ATLAS ANCHOR

PULL TESTING

Wood Pull Test Report

Nill Building Solutions
01/28/22

Atlas Anchor LLC
9531 sw 6th Ct Pembroke Pines, FL 33025
(347) 537–9994
Info@AtlasAnchorTesting.Com

Company of the products being tested

Name: Nill Building Solutions
Contact: Lance Nill, Christopher Gray
Address: 67 Mariner Drive Southampton, NY 11968
Phone number: (631) 494 - 6000
Email: Lance@NillBuildingSolutions.Com, Christopher@NillBuildingSolutions.Com

Statement of Qualification

Atlas Anchor L.L.C. has extensive experience in anchor pull & shear testing in accordance with ASTM E 488 and NYC D.O.B 2016-005. Nicholas Barona was a regional sales manager with DeWalt from 2014 to 2018. Nicholas Barona has completed over 500 pull tests under various applications and conditions while with DeWalt and Atlas Anchor L.L.C. Atlas Anchor L.L.C.'s equipment is serviced and calibrated annually.

New York Licensed Professional Engineer

Name: Anatoli Chigrinuk
Phone number: (631) 356 - 3420
Email: AlmaxLLC@Gmail.Com
State of License: New York
License Number: 082910
Qualification: Licensed Professional Engineer

Background

On Wednesday 01/28/2022 Atlas Anchor LLC performed pull & shear testing at Nill Building Solutions on various Nill Building Solutions products. The wood used during testing was new 3" x 16" x 24" F16 grade mass ply panels and 2" x 4" Douglas Fir. The following wood products tested were (Refer to the manufacturers' catalog for the listed herein products design applications and description):

- **NB17A (½" x 2 ¾" lag) – Patent pending**
- **NB17 (5/8" x 3" lag) – Patent pending**

- **NB3 (½" x 2" lag) – Patent pending**
- **NB1A2 (5"X5") flange solar anchor fastened with Grip-Rite #14 x 3" lag wood screw – Patent pending**
- **NB2D (¾" x 4" lag) – Patent pending**
- **NB1C fastened with Grip-Rite #14 x 3" lag wood screw – Patented**
- **NB3/8 (5/8" x 3 ½" lag) – Patent pending**

Pull Test Procedure

1. Fasten Nill attachment
2. Connect machine
3. Increase load every minute
4. Check anchor for movement
5. Hold for one minute.
6. Take photo of gauge and attachment
7. End test
8. Remove machine

Products

Figure 1


NILL
BUILDING SOLUTIONS
67 Mariner Drive, Southampton, NY 11968
www. NillBuildingSolutions.com Office: 631.494.000 Cell: 631-283.2020
Christopher@NillBuildingSolutions.com
NB1C Patented
Nill Building Solutions products are protected by U.S. Patent No. 10,501,939 and/or other U.S. and Foreign patents pending

Figure 2


NILL
BUILDING SOLUTIONS
67 Mariner Drive, Southampton, NY 11968
www. NillBuildingSolutions.com Office: 631.494.000 Cell: 631-283.2020
Christopher@NillBuildingSolutions.com
NB2D Patent Pending
Nill Building Solutions products are protected by U.S. Patent No. 10,501,939 and/or other U.S. and Foreign patents pending

Figure 3


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NB1A2 Patent Pending
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Figure 4

