

# Milliken Infrastructure RenewWrap™ NSM Gel

2-Part Epoxy Bonding Resin



BRIDGES + ROADWAYS



BUILDINGS + PARKING FACILITIES



OIL, GAS + INDUSTRIAL



RenewWrap™ NSM Gel is a 2-part epoxy resin to be used with RenewWrap™ CF Bars or Tapes in near surface mounted (NSM) applications.

## Benefits

- Compatible with RenewWrap™ CF Bars and Tapes
- Moisture insensitive before, during and after cure
- Withstands freeze-thaw conditions
- Excellent adhesion to concrete, CF Bars and Tapes
- Little to no odor
- Available in 53-oz. cartridges and in bulk

## Limitations

- Do not thin with solvents
- Design calculations shall be made and sealed by a licensed, independent engineer knowledgeable with the design of FRP strengthening applications
- Pneumatic dispensing gun is recommended when using this product
- Installation shall follow the guidelines presented in the RenewWrap NSM Installation Guide.

## Typical Uses

- Negative moment flexural strengthening of one-way slabs, beams and walls.
- May also be used on bottom of structural members for positive moment flexural strengthening where RenewWrap™ fabrics are not specified
- Bonding RenewWrap™ CF Bars and Tapes into grooves cut into concrete for near surface mounted applications
- May be used for filling bug holes and other small voids

## Packaging

- 53-oz. (1.6 L) dual cartridges
- 6 cartridges per case

## Storage & Shelf Life

Store in a dry place at 40-90 °F (4-32 °C) out of direct sunlight. Material has a shelf life of 28 months when stored in unopened containers.

## Yield

38 LF/cartridge kit (#3 bar)

22 LF/cartridge kit (#4 bar)

Notes:

- 1) Yield is based on ACI 440.2R minimum groove sizes as shown in Figure 1
- 2) Yield is based on round bars. For tapes, please contact Milliken Infrastructure
- 3) Actual yield in field will depend on specified and as-cut groove dimensions

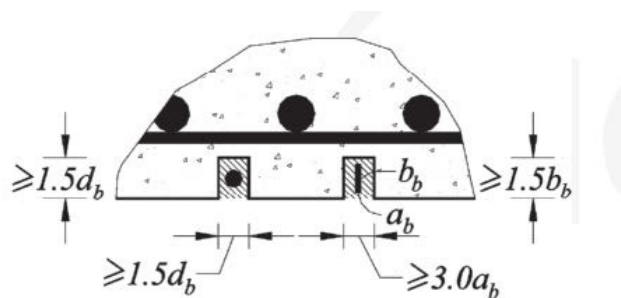


Figure 1 - ACI 440 Minimum Groove Dimensions  
(Ref: Figure 14.3a from ACI 440.2R-17)

## Caution

Product safety data sheets (SDS) should be consulted during application of or when handling the product

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## General Information

Color White (Part A- Resin) Black (Part B - Hardener) Gray (Mixed)

## Physical Properties

### PROPERTY

Mix Ratio	1:1		
Consistency (Viscosity)	Non-sag	ASTM C881	
Heat Deflection Temperature (7 days at 75 °F)	132 °F (55.6 °C)	ASTM D648	
	40 °F (4 °C)	@ 75 °F (24 °C)	@ 110 °F (43 °C)
Pot Life <sup>1</sup>	13 minutes		
Working Time <sup>2</sup>	36 minutes	20 minutes	12 minutes
Cure Time <sup>3</sup>	72 hours	24 hours	18 hours

### NOTES:

1. Pot life is measured as the workable and applicable time of 1.0 gallon (3.8 L) when mixed in at @ 75 °F (24 °C).
2. Working and cure times are approximate and may vary slightly based on substrate temperatures and the temperature product was conditioned at prior to application.
3. Full cure is based on time it takes for product to reach mechanical properties.

## Mechanical Properties

### PROPERTY

	38 °F (3 °C)	50 °F (10 °C)	75 °F (24 °C)	
Compressive Yield Strength	10,860 psi (74.9 MPa)	10,490 psi (72.3 MPa)	11,410 psi (78.7 MPa)	ASTM D695
Compressive Modulus	209,000 psi (1,441 MPa)	211,000 psi (1,454 MPa)	244,000 psi (1,682 MPa)	ASTM D695
Bond Strength @ 2 days cure	2,850 psi (19.7 MPa)	3,300 psi (22.8 MPa)	3,580 psi (24.7 MPa)	ASTM C882
Bond Strength @ 14 days cure	2,790 psi (19.2 MPa)	4,090 psi (28.2 MPa)	3,940 psi (27.2 MPa)	ASTM C882
NSM Shear Bond Strength <sup>1</sup>	>1,000 psi (6.9 MPa)	See Note		

### NOTES:

1. Shear bond strength is measured using hinged beam testing of #3 and #4 RenewWrap™ CF bars and exceeds the recommended minimum bond strength required by ACI 440.2R-17 for NSM applications. Groove sizes in accordance with ACI 440.2R-17.

Before using any Milliken Infrastructure Solutions, LLC product, the user must review the most recent version of the product's technical data sheet, material safety data sheet and other applicable documents, available at [www.strengtheningsolutions.milliken.com](http://www.strengtheningsolutions.milliken.com) or by calling 1-855-655-6750. LIMITED WARRANTY: Milliken Infrastructure Solutions, LLC is very proud of our innovative RenewWrap™ products (the "Products") and our superior customer service. We hereby warrant to the original purchaser that the Products meet Milliken's standard specifications at the time of delivery from us. If the Products are found to be defective because they do not meet this Warranty, then we will as the sole remedy either (at our option) refund the purchase price for those Products or provide replacement Products (in either case, not including shipping, installation or any other cost). Naturally, we are not responsible or liable for degradation, damage, liability or defect in, or related to, the Products caused by improper storage, use, installation or maintenance, any other party's representations, warranties, actions, or omissions, or acts of God. WE MAKE NO REPRESENTATION OR WARRANTY BEYOND THE EXPLICIT STATEMENTS CONTAINED IN THIS WARRANTY, AND ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, INFRINGEMENT, OR ANY WARRANTIES BASED UPON SAMPLES, MODELS, OR SPECIFICATIONS, ARE HEREBY EXPRESSLY DISCLAIMED. NOTWITHSTANDING ANYTHING TO THE CONTRARY, IN NO EVENT SHALL WE BE LIABLE TO THE ORIGINAL PURCHASER OR ANYONE ELSE FOR ANY CONSEQUENTIAL, INDIRECT, SPECIAL, OR EXEMPLARY (OR ANY SIMILAR TYPE OF) DAMAGES RELATED TO THE PRODUCTS. As each customer's use of our Products and situation may be different, information we provide, including without limitation, use or installation suggestions, test results, samples, etc. is provided in good faith but without warranty and without accepting any responsibility or liability. Each customer must test and be responsible for its own specific use, installation, application, etc. All sales are exclusively subject to our standard terms of sale posted at [www.milliken.com/terms](http://www.milliken.com/terms) (all additional/different terms are rejected) unless explicitly agreed otherwise in a signed writing. This Warranty is governed by the laws of the United States and the State of South Carolina, U.S.A. (without giving effect to its conflict of law principles), and any party desiring to take action under this Warranty hereby submits to the exclusive jurisdiction of the courts in such jurisdiction and waive any inconvenient forum claims related thereto. In the unlikely event that you have a warranty issue, please contact your distributor or sales representative to discuss and resolve the matter in accordance with this Warranty.

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