Intertek | Architectural Testing

JUN 29 2016

MIAMI-DADE COUNTY
PERFORMANCE TEST REPORT

Rendered to:

MAZE NAILS

PRODUCTS: Roofing Nails
TYPE: Galvanized

This report contains in its entirety:
Cover page: 1 page
Body: 6 pages
Photographs: 8 pages

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PROFESSIONAL ENGINEER

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Report Date: 06/28/16
Test Record Retention Date: 06/13/26
Miami-Dade Notification No.: ATI 16037

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Intertek | Architectural Testing

MIAMI-DADE COUNTY PERFORMANCE TEST REPORT

Rendered to:

MAZE NAILS
100 Church Street
Peru, Illinois 61354

Report No:	F8657.01-106-18
Test Dates:	06/01/16
Through:	06/13/16
Report Date:	06/28/16
Test Record Retention Date:	06/13/26
Miami-Dade County Notification No.:	ATI 16037

Products: Roofing Nails

Type: Galvanized

Project Summary: Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted by Maze Nails to perform salt spray corrosion testing on their various galvanized nails. Maze Nails provided the following descriptions of the galvanized nails:

- 0.120" x 1-1/2" R103 Smooth Shank Hot-Dip Galvanized Hand Drive Roofing Nails
- 0.120" x 1-1/2" R103A Ring Shank Hot-Dip Galvanized Hand Drive Roofing Nails
- 0.120" x 2-1/2" R107 Smooth Shank Hot-Dip Galvanized Hand Drive Roofing Nails
- 0.120" x 2-1/2" R107A Ring Shank Hot-Dip Galvanized Hand Drive Roofing Nails
- 0.120" x 1-1/2" CLWR103 Smooth Shank Hot-Dip Galvanized Coil Roofing Nails
- 0.120" x 1-1/2" CLWR103A Ring Shank Hot-Dip Galvanized Coil Roofing Nails
- 0.135" x 3" R159 Smooth Shank Hot-Dip Galvanized Hand Drive Roofing Nails
- 0.135" x 3" R159A Ring Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Five of each nail type were randomly selected from the boxes provided by Maze Nails. The test specimens met the corrosion resistance requirement of ≤5% corrosion of total surface area. The test procedure and test results are reported herein.

Test Method: The test specimens were evaluated in accordance with TAS 114-95, Appendix E, *Test Procedure for Corrosion Resistance of Fasteners, Batten Bars and Stress Distribution Plates.*

Test Procedure: The test was performed in a Q-Fog cyclic exposure chamber with a pre-programmed prohesion cycle. The exposure consisted of 140 cycles. Each cycle consisted of one hour of corrosive fog at 75°F ±6°F, followed by a one hour dry off period reaching and remaining at 95°F ±3°F within 3/4 hour of switching from the fog period to the dry period. The salt solution consisted of an electrolyte solution of 0.05% Sodium Chloride and 0.35% Ammonium Sulfate by mass. The test specimens were tested as received, with one exception: the coiled roofing nails were snipped from the coil. They were suspended in the test machine using fishing wire for the duration of the test. Upon completion of the exposure, the samples were removed from the test chamber, rinsed with warm water and evaluated for the occurrence and degree of corrosion in accordance with ASTM D610.

Test Results: The results are reported in the following tables. Photographs in Appendix A show the test specimens before and after testing.

0.120" x 1-1/2" R103 Smooth Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

0.120" x 1-1/2" R103A Ring Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

0.120" x 2-1/2" R107 Smooth Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

Test Results: (Continued)

0.120" x 2-1/2" R107A Ring Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

0.120" x 1-1/2" CLWR103 Smooth Shank Hot-Dip Galvanized Coil Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

0.120" x 1-1/2" CLWR103A Ring Shank Hot-Dip Galvanized Coil Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

Test Results: (Continued)

0.135" x 3" R159 Smooth Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

0.135" x 3" R159A Ring Shank Hot-Dip Galvanized Hand Drive Roofing Nails

Test Specimen	Degree of Corrosion	Observations
1	10	No Rust
2	10	No Rust
3	10	No Rust
4	10	No Rust
5	10	No Rust

Test Equipment:

Q-Fog Salt Machine: ICN 005959

List of Official Observers:

Name	Company
Joseph A. Reed, P.E.	Intertek-ATI
Dawn M. Chaney	Intertek-ATI
J. Rich Hammons	Intertek-ATI

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Intertek-ATI for a period of ten years from the original test date. At the end of this retention period such materials shall be discarded without notice and the service life of this report by Intertek-ATI will expire.