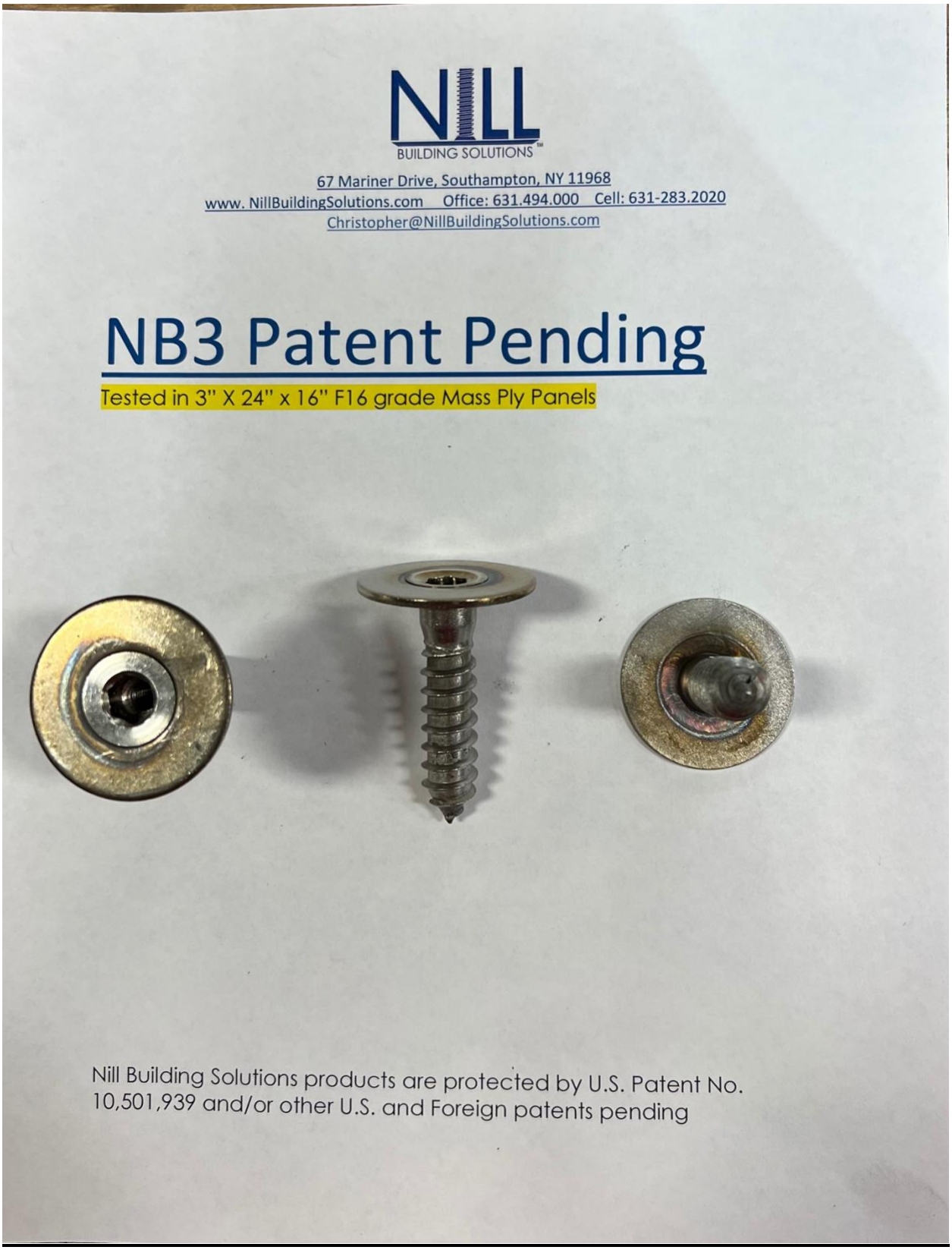
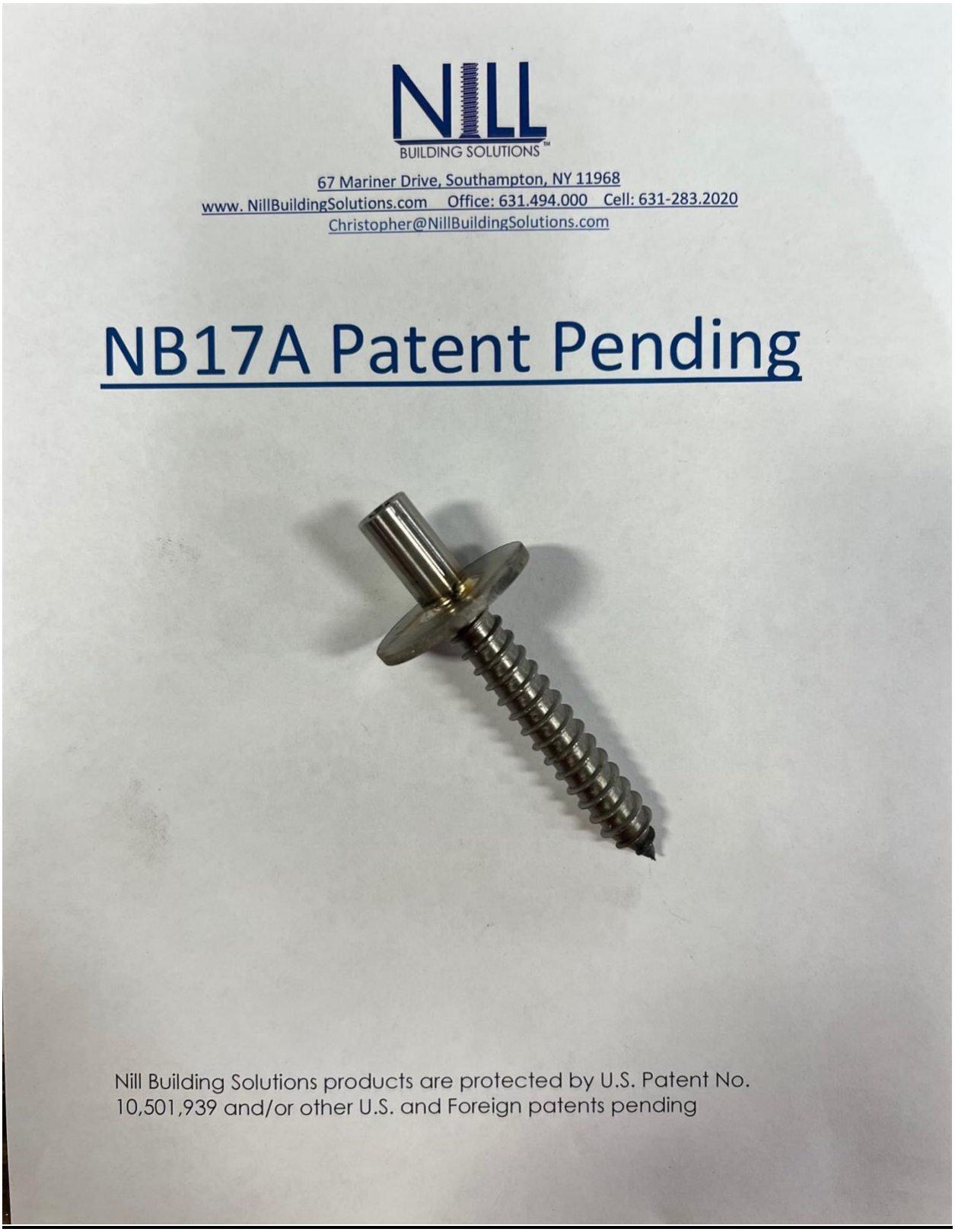

