IAN BENNIE AND ASSOCIATES

TEST REPORT NO. 2019-078-S1 Report

4MM MITSUBISHI ALPOLIC/NC

HAIL IMPACT TEST

for

Network Architectural.

July 2019

IAN BENNIE & ASSOCIATES PTY. LTD.

Building Performance Testing

ACN : 007 133 253

TEST REPORT NUMBER 2019-078-S1 Report

HAIL IMPACT TEST

Test Client: Network Architectural.

Background: Ian Bennie and Associates were contracted by Network Architectural. to carry out testing of a sample of 4mm Mitsubishi Alpolic/NC for resistance to hail impact.

Test Method:

Testing was conducted in accordance with the test procedures of the Texas Tech University variation for wall materials on ANSI FM 4473: Test Standard for Impact Resistance Testing of Rigid Roofing Materials by Impacting with Freezer Ice Balls. Testing was required on an "observe and report" basis, with measurement of indentation due to the impacts.

The Client requirement was that the sample panel was to be impacted at a nominal speed of 32.1 m/s with ice balls of 3 different sizes: 31.8mm (ANSI Class #1), 38.1, (#2) and 50.8 (#4). The sample was impacted at normal incidence at all impact locations. Appendix A shows the impact locations. Photo 1 shows a typical test setup.

Test Location: IBA Test Centre Dandenong, Melbourne

Test Date(s): 1 July 2019.

Test equipment:

A projectile speed measuring device was used to measure the release speed of the ice balls. This was pre-calibrated against a timing system calibrated by a NATA accredited laboratory and found to have an accuracy of better than 3% at the test velocity. Indentation measurement was with a laser deflectometer as shown in use in Photo 2.

1 Luisa Avenue, Dandenong 3175, Victoria , Australia
Telephone : (03) 9768 3640 International : +613 9768 3640 Facsimile: (03) 9768 3642

Results:
The table below gives the release speed and measured indentations of the panel respectively.

Impactor Class		Measured velocity m/s	Indentation mm
1	corner	30	0.04
	edge	31	0.03
	centre	31	0.03
2	corner	30	0.07
	edge	31	0.14
	centre	31	0.15
4	corner	32	0.57
	edge	32	0.96
	centre	31	2.42