Results obtained are tested values and were secured by using the designed test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI

For INTERTEK-ATI:

Digitally Signed by: James Hammons

J. Rich Hammons
Technician II
Component/Materials Testing

Digitally Signed by: Joseph A. Reed

Joseph A. Reed, P.E.
Senior Director

JRH:dmc/jar/kf

Attachments (pages) This report is complete only when all attachments listed are included.
Appendix A - Photographs (8)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	06/28/16	N/A	Original report issue

APPENDIX A

Photographs

Photo No. 1
0.120" x 1-1/2" R103 Smooth Shank Roofing Nails Prior to Salt Spray Exposure

Photo No. 2
0.120" x 1-1/2" R103 Smooth Shank Roofing Nails After Salt Spray Exposure

Photo No. 3
0.120" x 1-1/2" R103A Ring Shank Roofing Nails Prior to Salt Spray Exposure

Photo No. 4
0.120" x 1-1/2" R103A Ring Shank Roofing Nails After Salt Spray Exposure

Photo No. 5
0.120" x 2-1/2" R107 Smooth Shank Roofing Nails Prior to Salt Spray Exposure

Photo No. 6
0.120" x 2-1/2" R107 Smooth Shank Roofing Nails After Salt Spray Exposure

Photo No. 7
0.120" x 2-1/2" R107A Ring Shank Roofing Nails Prior to Salt Spray Exposure

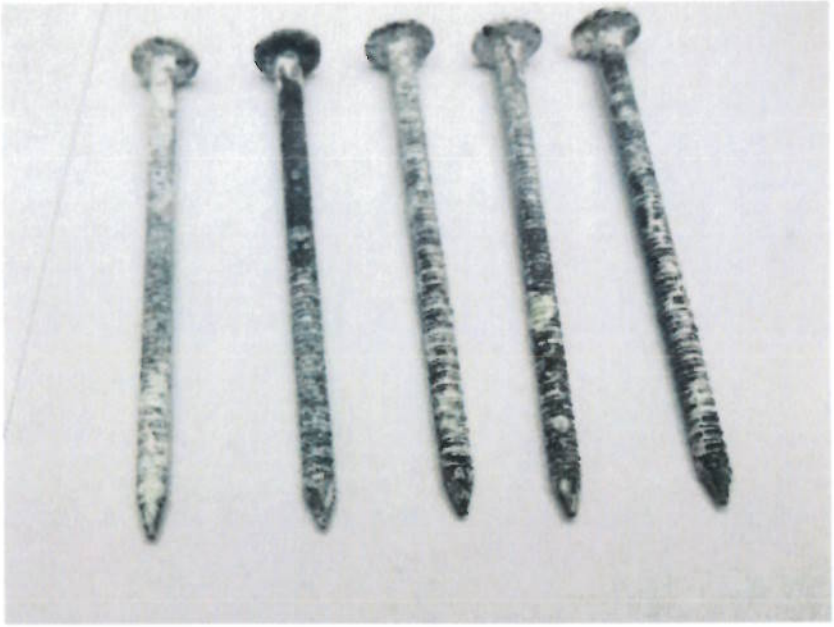

Photo No. 8
0.120" x 2-1/2" R107A Ring Shank Roofing Nails After Salt Spray Exposure

Photo No. 9
0.120" x 1-1/2" CLWR103 Smooth Shank Coil Roofing Nails Prior to Salt Spray Exposure

Photo No. 10
0.120" x 1-1/2" CLWR103 Smooth Shank Coil Roofing Nails After Spray Exposure

Photo No. 11
0.120" x 1-1/2" CLWR103A Ring Shank Coil Roofing Nails Prior to Salt Spray Exposure

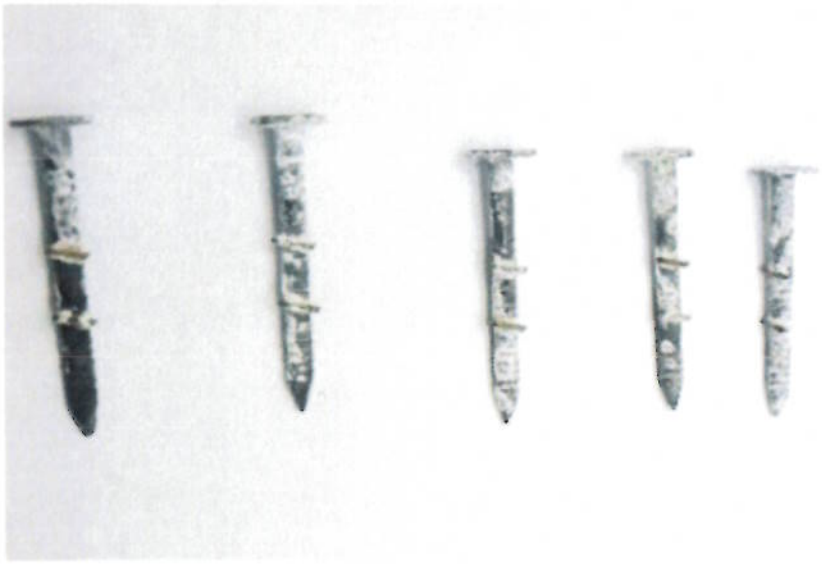

Photo No. 12
0.120" x 1-1/2" CLWR103A Ring Shank Coil Roofing Nails After Salt Spray Exposure

Photo No. 13
0.135" x 3" R159 Smooth Shank Roofing Nails Prior to Salt Spray Exposure

Photo No. 14
0.135" x 3" R159 Smooth Shank Roofing Nails After Salt Spray Exposure

Photo No. 15
0.135" x 3" R159A Ring Shank Roofing Nails Prior to Salt Spray Exposure

Photo No. 16
0.135" x 3" R159A Ring Shank Roofing Nails After Salt Spray Exposure