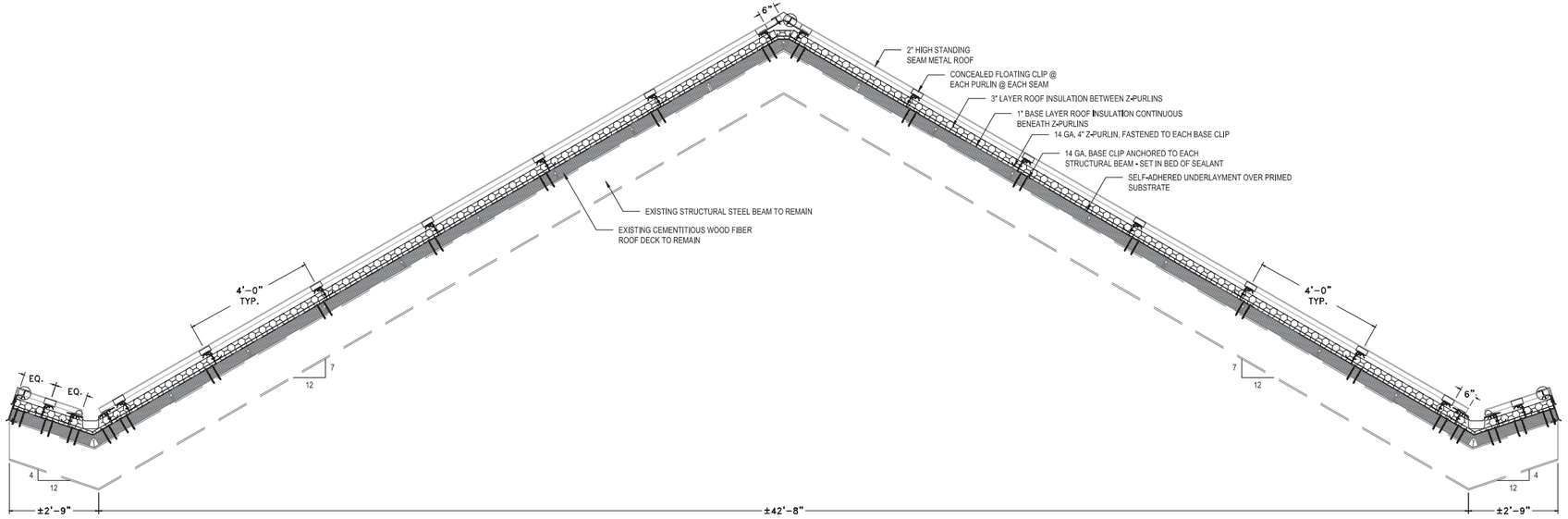
Lillington, NC

Drawing Title: DETAILS 2

SHEET: 07

OF: 08

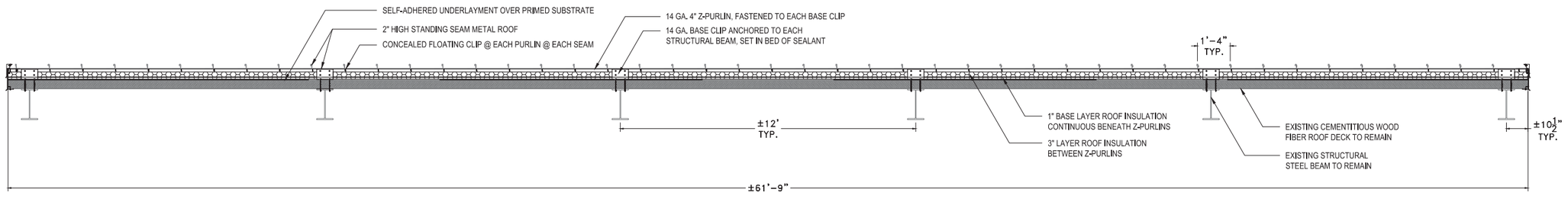
NOTE: 4'TYPICAL SPACING FOR PURLINS, REFER TO FRAMING PLAN FOR SPACINGS AT PERIMETERS



1/8 Roof Framing Cross-Section

2/8 Roof Framing Cross-Section

NOTE: 4'TYPICAL SPACING FOR PURLINS, REFER TO FRAMING PLAN FOR SPACINGS AT PERIMETERS



THIS DRAWING IS THE PROPERTY OF METAL ROOFING SYSTEMS. THE USE OF THIS DRAWING WITH OUT THE EXPRESS PERMISSION OF METAL ROOFING SYSTEMS IS PROHIBITED