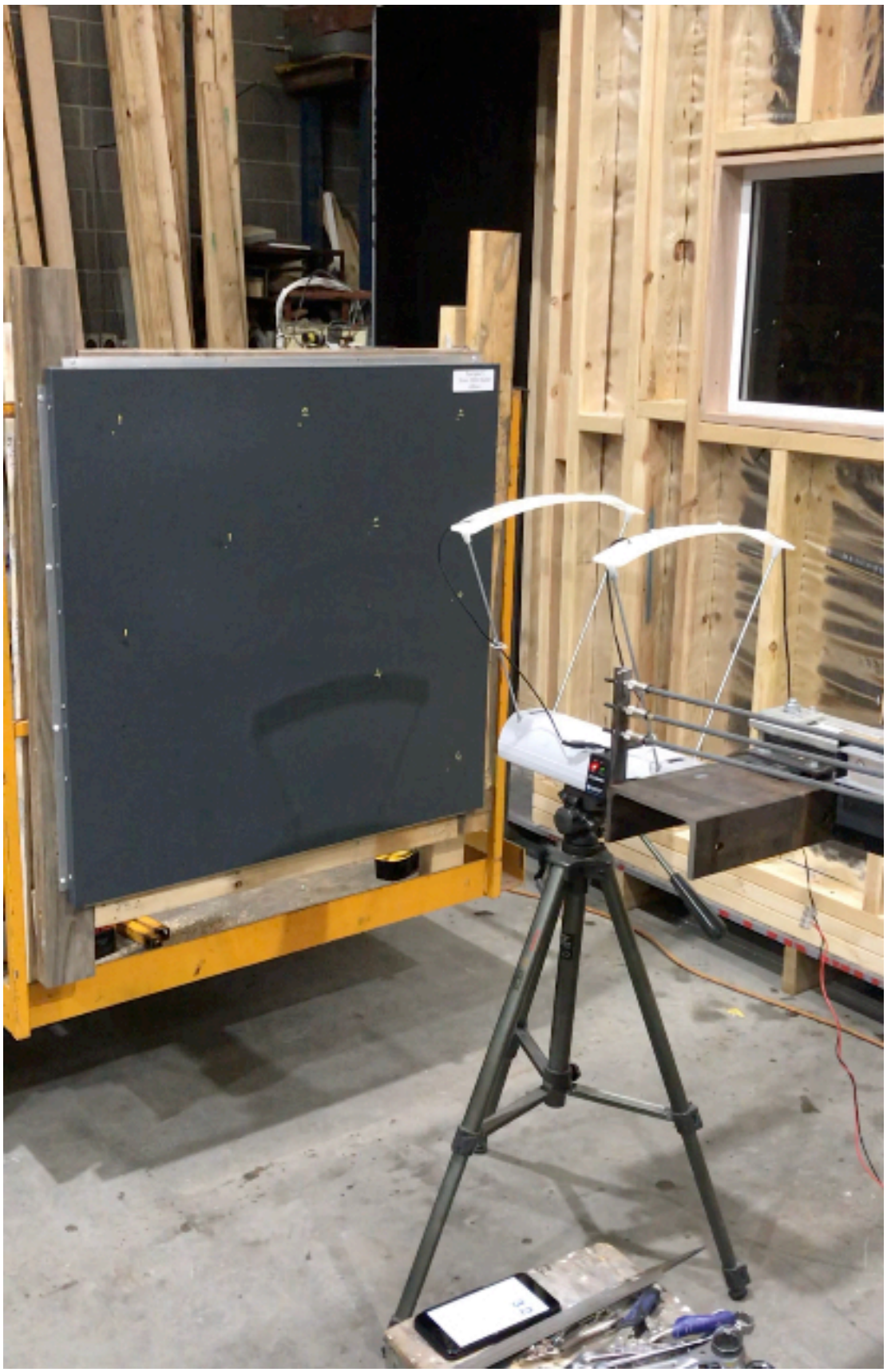


Photo 1. Typical test setup and sample

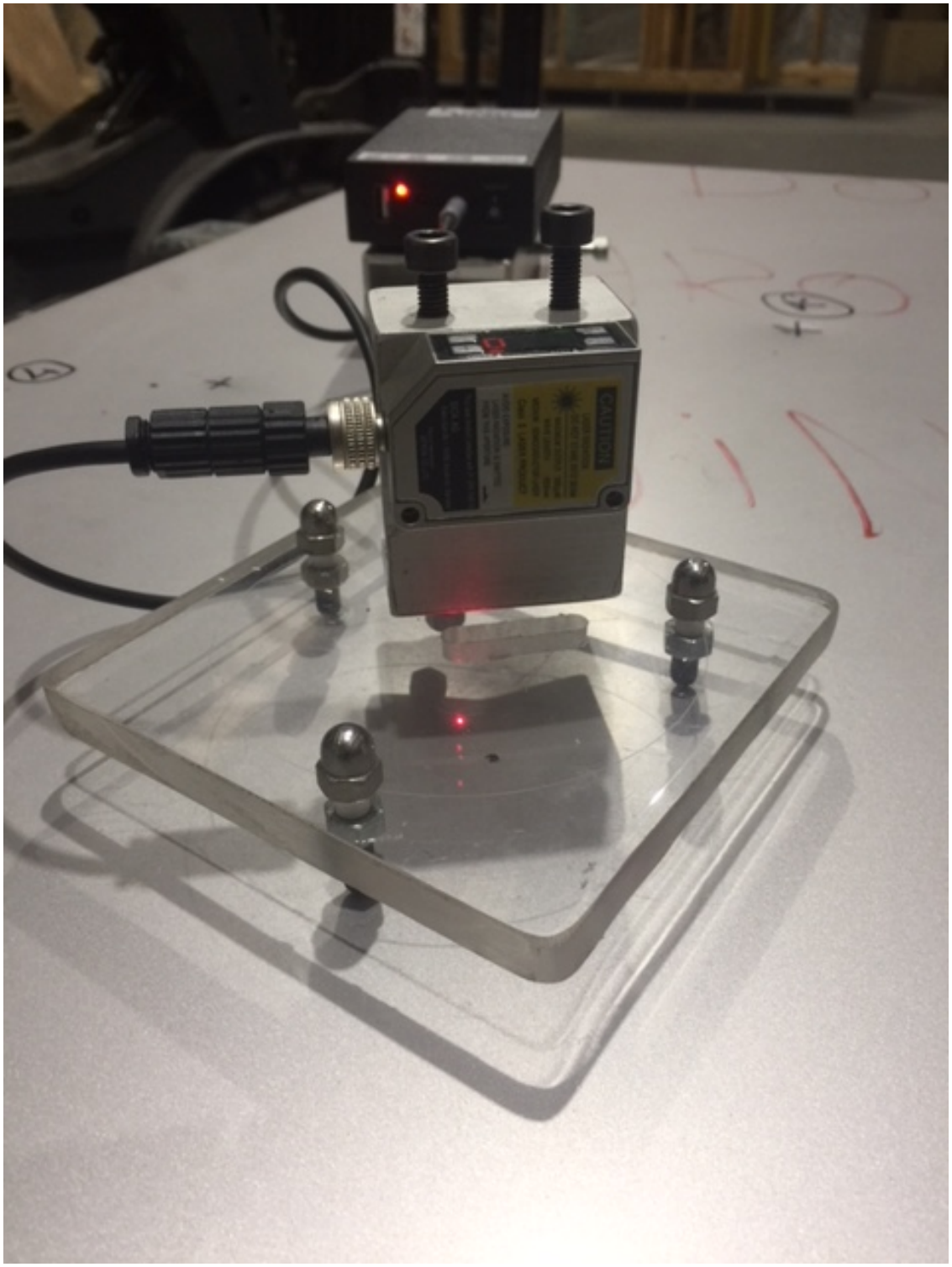
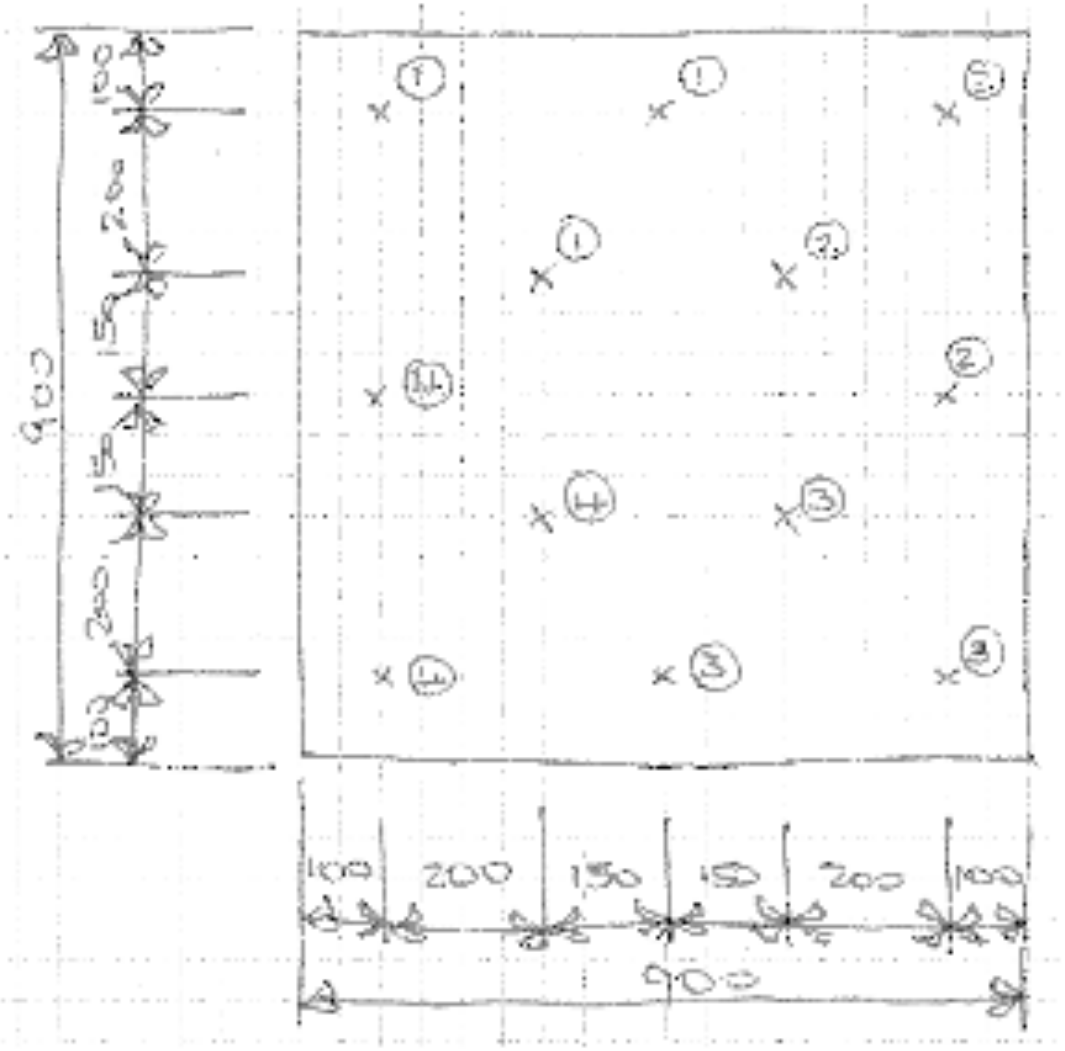


Photo 2. Indentation Testing

APPENDIX A. Nominal Impact Locations*

- 900 mm x 900 mm sample panel without intermediate stiffeners, detailed and fixed with two 100mm long brackets at each corner so that the overall panel (including brackets) is symmetrical in all directions.
- Impact nominated class ice balls a single time perpendicular to the surface at the locations shown in the sketch below with of +/- 25mm.
- Measure the maximum indentations with a laser deflectometer with three prongs located at the corner of an equilateral triangle with an edge of 75 mm to 100 mm.



* Class 3 impacts not required by Client