NILL
BUILDING SOLUTIONS
67 Mariner Drive, Southampton, NY 11968
www. NillBuildingSolutions.com Office: 631.494.000 Cell: 631-283.2020
Christopher@NillBuildingSolutions.com
NB3 Patent Pending
Tested in 3" X 24" x 16" F16 grade Mass Ply Panels
Nill Building Solutions products are protected by U.S. Patent No. 10,501,939 and/or other U.S. and Foreign patents pending

Figure 5


NILL
BUILDING SOLUTIONS
67 Mariner Drive, Southampton, NY 11968
www. NillBuildingSolutions.com Office: 631.494.000 Cell: 631-283.2020
Christopher@NillBuildingSolutions.com
NB17 Patent Pending
Nill Building Solutions products are protected by U.S. Patent No. 10,501,939 and/or other U.S. and Foreign patents pending

Figure 6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NB17A Patent Pending
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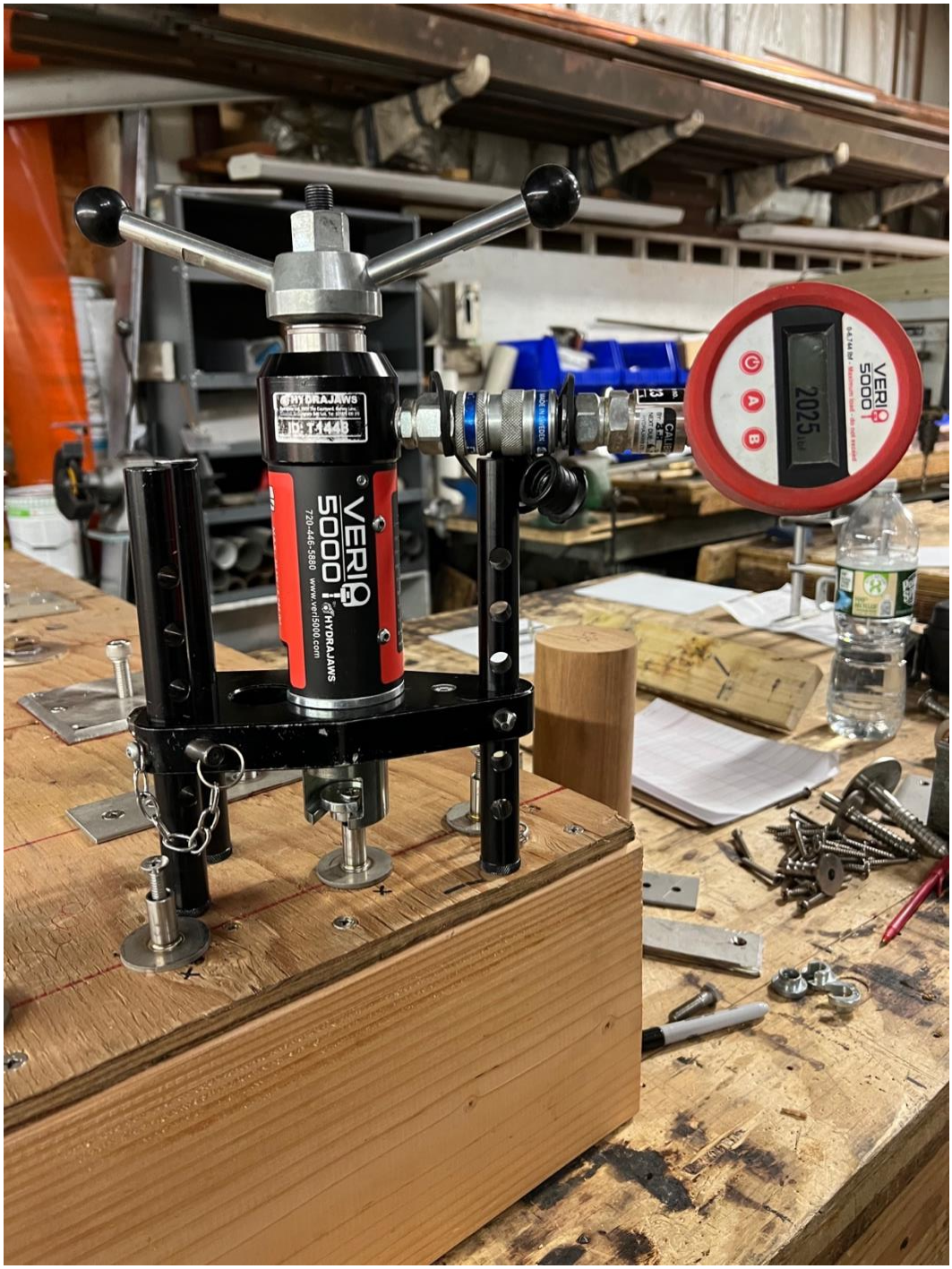
Figure 7