Roofing Contractor:

OWENS ROOFING INC.
COMMERCIAL & INDUSTRIAL ROOFING

METAL ROOFING Systems, Inc
7670 Mikron Drive
Stanley, NC 28164
(704) 820-3110
(704) 820-0113 (Fax)

Job#:

Drawn By: CRF

Date: JANUARY 7, 2026

Scale: AS SHOWN

Spring Hill United Methodist Church Chapel Roof Replacement
Lillington, NC

Drawing Title: DETAILS 3

SHEET: 08
OF: 08

PROJECT	Spring Hill United Methodist Church - Roof 1960 Spring Hill Church Rd Lillington, NC	METAL ROOFING SYSTEMS www.metalroofingsystems.com	7687 Mikron Drive Stanley, NC 28164 (704) 820-3110

BUILDING INFORMATION

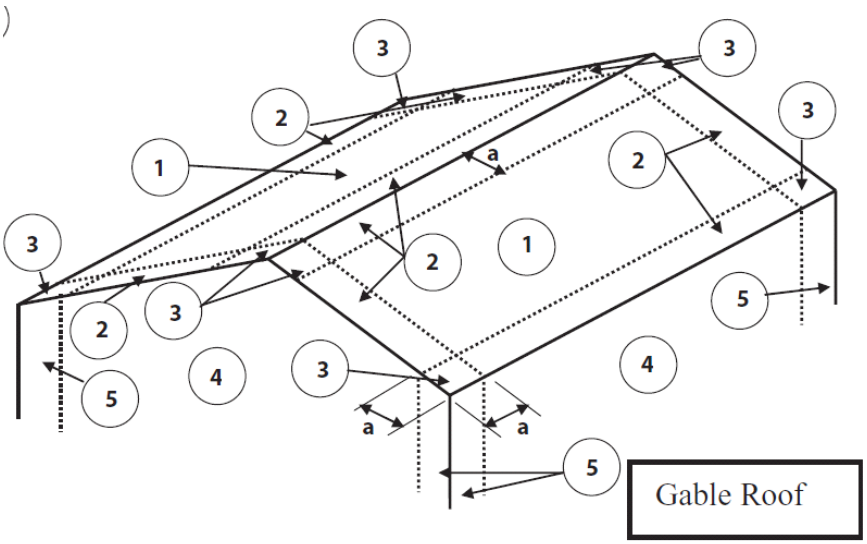
Building Code:	ASCE 7- 10
Roof Type:	**Gable**
Building Length:	61.8 ft
Buiding Least Width (w):	42.7 ft
Eave Height:	15.0 ft
Ridge Height:	27.5 ft
Mean Roof Height (**h**):	**21.2 ft**
Roof Slope (**Θ**):	7.00 / 12 **= 30.3 °**

NORTH CAROLINA PROFESSIONAL SEAL 048091 ENGINEER ROBERT TRAVIS CURRY

DESIGN CALCULATIONS

Exposure Category =	C	**a = 5 ft**	
Enclosure Classification =	Enclosed Building	Kz =	0.91
Internal Pressure Coefficient (GCpi) =	0.18	Kzt =	1.00
Ultimate Wind Speed (V) =	120.0 mph	Kd =	0.85
Nominal Wind Speed (Vasd) =	93 mph	Ke =	N/A
Risk Category =	II	Base Pressure (**qz**) =	**28.5 psf**

