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Impact survey to G deck anodized modular platform systems

TEST REPORT NUMBER TES000380TR-2

3G Metal Fabrications | Impact survey to G Deck modular platform system | November 14, 2017

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Impact survey to G deck anodized modular platform systems

Document number: *TES000380TR-2*
Client: 3G metal fabrications
2 Selbury Drive
Oadby
LE2 5NG

Item description: : *Fabricated open mesh deck panels, approx 1000mm^2. Outer frame constructed of 20mmx20mmx1.2mm thick square hollow section, material grade not specified, each corner terminating with a shark fin type location plate, 3mm mesh infill 50x50 square.*
Vertical uprights constructed from 45x45mm x 1.8mm wall SHS, 1800mm long complete with shark fin location housings at 500mm interval, material grade not specified.
Lateral cross braces constructed from 40mmx20mmx1.3mm thick rectangular hollow section complete with shark fin type location plate at each end, material grade not specified.
All steel items zinc coated finish.
For Internal working application/indoor use only stated by client.

Identification mark affixed to item: *G deck*

Quantity submitted for test: *5 panels complete with vertical box section uprights and lateral bracing, assembly approx. 2 meter x 2 meter bay*

Client submitted drawing numbers: *N/A*

Client design review Ref: *Internal review of findings by client, No British Standards submitted at time of survey, verbal instruction by client only.*

Testing Machine: *Verified drop test mass at 150kgs x 350mm impact area, quick release drop system.*

Client testing requirements: *Impact tests to mesh panel assembly, height range 3 meter (see impact area schematic 1.2.)*

Number of pages in this report: 9

Test conducted at: *TESMEC Limited*
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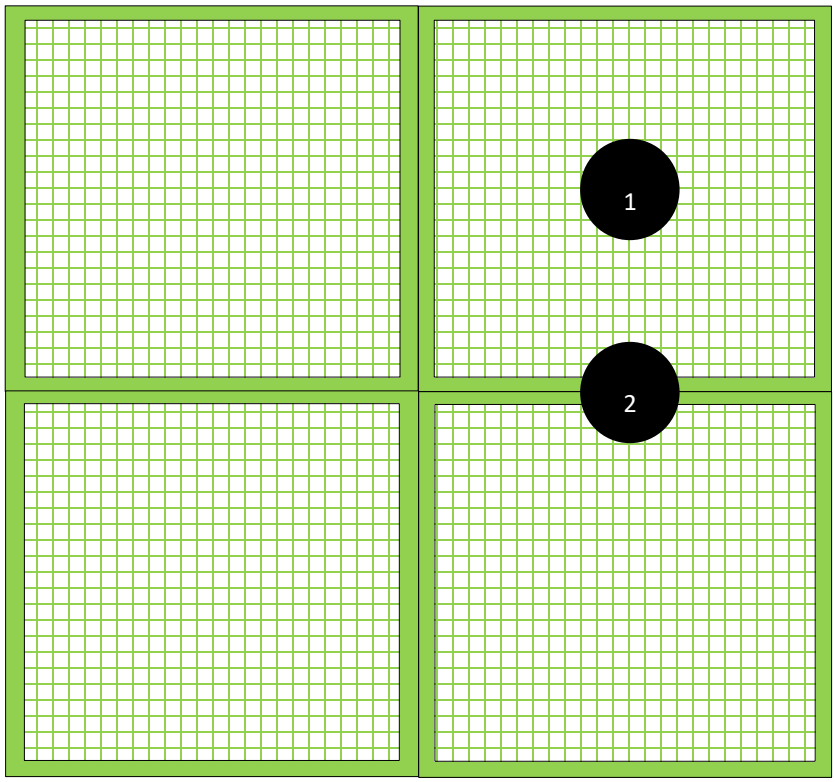
Section 1: *Client Request*

1.1. *The client 3G metal fabrications Ltd requested an impact load survey to their G Deck modular platform system, impact height was adopted at 3meter. The drop mass was a cylindrical mass of approx. 350mm diameter. The mass was verified by a calibrated tensile load link, drop mass 150kgs. Impact positions were as schematic 1.2. once the mass had impacted onto the deck the mass was left for 15 minutes to ensure the load was sustained without system failure. Digital images were recorded showing the sustained deformation post impact.*

1.2. *Impact zone schematic.*



System assembled at 900mm platform height with bracing configuration all verticals braced, no securing pins inserted.

