

## Conclusion

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The Roof Angel system was tested in accordance with EN795:2012 and CEN/TS 16415:2013, with the substrate ultimate load test used to verify suitability for design with a 2:1 safety factor for all locations.


The substrate used in this test is a single ply system built up from a standard trapezoidal metal deck to manufacturer's specifications, allowing for worst case installation validation.

Testing was carried out in normal weather with ambient temperatures around 12 - 18 degrees and minimal moisture.

### Results:

- |                                    |         |                                  |
|------------------------------------|---------|----------------------------------|
| ○ EN 795:2012                      | 1 User  | Pass                             |
| ○ CEN/TS 16415:2013                | 2 Users | Pass                             |
| ○ CEN/TS 16415:2013                | 3 Users | Pass                             |
| ○ System Destruction Failure Point |         | Deck failure at rear most toggle |
| ○ System Destruction Failure Value |         | 20.70kN                          |
| ○ Design loads for systems         |         | 10.35kN.                         |

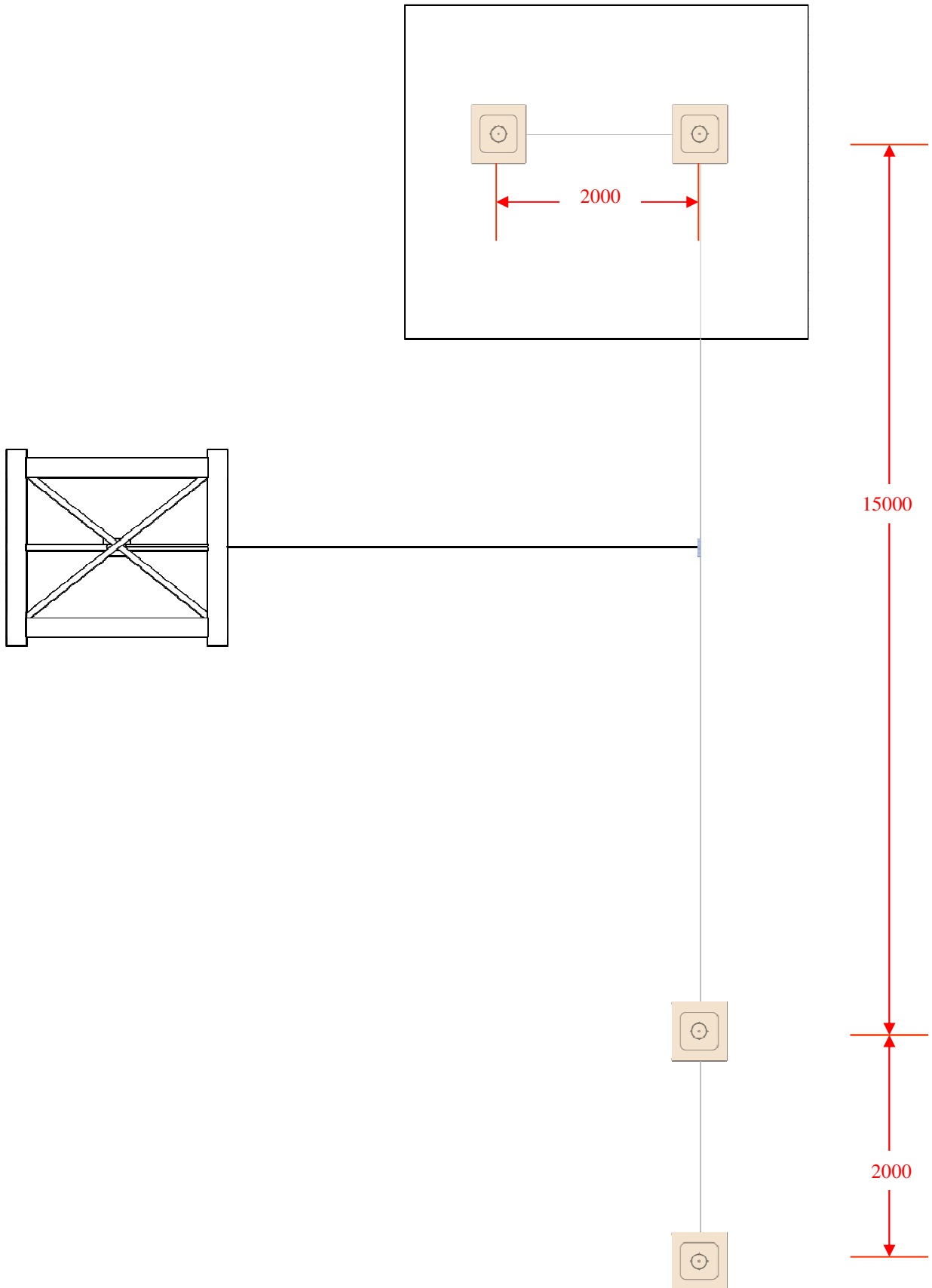
Verified by



Steve Jervis

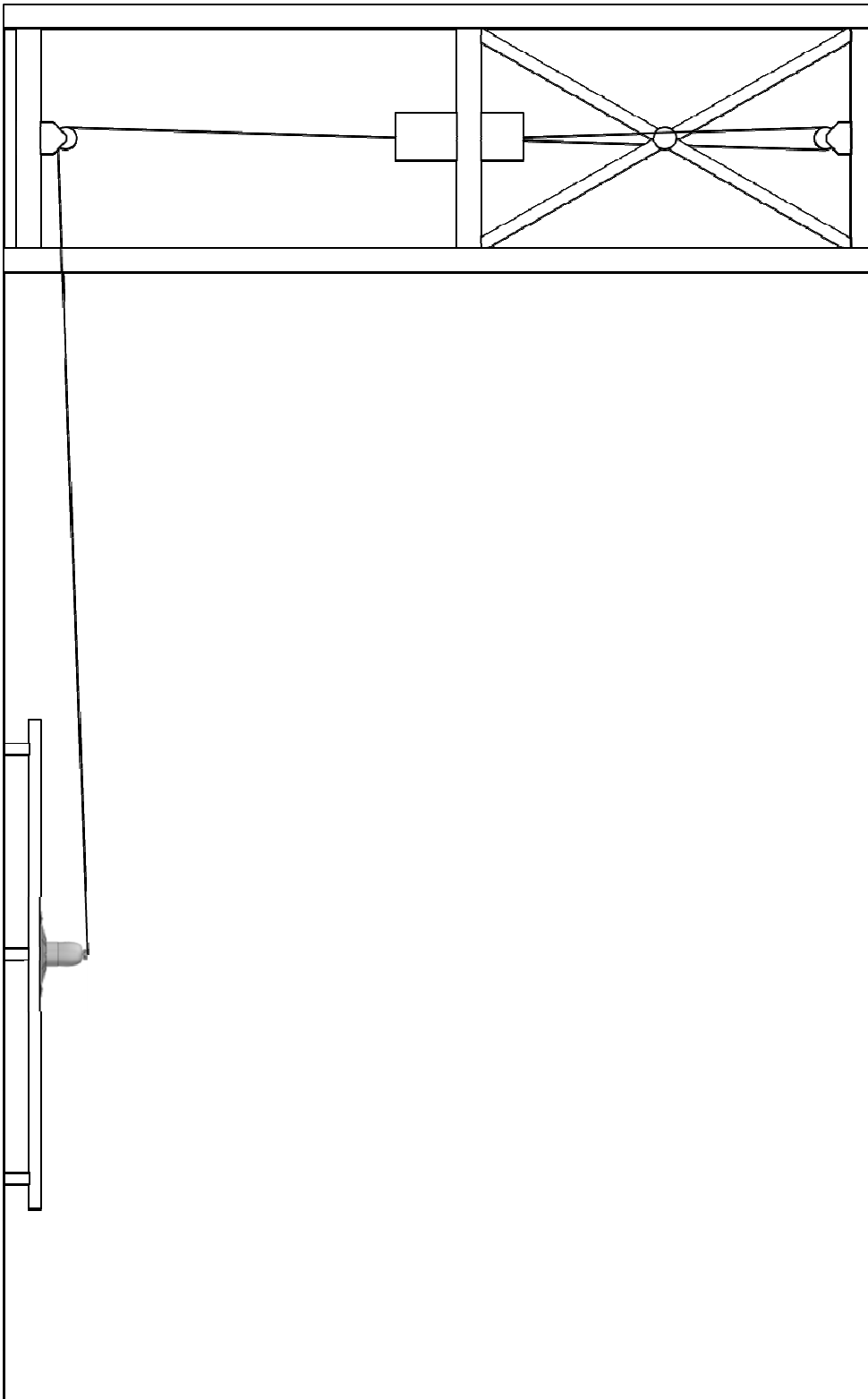
# Test Layout

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## Test Layout

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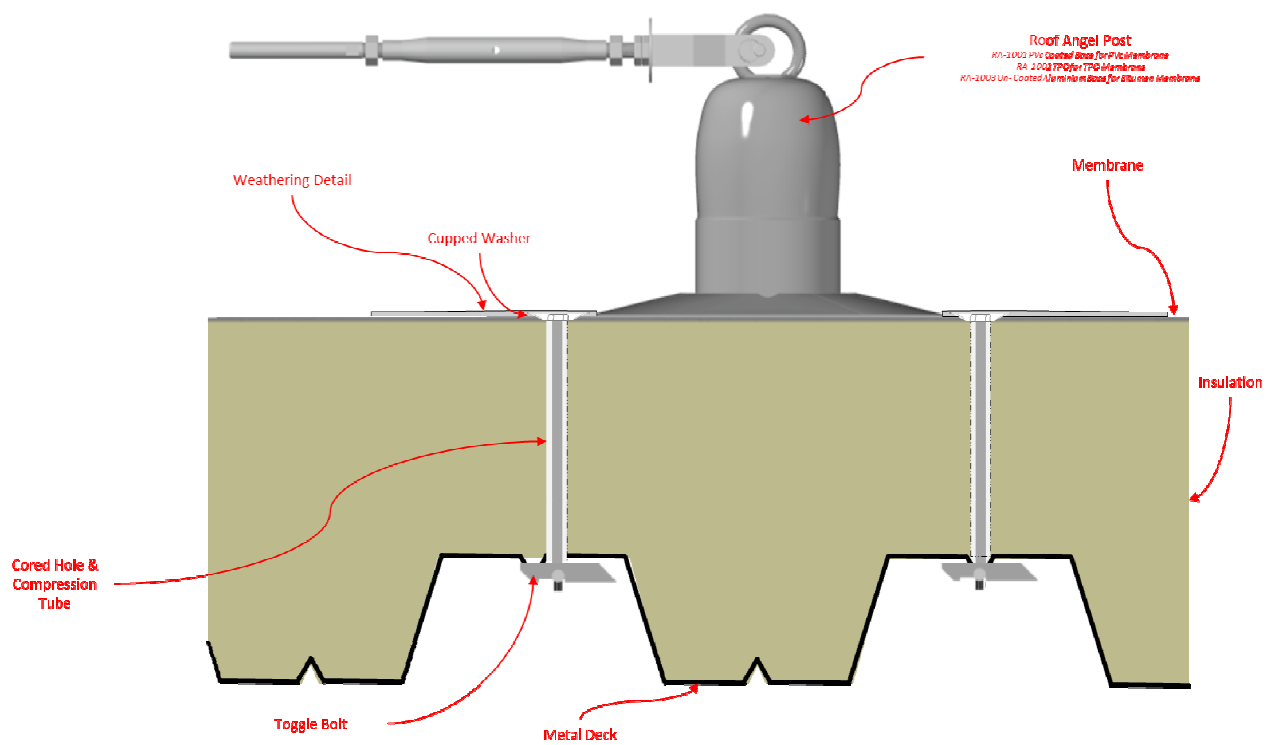


## Sample Details

Roof Sample Material Construction	Roof Angel RA-1001 post type to insulated metal deck panel with PVC membrane to surface.
Roof Sample Dimensions	2000x2000
Substructure Construction	Purlins on Steel to Manufacturers recommendations
Roof Angel Fixing Method	Toggle Bolts

## Fixing Detail

### Toggle Fix to Single Ply with Metal Deck



# Test Report

June 3<sup>rd</sup> 2014

Test Report Number	BSI-SPM-0614-01
Product Reference	Roof Angel
Part Numbers	RA-1001-EC (RA-1016 Module) RA-1001-IN (RA-1017 Module)
Standards Used	EN795:2012 Type A & Type C CEN/TS 16415:2013 for 3 users
Test Description	Roof Angel to insulated metal deck panel with PVC membrane to surface.
Test Method	EN795:2012 Type A & Type C CEN/TS 16415:2013 for 3 users
Date of Issue	June 3 <sup>rd</sup> 2014

Report Author	S Jervis
Testing Carried out by	A Harris, D Harrison
Witnessed By	W Ottley, S Jervis
Approved by	S Jervis

## Report Notes

1. Tests are carried out to an interpretation of test methods and requirements specified in the standard or method specified.
2. Test samples have been stored in warehouse conditions and tested in an uncontrolled environment unless detailed otherwise.
3. Testing carried out in an outdoor environment.
4. Peak forces and arrest distances are stated based on the test method applicable to each result
5. The drop heights have been calibrated to meet the requirements of CEN/TS 16415:2013 and the requirements of EN 795: 2012
6. This report is the property of Bettersafe International BV and should not be passed to, or used by, any other party without written consent.