DIAGRAM / RESULTS SUMMARY



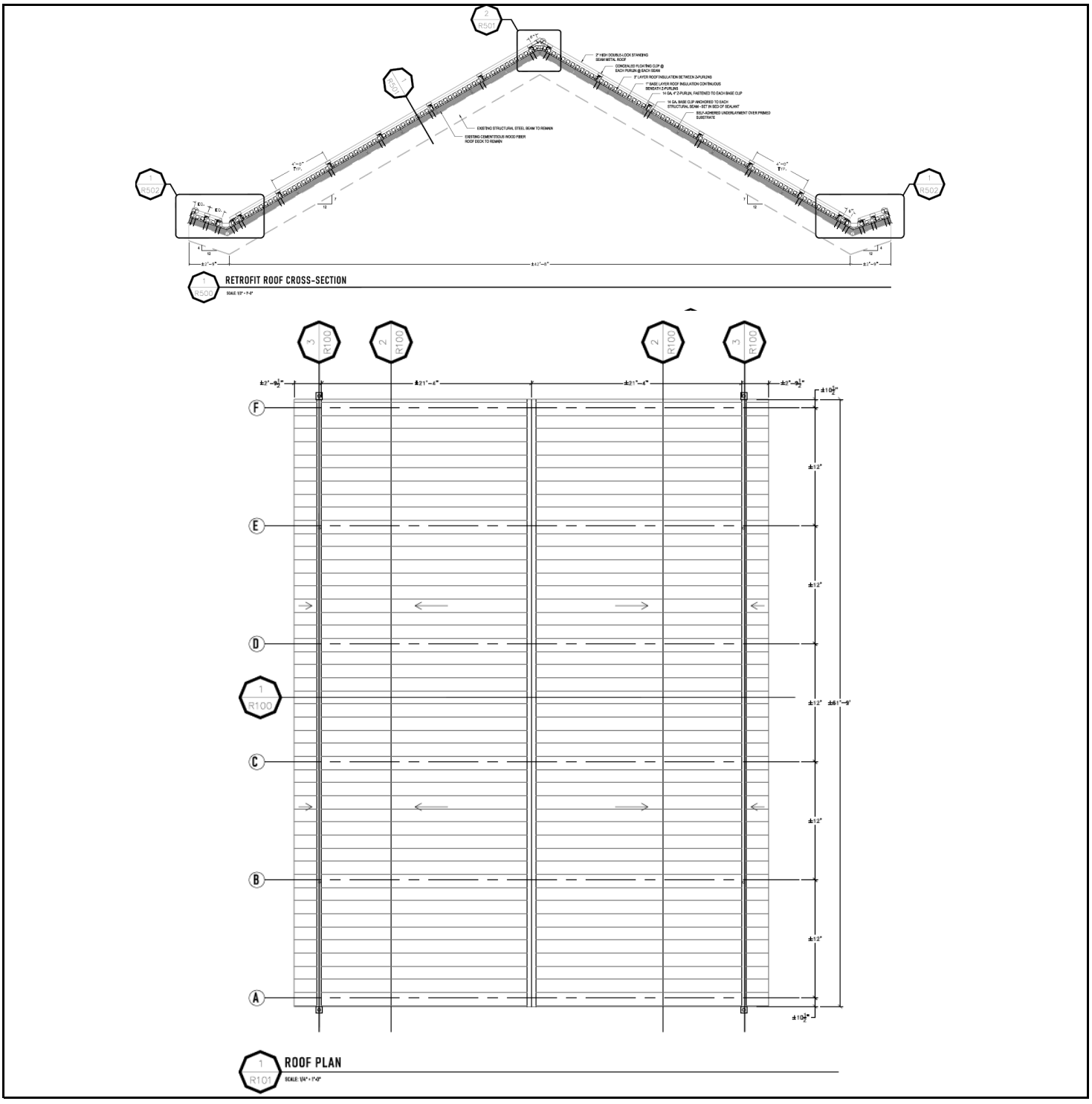
FASTENER SPACING SUMMARY

Zone	Spacing
Negative Zone 1	**60 in**
Negative Zone 2	**60 in**
Negative Zone 3	**60 in**
Positive All Zones	
Overhang Zone 2	**60 in**
Overhang Zone 3	**60 in**

**Diagram is taken from ASCE 7- 10, Minimum Design Loads for Buildings and Other Structures, with permission from the American Society of Civil Engineers. Some zone naming conventions may vary.*

PROJECT			
	Spring Hill United Methodist Church - Roof 1960 Spring Hill Church Rd Lillington, NC	METAL ROOFING SYSTEMS www.metalroofingsystems.com	7687 Mikron Drive Stanley, NC 28164 (704) 820-3110

SKETCH



**Sketch supplied by project documents. Not to scale (NTS).*

PROJECT	Spring Hill United Methodist Church - Roof 1960 Spring Hill Church Rd Lillington, NC	METAL ROOFING SYSTEMS www.metalroofingsystems.com	7687 Mikron Drive Stanley, NC 28164 (704) 820-3110

BUILDING MATERIALS

PANEL SELECTION

Panel:	MRS System 2500
Panel Width:	16 in
Panel Material:	24 GA Galvalume
Panel Seam:	180° Seam (Double Lock)
Factor of Safety:	2

PANEL ATTACHMENT

Panel Attachment Method:	Low Float - 22Ga Tab 18Ga Base G90 Galv Steel (Part#M0413)
	High Float - 22Ga Tab 18Ga Base G90 Galv Steel (Part#M0414)
Qty of Fasteners per Connection:	2

PANEL TESTING

Panel testing is based on:

Panel:	MRS System 2500
Panel Width:	16 in
Panel Material:	24 GA Galvalume
Panel Seam:	180° Seam (Double Lock)
Factor of Safety (FOS):	2

Panel Testing:	Referenced Testing	Spacing	Design Load
	ATLNC 0606.01-16	60 in	42.5 psf
	ATLNC 0606.01-16	12 in	162.5 psf

FASTENER DATA

Fastener:	#14-13 DP-1
Substrate:	16 Ga Steel
Pullout:	779.0 lbs
Factor of Safety:	3
Allowable Pullout:	259.7 lbs
Fastener Testing:	Fastener pullout values are from *Metal Fastening Systems for Clip-Lock: Pancake Head Screws for Concealed Applications* .