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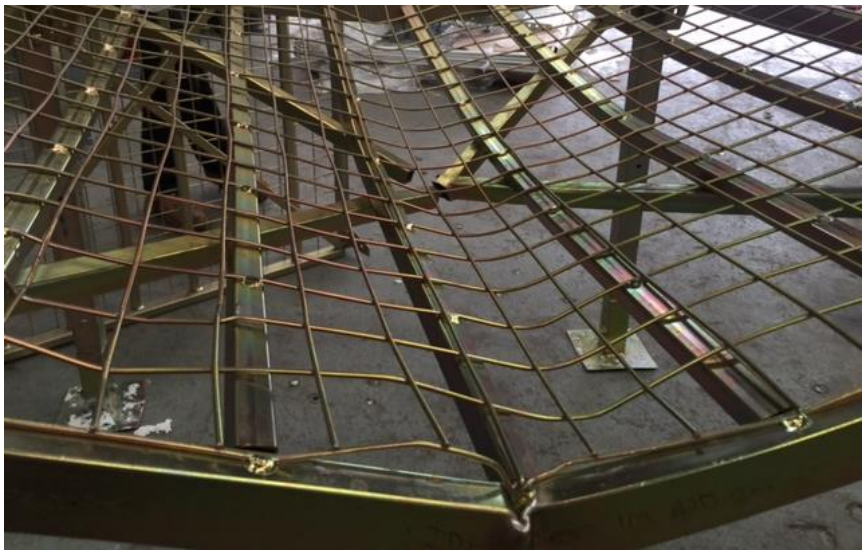
2.0. Post impact findings

2.1. *In all cases, drop height at 3 meters, the system sustained the impact mass with no additional visual signs of material fracture or yield following the impact, the arrested mass was left for a minimum of 15 minutes following each impact, the deck panels showed permanent impact deformation and fracture following the 3 meter impacts. Following each impact test the panels were removed and replaced with new.*

Zone 1 impact area showed the worst post load deformation 3-meter height case.

Two tests conducted at zone 1

Test 1: Post 150kg impact at 3 meter drop height zone 1 test, central diagonal box section weld failure



Test 2: Post 150kg impact at 3 meter drop height zone 1 test, central diagonal box section weld failure

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Test 1: post load zone 1 impact showing shark fin housing weld fracture

Typical of zone 1 impact, shark fin housing material tear

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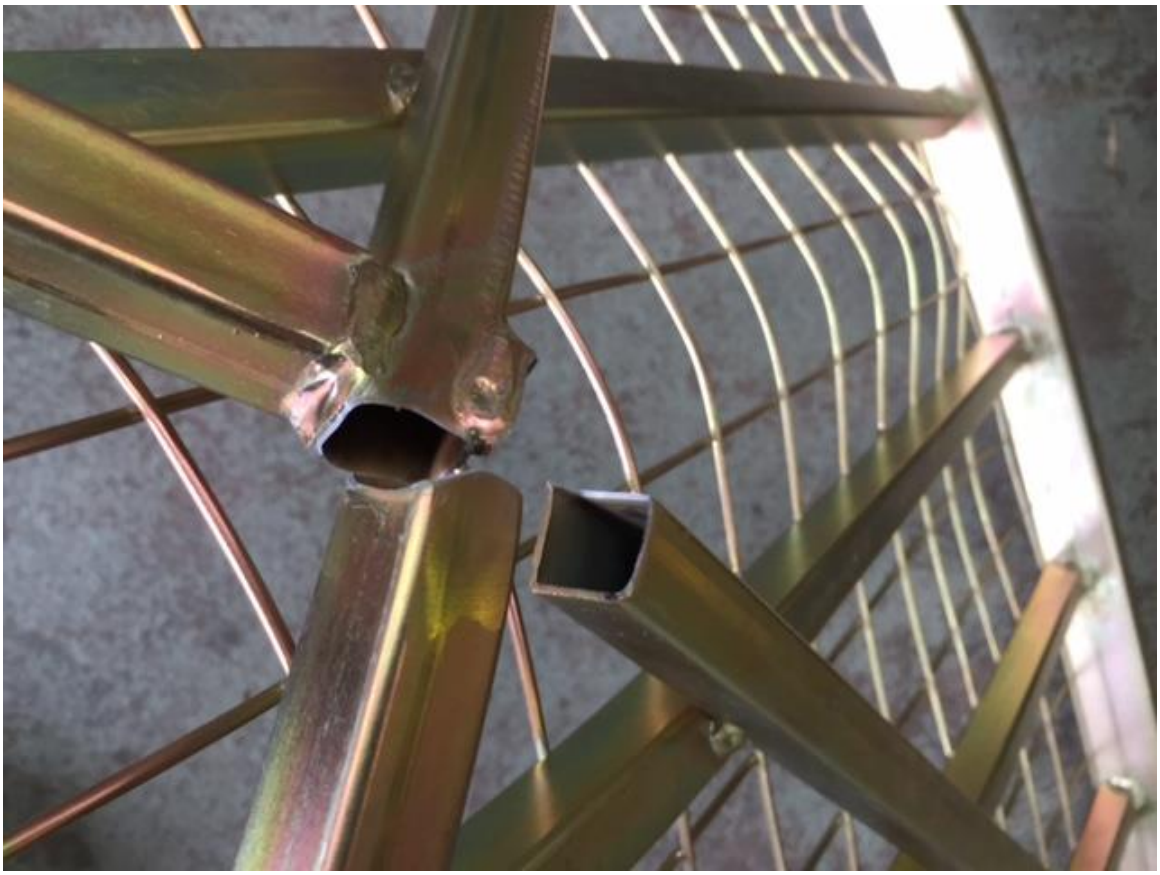
Zone 1 impact test 2 showing parent material/weld fracture