Tension/Pull Testing

1. (Refer to figure 7)
    a. Product: **NB17A (½" x 2 ¾" lag) – Patent pending**
    b. Wood: 2" x 4" Douglas Fir
    c. Result: At **1,975** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

2. (Refer to figure 7)
    a. Product: **NB17A (½" x 2 ¾" lag) – Patent pending**
    b. Wood: 2" x 4" Douglas Fir
    c. Result: At **<u>2,025</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.



3. (Refer to figure 7)
    a. Product: **NB17A (½" x 2 ¾" lag) – Patent pending**
    b. Wood: 2" x 4" Douglas Fir
    c. Result: At **<u>2,050</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

4. (Refer to figure 6)
    a. Product: **NB17 (5/8” x 3” lag) – Patent pending**
    b. Wood: 2” x 4” Douglas Fir
    c. Result: At **4,000** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

5. (Refer to figure 6)
    a. Product: **NB17 (5/8” x 3” lag) – Patent pending**
    b. Wood: 2” x 4” Douglas Fir
    c. Result: At **<u>4,050</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

6. (Refer to figure 6)
    a. Product: **NB17 (5/8” x 3” lag) – Patent pending**
    b. Wood: 2” x 4” Douglas Fir
    c. Result: At **4,000** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

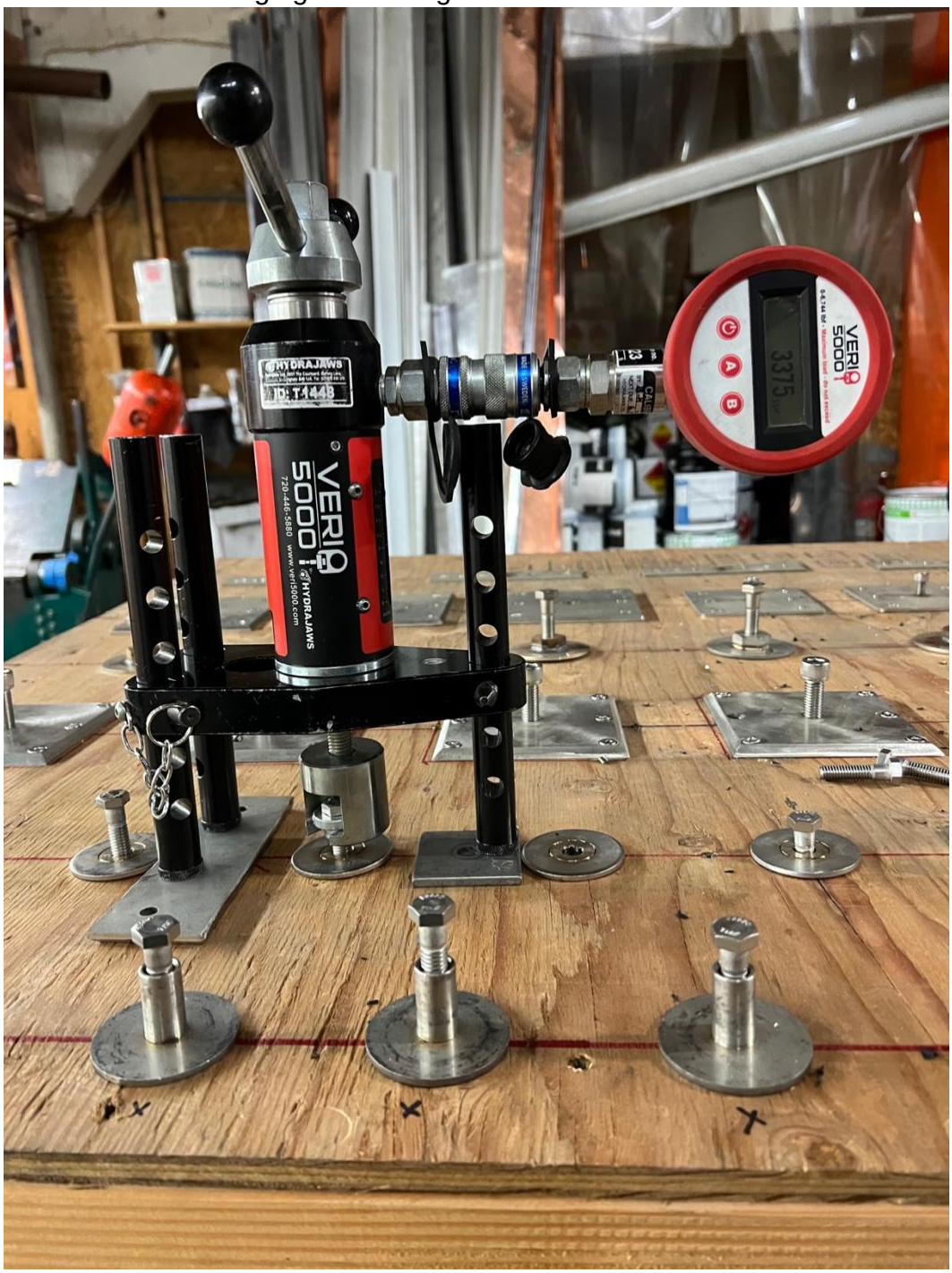
7. (Refer to figure 5)
    a. Product: **NB3 (½" x 2" lag) – Patent pending**
    b. Wood: 3" x 16" x 24" F16 grade mass ply panels
    c. Result: At **<u>2,425</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