PROJECT	Spring Hill United Methodist Church - Roof 1960 Spring Hill Church Rd Lillington, NC	METAL ROOFING SYSTEMS www.metalroofingsystems.com	7687 Mikron Drive Stanley, NC 28164 (704) 820-3110

COMPONENTS AND CLADDING CALCULATIONS TABLE					
$p_z = q_z * (GCp - GCpi)$,		$p_{asd} = 0.6 * p_{ult}$		Spacing	
Zone	GCp	p_{ult}	p_{asd}	Panel	Screws
Negative Zone 1	-1.0	-33.6 psf	-20.2 psf	60 in	60 in
Negative Zone 2	-1.2	-39.3 psf	-23.6 psf	60 in	60 in
Negative Zone 3	-1.2	-39.3 psf	-23.6 psf	60 in	60 in
Positive All Zones	1.3	30.8 psf	18.5 psf		
Overhang Zone 2	-2.0	-57.0 psf	-34.2 psf	60 in	60 in
Overhang Zone 3	-2.0	-57.0 psf	-34.2 psf	60 in	60 in

Overhang pressures in the table above assume an internal pressure coefficient (Gcpi) of 0.0

Overhang soffit pressure equals adj wall pressure (which includes internal pressure of 5.1 psf)

* Panel spacing is limited to 60 in max. and rounded down to the nearest : 6 in

* Screw spacing is limited to 60 in max. and rounded down to the nearest : 6 in

GENERAL NOTES

1. Wind zones are defined per ASCE 7- 10.

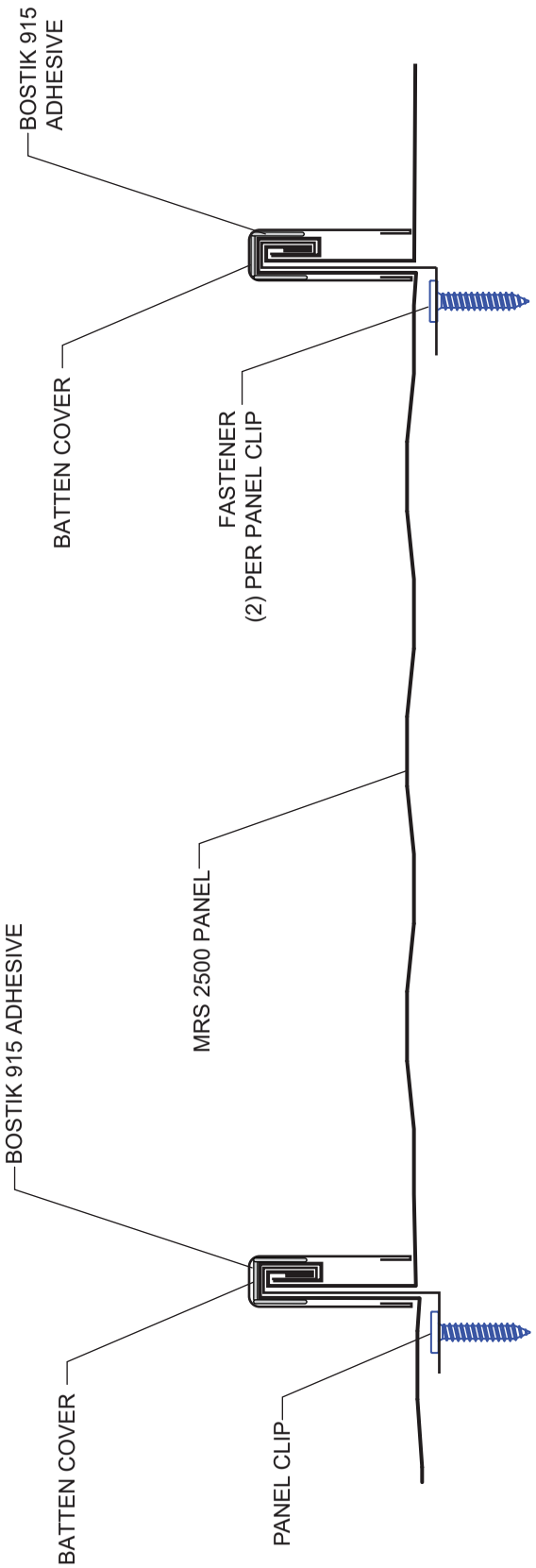
2. Clip spacing is governed by the more critical of panel capacity or fastener pullout resistance, per Allowable Stress Design (ASD). Maximum allowable spacings are shown in the *Fastener Spacing Summary* table above and on page 1.