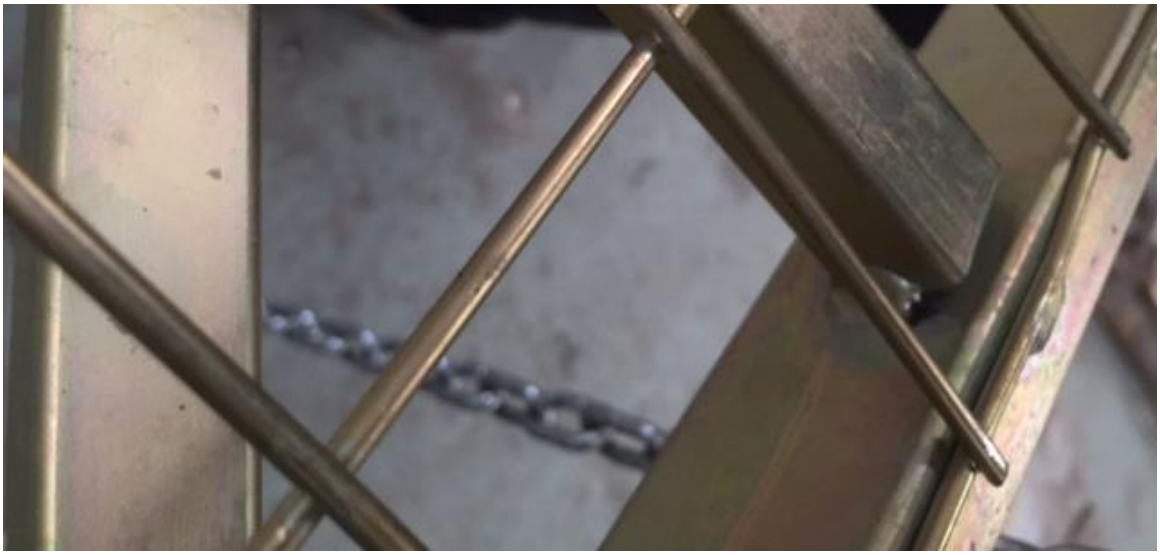


Image showing lateral box section weld fracture following zone 1 impact typical both tests

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Zone 2 impact area showed the worst post load deformation 3-meter height case

Outer perimeter box section deformation following impact zone 2

Post impact image showing brace deformation, zone 2

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image showing diagonal brace weld fracture following zone 2 impact