8. (Refer to figure 5)
    a. Product: **NB3 (½" x 2" lag) – Patent pending**
    b. Wood: 3" x 16" x 24" F16 grade mass ply panels Result:
    c. At **<u>2,025</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

9. (Refer to figure 5)
    a. Product: **NB3 (½" x 2" lag) – Patent pending**
    b. Wood: 3" x 16" x 24" F16 grade mass ply panels Result:
    c. At **<u>2,025</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

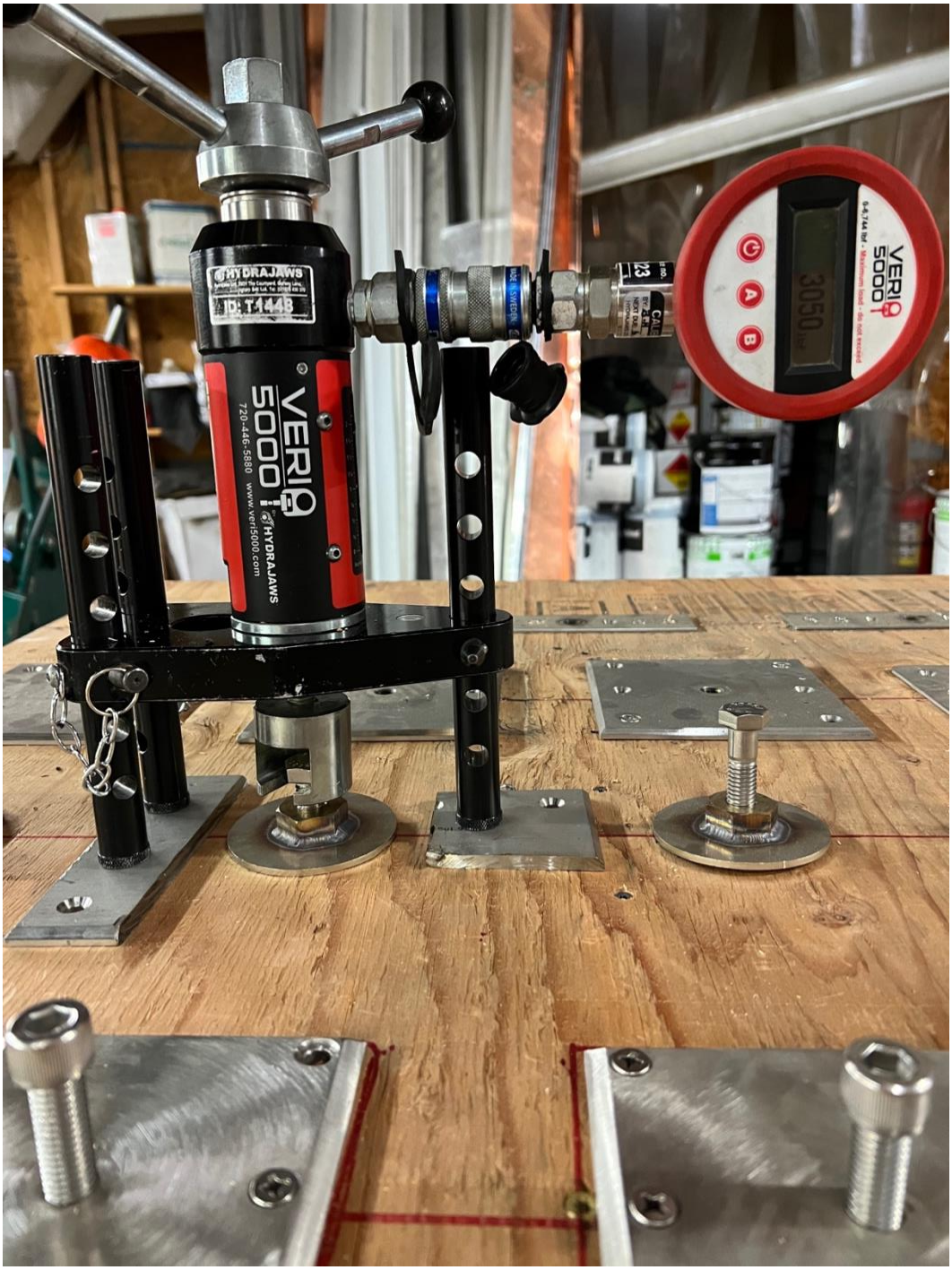
10. (Refer to figure 1)
    a. Product: **NB3/8 (5/8” x 3 ½” lag) – Patent pending**
    b. Wood: 2” x 4” Douglas Fire
    c. Result: At **3,525** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