3. Use (2) #14-13 DP-1 per clip at each connection. Contractor to ensure proper screw lengths. Allow at least three full threads to extend beyond material. For wood applications, allow 1-inch minimum embedment in plywood and OSB for optimal pullout resistance.

4. Acceptable attachment: Low Float - 22Ga Tab 18Ga Base G90 Galv Steel (Part#M0413)
High Float - 22Ga Tab 18Ga Base G90 Galv Steel (Part#M0414)

5. Contractor to ensure that the first row of fasteners starts no further than 6-inches from the eave or ridge.

6. Engineer is not reaponsible for sheathing to framing connections or framing to the structure connections.



METAL ROOFING Systems, Inc

7687 Mikron Drive
Stanley, NC 28164
704-820-3110

SUBJECT: MRS 2500 PANEL W/ BATTEN

DATE:

SCALE: NONE

REV:

915

POLYURETHANE SEALANT & ADHESIVE

TECHNICAL DATA SHEET 04/19/2023

SMART ADVANTAGES

- Tenacious bond to difficult substrates
- Permanently flexible
- Miami-Dade approval NOA 17-0329.18, 15-0520.01

DESCRIPTION

915 sealant is a one-component, smooth polyurethane adhesive capable of dynamic joint movement totaling 70% of original joint geometry (±35%). The sealant cures to a tough, flexible rubber when exposed to moisture present in the atmosphere.

Bostik 915's all-season formula has physical properties that will remain stable over time. The cured performance temperature range is -40°F to 150°F. Where textured appearance is needed, please use Bostik 916.

APPLICABLE STANDARDS

- ASTM C920, TYPE S, GRADE NS, CLASS 35 USE NT, A AND M
- US Federal Specification TT-S 00230C (COMB-NBS) for one-component sealants as Class A, non-sag
- CARB, SCAQMD, and OTC compliant
- Canadian Specification CAN /CGSB 19.13-M87
- Miami-Dade County, Florida, NOA No.: 13.0423.10, 05/24/17
- Miami-Dade TAS 102- Static Uplift Resistance
- AAMA 808.3
- AAMA 100/200/300 installation requirements

BASIC USES

915 is designed for applications from foundation to finish and is ideal for sealing expansion and control joints, tilt-up joints, perimeters of doors, windows, and other wall penetrations. It has tenacious sealing and bonding performance for many roofing applications, metal roofs, gutters, roof tile installations, flashing, and sheet metal applications.

915 cures to form a durable, flexible bond with most building materials such as stone, foam, masonry, ceramic, wood, steel, Kynar® coated metals, copper, and most other metals.



INSTALLATION PROTOCOL

Miami-Dade County Considerations: To maximize wetting potential of the sealant to the substrates, mate or join adjacent surfaces prior to the Bostik 915 skinning and subsequent curing. Allow full cure, typically 7 days, prior to any mechanical stress-testing procedures. It is recommended that adhesion testing be performed to capture batch control qualities of proposed substrates.

Joint Design: In general, more joint movement can be accommodated in a thin bead of sealant than a thick bead. Bostik 915 should be no thicker than 1/2" (12.7mm) and no thinner than 1/4" (6.4mm). In joints between 1/2" and 1", the ratio of sealant width to depth should be approximately 2:1. Sealant depth in joints between 1/4" and 1/2" should be 1/4" deep. Joints with dynamic movement should not be designed in widths less than 1/4". Surface Preparation: Surfaces must be structurally clean, dry (no frost) and structurally sound, free of contaminants, including, but not limited to, dust, dirt, loose particles, tar, asphalt, rust, mill oil, etc. If substrate is painted or coated, scrape away all loose and weakly bonded paint or coating. Any paint or coating that cannot be removed must be tested to verify adhesion of the sealant or to determine the appropriate surface preparation if needed. (See ASP section on next page for details.)