Image showing localized post impact deformation to lateral box section brace

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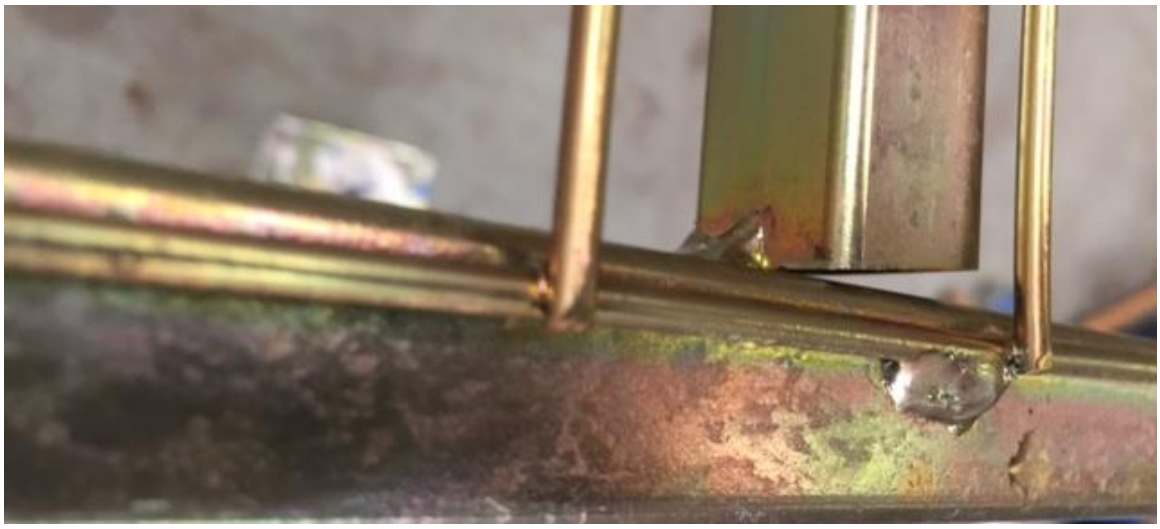
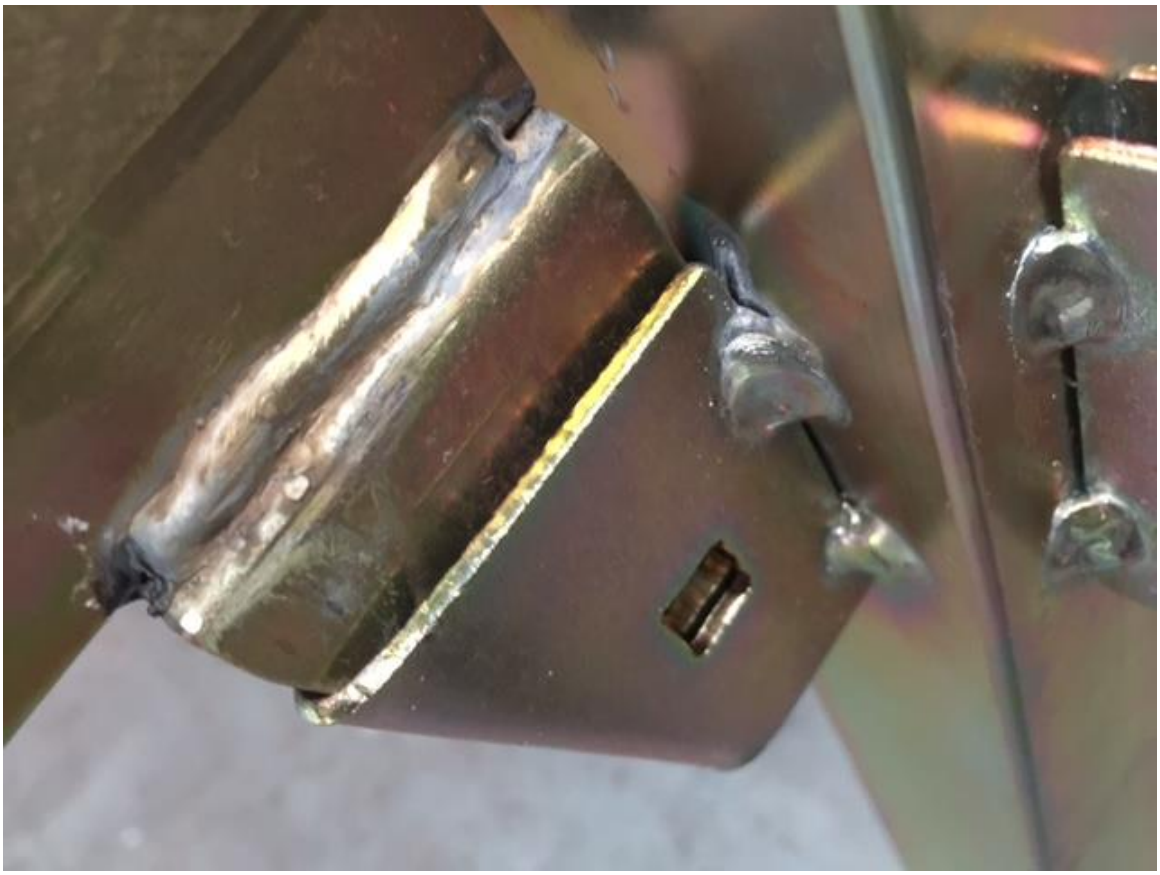
Lateral box section deformation shown following zone 2 impact





Weld fracture to shark fin housing following zone 2 impact.

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Compressive buckling of outer frame following impact zone 2

END OF TEST REPORT NUMBER TES000380TR-2

Testing conducted by: Mr. S J Rogers & Mr. R Thompson

Report authorized by : Mr. S J Rogers On behalf of TESMEC Limited

Date of report: 15th November 2017

Number of pages in this document: 9

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