



|                                       |   |
|---------------------------------------|---|
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| <b>Cc</b> : Paula Greyling            | <b>Fax/ E-mail</b> : paula@nailplate.co.za      |
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| <b>SGS File Number:</b> ZACTS14402552 | <b>Inspector:</b> Anesh Lutchman                |

## INSPECTION & TESTING REPORT

|   |  |
|---|--|
| <b>Inspection Type Performed:</b> Witness failure verification          | <b>Inspection Date:</b> 21 & 22 October 2014 |
| <b>Inspection Location:</b> 4 Laurel Road, Merrivale, Howick, KZN, 3291 |  |

### 1. OBJECT OF THE TEST

Witness the maximum load (force) the nail plate can withstand

### 2. SAMPLE

The samples used were considered to be in a suitable condition for testing purposes

### 3. TEST METHOD

As per client agreement the inspector witnessed & verified the failure level of various nail plates. Two nail plates were pressed into two beams of SA pine wood on both sides joining the wood. The beams were fastened to the steel plates and then anchored to the machine. Force was applied.

### 4. RESULTS

#### Compression Tests

| Plate Size(cm) | Plate Angle | Maximum failure load(kN) |
|----------------|-------------|--------------------------|
| 08 x 15        | 0°          | 18.38                    |
| 08 x 10        | 0°          | 12.86                    |
| 10 x 10        | 90°         | 22.46                    |
| 10 x 15        | 0°          | 27.33                    |

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### Shear Tests

| Plate Size(cm) | Plate Angle | Maximum failure load(kN) |
|----------------|-------------|--------------------------|
| 7.5 x 7.5      | 0°          | 11.68                    |
| 8.3 x 20       | 30°         | 39.12                    |
| 10 x 20        | 45°         | 25.53                    |
| 10 x 20        | 60°         | 30.45                    |
| 10 x 10        | 75°         | 19.83                    |
| 10 x 10        | 0°          | 15.10                    |
| 10 x 10        | 105°        | 19.47                    |
| 20 x 10        | 120°        | 26.38                    |
| 20 x 10        | 135°        | 41.25                    |
| 08 x 20        | 150°        | 30.42                    |
| 08 x 08        | 165°        | 17.48                    |
| 08 x 08        | 15°         | 17.45                    |

### Tension Tests

| Plate Size(cm) | Plate Angle | Maximum failure load(kN) |
|----------------|-------------|--------------------------|
| 8.2 x 9.5      | 0°          | 22.24                    |
| 08 x 12.5      | 30°         | 21.80                    |
| 10 x 10        | 60°         | 26.78                    |
| 10 x 10        | 0°          | 33.88                    |
| 10 x 15        | 0°          | 37.97                    |
| 10 x 35.5      | 0°          | 37.54                    |
| 10 x 20        | 0°          | 38.33                    |

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### Truss Hanger Tests

| Plate Size(cm)    | Maximum failure load(kN) |
|-------------------|--------------------------|
| TH 90 x 38 short  | 2.20 upward force        |
| TH 90 x 38 short  | 8.04 downward force      |
| TH 90 x 50 short  | 2.4 upward force         |
| TH 90 x 50 short  | 5.87 downward force      |
| TH 45 x 38        | 3.94                     |
| Universal bracket | 2.61                     |

### Anchorage Perpendicular to the Grain

| Plate Size(cm) | Maximum failure load(kN) |
|----------------|--------------------------|
| 08 x 7.5       | 9.09                     |
| 10 x 15        | 29.55                    |
| 08 x 12.5      | 21.56                    |
| 10 x 10        | 16.64                    |

## 5. INSPECTION CONCLUSION

|                                       |  |
|---------------------------------------|--|
| <b>Style, Material, Colour:</b>       | Various styles submitted   |
| <b>Data Measurement/Field Test:</b>   | 2 Nail plates were pressed together into 2 beams on either side<br>Nail plates were of various sizes & placed at different angles on beams<br>For the Truss Hanger tests, 2 beam pieces were joined with nails & bolts<br>Beams were SA Pine (Timber) of grade 5 category as mentioned by Shock Proof representative |
| <b>Overall Inspection Conclusion:</b> | During the various tests, the nail plates did not break apart<br>The nail plates bent or the timber broke off the nail plate   |

## 6. EQUIPMENT USED

| TEST                                 | MACHINE USED        |
|--------------------------------------|---------------------|
| Compression Tests                    | Compression Machine |
| Shear Tests                          | Compression Machine |
| Tension Tests                        | Tensile Machine     |
| Truss Hanger Tests                   | Compression Machine |
| Anchorage Perpendicular to the Grain | Tensile Machine     |

### Camera

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## **7. ADDITIONAL INFORMATION**

Note: SGS witnessed the testing of nail plates to verify the failure load.

Consequently, SGS makes no guarantee and/or warranty whatsoever as to the quantity and/or quality of the shipment after date of inspection.

This Report reflects our findings at the time, date and place of inspection only and does not refer to any other matter.