This supersedes and replaces in its entirety all previously published versions of this document. B56443

Backer Rods and Bond Breaker Tapes: Bond breakers including, but not limited to, closed-cell polyethylene backer rods are used to control depth of the sealant bead, provide a firm tooling surface and avoid three-sided adhesion. Where the depth of joint prevents use of backer rods, a polyethylene strip or tape must be used as a bond breaker to prevent 3-sided adhesion. Do not prime or damage the surface of the bond breaker. Refer to instructions given by rod and tape manufacturers for the correct backer rod and tape size related to joint size.

Tooling: 915 comes ready to use. Cut spout or tip to desired bead size. Apply moderate pressure to break seal inside the nozzle. Apply by using a professional caulking gun. Use opened cartridges and sausages the same day they are opened. Apply 915 in a continuous operation using positive pressure to the bottom of the joint to properly fill and seal the joint. When applying, avoid air entrapment and overlapping. Before the skin forms, tool the sealant with adequate pressure to spread the sealant against the backup material at the bottom and sides of the joint. A dry tool with a concave profile is recommended for this operation. Do not use water or soapy water for this operation. Avoid smearing and feathering of the sealant to allow full performance of the cured seam. Excess sealant should be dry-wiped or joints should be properly taped.

Cleaning: After dry-wiping uncured sealant from substrates and tools, remaining uncured sealant can be removed by using mineral spirits. Cured sealant is usually very difficult to remove without altering or damaging the surface to which the sealant has been misapplied. Cured sealant can be removed by abrasion or other mechanical means (scrapers, putty knives).

Curing Time: 915 is a moisture cure, polyurethane sealant. On wood, with ambient air at 50% relative humidity and at 73°F (23°C), polyurethane sealants will generally skin within four hours and cure 1/16 of an inch per day. Lower temperature and lower relative humidity will significantly increase the skin time and cure time of a polyurethane sealant.

Painting and Coating: Do not paint over the polyurethane sealant until it has fully cured.

Maintenance: If the sealant becomes damaged, replace the damaged portion by removing the old sealant completely, cleaning the surfaces and reapplying a fresh and appropriate amount of new sealant in accordance with the directions and information contained in this data sheet.

MANDATORY ADHESION TO SUBSTRATES PRETEST (ASP)

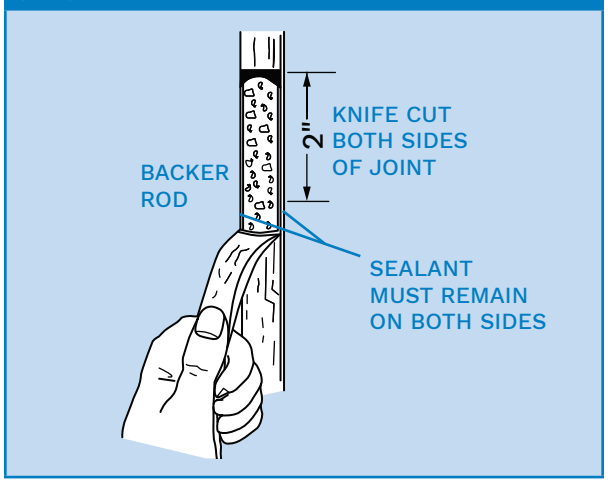
A hand pull test must be run before the job starts and at regular intervals during the job. It must be run on the job site after the sealant is fully cured, usually within 7 to 21 days. (Adhesion may develop fully after at least 14 days.) The hand pull test procedure is as follows:

1. Make a knife cut horizontally from one side of the joint to the other.
2. Make two vertical cuts approximately two inches long, at the sides of the joint, meeting the horizontal cut at the top of the two-inch cuts.
3. Grasp the two-inch piece of sealant firmly between the fingers and pull down at a 90° angle or more, and try to pull the uncut sealant out of the joint.
4. If adhesion is sufficient, the sealant should tear cohesively in itself.
5. Sealant may be replaced by applying more sealant in the same manner as it was originally applied. Care should be taken to ensure that the new sealant is in contact with the original, and that the original sealant surfaces are clean, so that a proper bond between the new and old sealant will be obtained.

PACKAGING

10.1 fl. oz. Cartridges, 24 Cartridges/Case
20 fl. oz. Sausages, 12 Sausages/Case

MANDATORY ADHESION TO SUBSTRATE PRETEST (ASP)



COLORS

White, Black, Light Gray, Stone, Aluminum Stone, Limestone, Bronze, Medium Bronze, Terra Cotta, and Tan

AVAILABILITY

Available from authorized Bostik distributors. Go to www.bostik.com/us and check on our distributor locator for the closest distributor in your location or call customer service at 1-800-7/BOSTIK (1-800-726-7845).