11. (Refer to figure 1)
    a. Product: **NB3/8 (5/8” x 3 ½” lag) – Patent pending**
    b. Wood: 2” x 4” Douglas Fire
    c. Result: At **3,375** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.



12. (Refer to figure 1)
    a. Product: **NB3/8 (5/8” x 3 ½” lag) – Patent pending**
    b. Wood: 2” x 4” Douglas Fire
    c. Result: At **3,025** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

13. (Refer to figure 3)
    a. Product: **NB2D (¾" x 4" lag) – Patent pending**
    b. Wood: 2" x 4" Douglas Fire
    c. Result: At **3,050** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.



14. (Refer to figure 3)
    a. Product: **NB2D (¾" x 4" lag) – Patent pending**
    b. Wood: 2" x 4" Douglas Fire
    c. Result: At **3,175** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

15. (Refer to figure 2)

- Product: **NB1C fastened with Grip-Rite #14 x 3” lag wood screw – Patented**
    a. Wood: 2” x 4” Douglas Fire
    b. Result: At **<u>2,675</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

16. (Refer to figure 2)
    a. Product: **NB1C fastened with Grip-Rite #14 x 3” lag wood screw – Patented**
    b. Wood: 2” x 4” Douglas Fire
    c. Result: At **<u>2,800</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

17. (Refer to figure 2)
    a. Product: **NB1C fastened with Grip-Rite #14 x 3” lag wood screw – Patented**
    b. Wood: 2” x 4” Douglas Fire
    c. Result: At **<u>2,525</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

18. (Refer to figure 4)
    a. **NB1A2 (5”X5”) flange solar anchor fastened with Grip-Rite #14 x 3” lag wood screw – Patent pending**
    b. Only two center fasteners are fastened into the 2” x 4”. Other four fasteners are fastened into ½” plywood.
    c. Wood: 2” x 4” Douglas Fir
    d. Result: At **1075** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

19. (Refer to figure 4)
    a. **NB1A2 (5”X5”) flange solar anchor fastened with Grip-Rite #14 x 3” lag wood screw – Patent pending**
    b. Only two center fasteners are fastened into the 2” x 4”. Other four fasteners are fastened into ½” plywood.
    c. Wood: 2” x 4” Douglas Fire
    d. Result: At **725** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