## **8. ADDITIONAL PHOTO'S**

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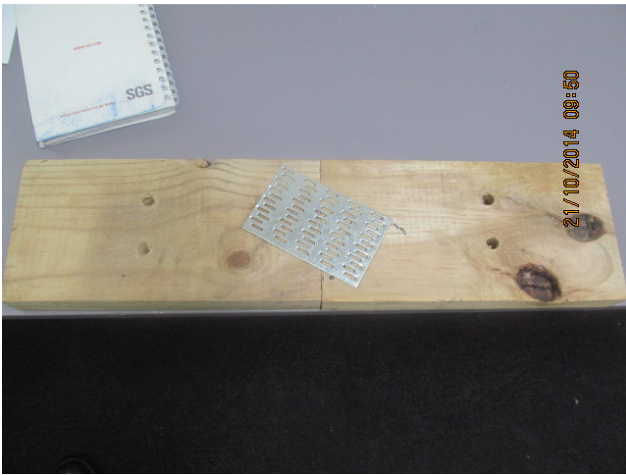
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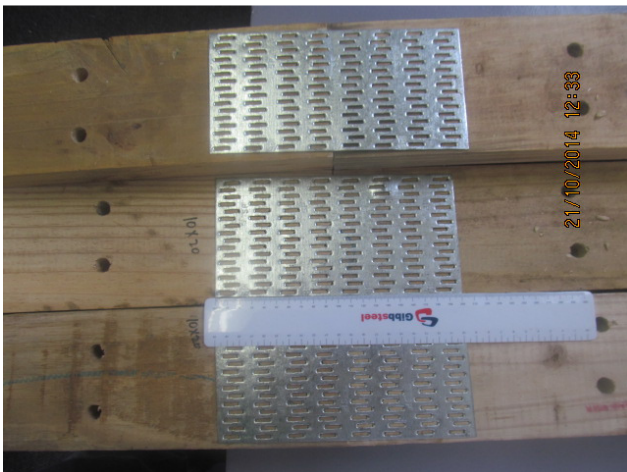
Photo of site



Tensile strength tester machine



Nail plates of various sizes & angles joining timber



Nail plates of various sizes joining timber







Tensile strength test



Tensile strength test



Tensile strength test







Tensile strength test failures



Compression strength test



Compression strength test





Compression strength test failures



Compression strength test failures



Anchorage perpendicular test





Anchorage perpendicular test failures



Anchorage perpendicular test failures



Anchorage perpendicular test failures





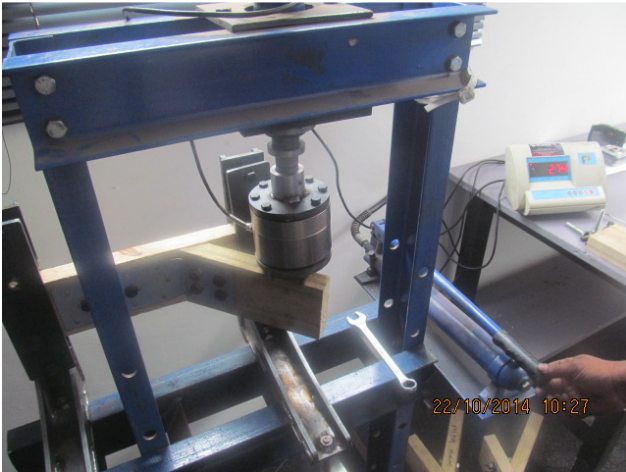
Truss Hanger tests



Truss Hangers



Truss Hanger tests



Truss Hanger tests

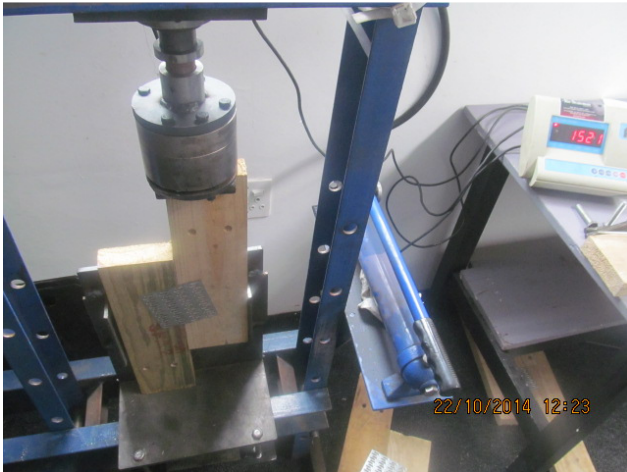


Truss Hanger tests failures



Truss Hanger tests failures

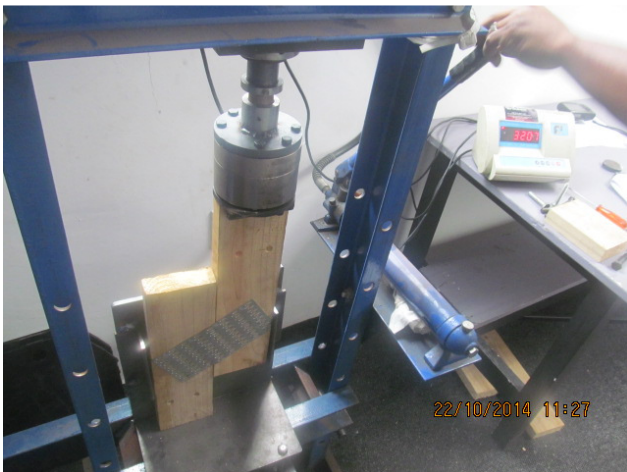




Shear strength test



Shear strength test



Shear strength test





Shear strength test failures



Shear strength test failures



Nail plates