STORAGE/SHELF LIFE

Store in a clean, dry area not affected by freezing or hot temperatures between 50°F (10°C) and 90°F (32°C). Shelf life is one year from date of manufacturing in unopened cartridge.

LIMITATIONS

- Construction substrates have become complex and diverse by nature and origin. Substrate chemistries and structures can interfere with adhesive performances of the sealant. Adhesion to Substrate Pretest (ASP) is therefore MANDATORY to assess any adhesion and sealing characteristics — see Adhesion to Substrates Pretest section and see Installation Protocol section. This must be done pre-installation to avoid potential failures. Call Technical Service for more information about surface preparation.
- Do not apply over damp, contaminated, loose surfaces, old sealants, or other foreign substances that may impair the adhesion bond. Avoid air entrapment.
- Dampness and substrates with high-moisture content will trigger extensive curing of the sealant within a very short period of time. This may cause an excess of bubbling and foaming within the sealant and at the bottom of the bead.
- High temperature/humidity can cause the sealant to develop bubbles during the curing process.
- Sealant installation is not recommended when the dew point of the substrate is close to ambient temperature or a moisture-vapor transmission condition is present increasing the potential for bubbling to form during cure.
- Porous substrates such as, but not limited to, marble, limestone, and granite might absorb components of the 915 leading to staining of the substrate. ASP with sufficient aging is mandatory to assess this potential issue.
- 915 must not be used to seal narrow joints, fillet joints, and face nail holes.

- Smearing and feathering 915 over joints is not recommended.
- 915 is not recommended for horizontal joints or traffic-bearing joints where abrasion resistance is required (walkways, driveways, runways, etc.).
- 915 is not recommended for continuous immersion in water or any other fluid. When fully cured, avoid exposure, even incidental, to fuels, and chlorinated, acidic, or alkaline solutions. Bostik 915 is not recommended for exterior or interior sealing below the waterline; please refer to Bostik 940 Fast Set for marine applications.
- Contact of 915 with asphalts (e.g., back coating of window flashing, etc.) and other filler compounds impregnated with oil, asphalt, tar, etc., may deteriorate the cohesive strength of the substrate and ultimately compromise the seal. Please refer to PRO MS 50™ for asphalt applications.
- Lower relative humidity and temperature will significantly extend the curing time. Confined areas, deep joints, and moisture-barrier substrates may also affect the full cure time and extend it by many days. Apply sealant in ambient air temperature of 40°F (4.4°C). and rising.
- 915 may remain tacky for a few hours and attract dust and dirt from the jobsite, which may affect the appearance of the sealant. Check tack-free time to prevent dirt pickup.
- 915 is not recommended for glazing applications. Bond line strength can be affected by UV rays through the clear material (glass, acrylic glass, polycarbonate, etc.).
- Do not paint over the polyurethane sealant until it has fully cured.
- The surface of a 915 seal when exposed to UV rays and sunlight will yellow and will not retain its gloss. This phenomenon can occur within a few weeks after exposure. The change of color is limited to the surface layer of the seal and should not compromise the sealing properties of the 915 if the dimensions of the joint are proper and the sealant is otherwise properly applied. In areas where color retention is critical, please refer to Bostik PRO MS 50™.

CAUTION

IRRITANT. MAY BE HARMFUL IF SWALLOWED OR INHALED. CONTAINS POTENTIAL SENSITIZER. MAY CAUSE ALLERGIC SKIN OR LUNG REACTION. MAY IRRITATE EYES, SKIN AND RESPIRATORY TRACT. Do not breathe fumes. Do not get in eyes, on skin or on clothing. Do not swallow. Use only in a well-ventilated area or wear mask. Wash thoroughly after handling. Store container in a cool, dry area with lid tightly sealed. Do not reuse container.

KEEP OUT OF REACH OF CHILDREN

FIRST AID TREATMENT

Contains petroleum resins, diisodecyl phthalate (DIDP), methylene diphenyl isocyanate (MDI), quartz silica. Methanol may form during curing. If in eyes or on skin, rinse with water for at least 15 minutes. If on clothes, remove clothes. If breathed in, move person to fresh air. If swallowed, call a Poison Control Center or doctor immediately. Do not induce vomiting.