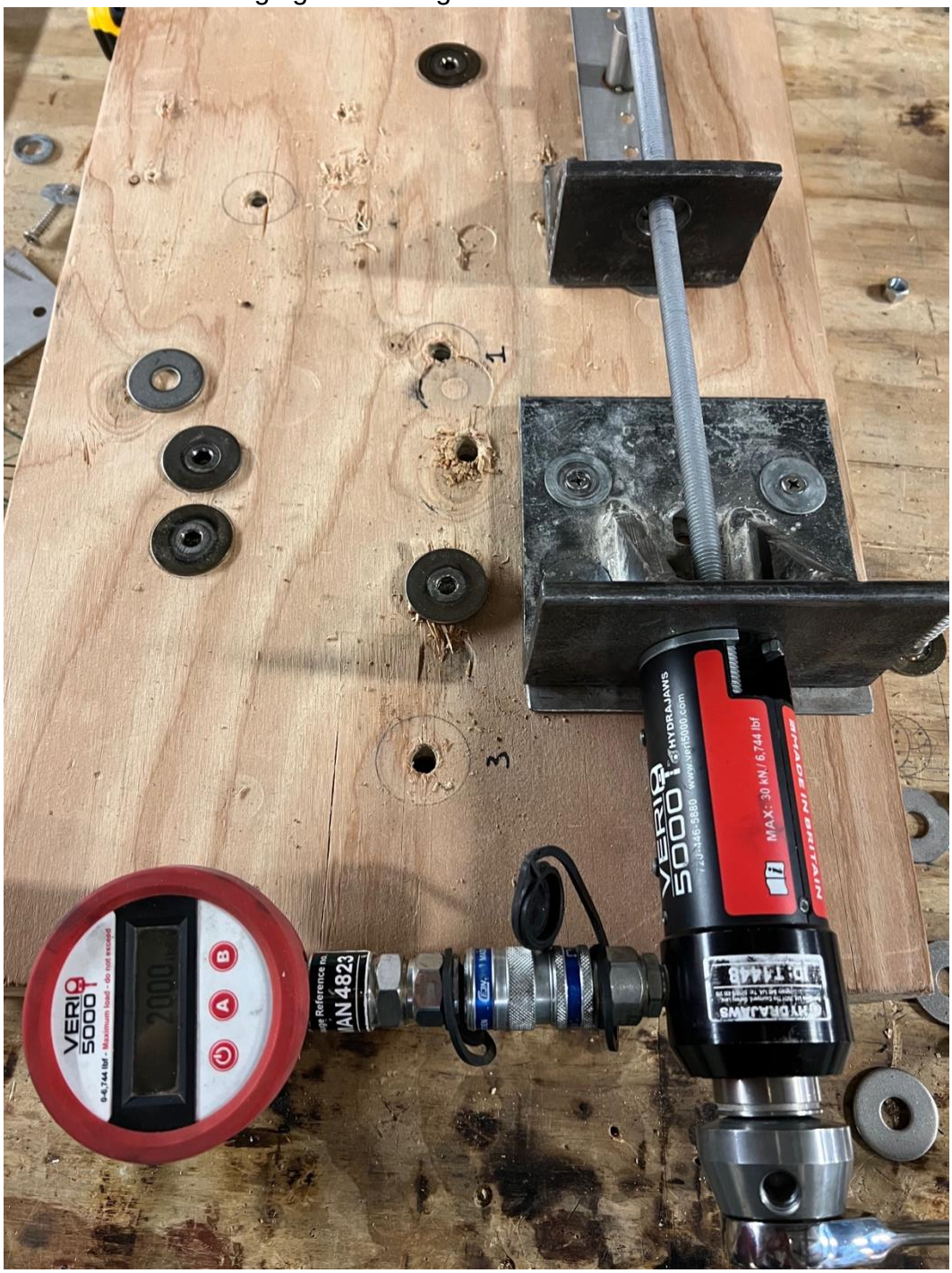
20. (Refer to figure 4)
    a. **NB1A2 (5”X5”) flange solar anchor fastened with Grip-Rite #14 x 3” lag wood screw – Patent pending**
    b. Only two center fasteners are fastened into the 2” x 4”. Other four fasteners are fastened into ½” plywood.
    c. Wood: 2” x 4” Douglas Fire
    d. Result: At **800** pounds the attachment did not show any signs of movement or dislodging after being held for one minute