SEE SAFETY DATA SHEET

CHEMICAL EMERGENCY: 800-424-9300 (USA), 703-527-3887 (International)

MEDICAL EMERGENCY: 866-767-5089

TABLE 1: TYPICAL UNCURED PROPERTIES*

Property	Value	Test Method/Note
Tool/Work Time	60 min.	Bostik Test Method
Skin Time	4 hours	Bostik Test Method
Curing Time @77°F (25°C)	2-7 days	Varies w/relative humidity
Flow, Sag or Slump	0.3 inch	Bostik Test Method

* Values given above are not intended to be used in specification preparation purposes.

TABLE 2: TYPICAL CURED PROPERTIES* (AFTER 14 DAYS CURE AT 77°F AND 50% RH)

Property	Value	Test Method/Note
Hardness (Shore A)	42	ASTM D 2240
Modulus @ 100% Elongation @ 25% Elongation	65 psi 45 psi	ASTM D 412 ASTM D 412
Tensile Strength @ Break	133 psi	ASTM D 412
Elongation @ Break	685%	ASTM D 412
Adhesion Peel	>5 piw	TT-S-00230C / ASTM C 794
Joint Movement Capability	+/- 35%	TT-S-00230C / ASTM C 719
UV Resistance	Pass	ASTM C 793
Static Uplift Resistance (concrete roof tile)	49	Miami-Dade TAS 102

* Values given above are not intended to be used in specification preparation purposes.

COVERAGE FOR 10.1 FL. OZ. (300 ML) CARTRIDGE

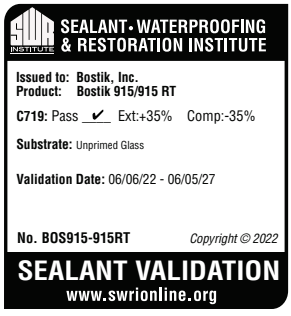
	Width							
Depth	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
1/8"	99	49	33	24	20	16	14	12
1/4"		24	20	12	10	8	7	6
3/8"			11	8	6	5	5	4
1/2"				6	5	4	3	3

Linear Feet Per 10.1 fl. oz. Cartridge

COVERAGE FOR 20 FL. OZ. (600 ML) SAUSAGE

	Width							
Depth	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
1/8"	288	145	95	71	58	48	40	36
1/4"		71	58	36	29	23	20	17
3/8"			32	23	17	16	13	11
1/2"				17	14	11	10	8

Linear Feet Per 20 fl. oz. Sausage



LIMITED WARRANTY found at www.bostik.com/us. TO THE MAXIMUM EXTENT ALLOWED BY LAW, BOSTIK DISCLAIMS ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UNLESS OTHERWISE STATED IN THE LIMITED WARRANTY, THE SOLE REMEDY FOR BREACH OF WARRANTY IS REPLACEMENT OF THE PRODUCT OR REFUND OF THE BUYER'S PURCHASE PRICE. BOSTIK DISCLAIMS ANY LIABILITY FOR DIRECT, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES TO THE MAXIMUM EXTENT ALLOWED BY LAW. DISCLAIMERS OF IMPLIED WARRANTIES MAY NOT BE APPLICABLE TO CERTAIN CLASSES OF BUYERS AND SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. It is the buyer's obligation to test the suitability of the product for an intended use prior to using it. The Limited Warranty extends only to the original purchaser and is not transferable or assignable. Any claim for a defective product must be filed within 30 days of discovery of a problem, and must be submitted with written proof of purchase.

Bostik, Inc.
11320 W. Watertown Plank Road
Wauwatosa, WI 53226
www.bostik.com/us

BOSTIK HOTLINE

Smart help 1-800-726-7845



Legal Disclaimer: All information contained herein is believed to be accurate as of the date of publication, is provided "as-is" and is subject to change without notice. This is not a warranty, an agreement, or substitute for expert or professional advice. Bostik Inc. expressly disclaims and assumes no liability for the use of the products or reliance on this information. It is the sole responsibility of the user to determine the suitability of any products for user's application(s). NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED (INCLUDING SUITABILITY FOR USE IN ANY MEDICAL DEVICE OR MEDICAL APPLICATION), IS MADE CONCERNING THE PRODUCTS OR THE INFORMATION PROVIDED HEREIN. The information provided relates only to the specific products designated herein and may not be valid where such products are used in combination with other materials or in any process. The performance of the product, its shelf life, and application characteristics depends on many variables, and changes in these variables can impact product performance. You are responsible to test the suitability of any product in advance for any intended use or application and before commercialization. Nothing herein shall be construed as a license for the use of any product in a manner that might infringe any patent and it should not be construed as an inducement to infringe any patent. Please carefully review the Safety Data Sheet for the product.