Shear Testing

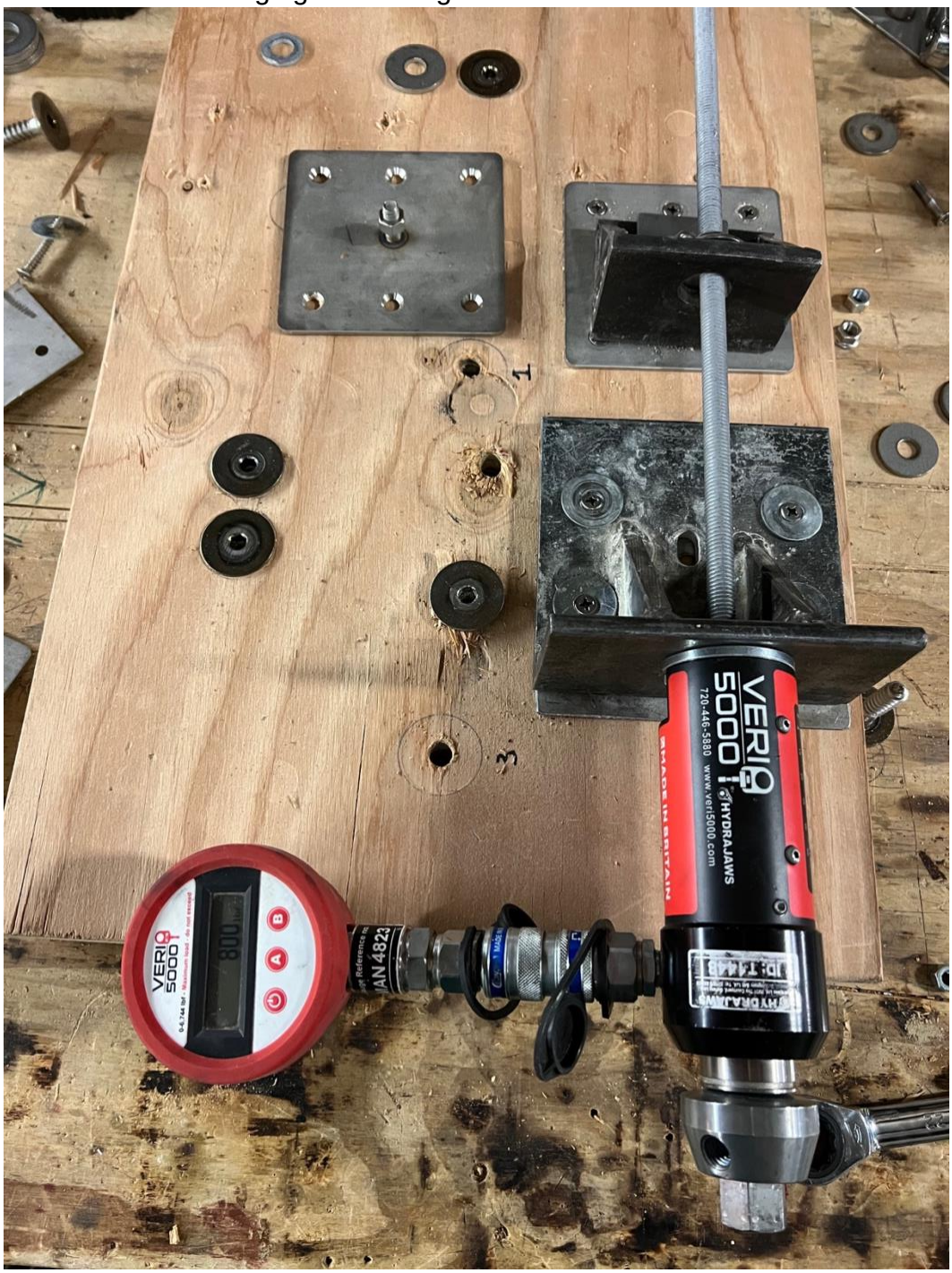
21. (Refer to figure 3)
    a. Product: **NB3 (½" x 2" lag) – Patent pending**
    b. Wood: 3" x 16" x 24" F16 grade mass ply panels
    c. Result: At **2,175** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

22. (Refer to figure 3)
    a. Product: **NB3 (½" x 2" lag) – Patent pending**
    b. Wood: 3" x 16" x 24" F16 grade mass ply panels
    c. Result: At **<u>2,150</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

23. (Refer to figure 3)
    a. Product: **NB3 (½" x 2" lag) – Patent pending**
    b. Wood: 3" x 16" x 24" F16 grade mass ply panels
    c. Result: At **<u>2,000</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.



24. (Refer to figure 4)
    a. Product: **NB1A2 (5”X5”) flange solar anchor fastened with Grip-Rite #14 x 3” lag wood screw – Patent pending**
    b. Wood: 3” x 16” x 24” F16 grade mass ply panels
    c. Result: At **800** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.



25. (Refer to figure 4)
    a. Product: **NB1A2 (5”X5”) flange solar anchor fastened with Grip-Rite #14 x 3” lag wood screw – Patent pending**
    b. Wood: 3” x 16” x 24” F16 grade mass ply panels
    c. Result: At **<u>1025</u>** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

26. (Refer to figure 4)
    a. Product: **NB1A2 (5”X5”) flange solar anchor fastened with Grip-Rite #14 x 3” lag wood screw – Patent pending**
    b. Wood: 3” x 16” x 24” F16 grade mass ply panels
    c. Result: At **1050** pounds the attachment did not show any signs of movement or dislodging after being held for one minute.

Calibration report

VERI 5000 TESTING DIVISION
Tel: 720-446-5880
www.veri5000.com

Certificate of Calibration

GAUGE REF. No. MAN-4823

GAUGE RANGE 0-30 kN

MODEL No. Digital Bluetooth Gauge

We certify that this gauge has been inspected and calibrated for accuracy and passed within our limits of plus or minus 2% F.S.D. Calibration undertaken using a master test gauge manufactured to BS EN 837-1.

Results obtained are as follows:-

MASTER	kN	5.0	10.0	15.0	20.0	25.0	30.0
ACTUAL	kN	4.9	9.9	15.1	20.1	25.1	30.1

TRACEABILITY
Gauges manufactured to BS EN 837-1

Calibration undertaken using a Budenberg oil operated dead-weight tester type 280H. Serial number 12127 traceability to UKAS via certificate no.57471. Dated 31.12.19. (valid for 12 months).

Note: In all accordance with BS EN 837-1 this certificate is valid for a period of 12 months from issue.

Accuracy of gauges as stated above cannot be guaranteed should the unit be subjected to misuse. Gauge will be permanently damaged should maximum load be exceeded.

THIS CERTIFICATE WILL EXPIRE ON June 18, 2022

Customer Atlas Anchor Systems

Order No. 2794 Date of Calibration June 18, 2021

Approved Signatory

Date 6/18/2021