

## Test & Evaluation Centre

### BTT Laboratory

### Test Report

#### Ballistic Resistance of Bullet Proof Glass Sample “Future Architectural Glass LLC/ UAE”

KADDB/BTT/TR/12/5



4515

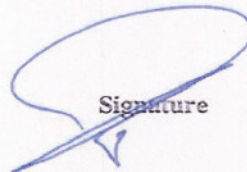
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## Approval

### Ballistic Resistance of Bullet Proof Glass Sample "Future Architectural Glass LLC/ UAE"

Compiled by  
Head of Weapons and Ammunition Testing  
Dr. Eng. Riyad Ali Ratrout

Approved by  
Test & Evaluation Manager  
Col. Eng. Mohammad Arajneh

  
Signature

Date  
17/7/2012



## 1. TEST DATA

<b>Contractor</b>	Exova Certification and Inspection Services Limited/ Dubai/ UAE
<b>Requester</b>	KADDB/ Sales
<b>Correspondences</b>	<ul style="list-style-type: none"> <li>• KADDB/Sales/2012/4493, dated 03/07/2012 "Internal Memo"</li> <li>• KADDB/TEST/BTT/TP/2012/14 "Technical Testing Proposal, 03/07/2012"</li> <li>• Exova Purchase order No. DFL0584 Po1, dated 13/07/2012</li> <li>• Agreement with Exova Business Relationship dated 1-January 2011</li> </ul>
<b>Test Sample/ Dimension / Weight</b>	<p>Bullet Proof Glass <b>Sample</b> (See photo No. 1):</p> <ul style="list-style-type: none"> <li>• <b>Sample #01</b> / 500 x 500 x 41.5 mm / 24.4 kg</li> <li>• <b>Sample #02</b> / 500 x 500 x 41.5 mm / 24.4 kg</li> <li>• <b>Sample #03</b>/ 500 x 500 x 40.0 mm / 24.2 kg (During inspection process for sample #03, a crack is found on the upper right corner)</li> <li>• <b>Sample #04</b> / 500 x 500 x 41.0 mm / 24.3 kg</li> </ul>
<b>Manufacturing Date &amp; S.N of Test Sample</b>	Not Available
<b>Developer of Test Samples</b>	Future Architectural Glass LLC/ UAE
<b>Test Type</b>	Ballistic Resistance
<b>Test Standard</b>	European Standard EN 1063 / Protection Level "BR5"
<b>Test Weapon &amp; Caliber</b>	Universal Ballistic Breech with standard barrel type 5.56X45mm (S.N: 3715 )
<b>Type of Bullets</b>	5.56X45mm (62gr, full copper alloy jacket, pointed bullet, soft core "lead" and steel penetrator "type SS I 09") Lot.110928
<b>Shot Angles</b>	90 degrees to the surface of the samples
<b>Test Temperature</b>	18 °C
<b>Test Site</b>	KADDB/Ballistic Test Tunnel (BTT)
<b>Test Date</b>	05 July 2012

*Note:*The results contained in this report are only valid for detailed above.



## 2. TEST RESULTS

Test Sample	Number of <u>shots@10 m</u>	Bullet Velocity (m/s) @ 2.5 m in front of test piece		
		1 <sup>st</sup> shot	2 <sup>nd</sup> shot	3 <sup>rd</sup> shot
1 <sup>st</sup> Test piece  Sample#01 500x500x41.5mm	Three shots / 5.56X45mm (SS109, 62gr) Triangle/ Striking distance: 120mm	942	968	951
		NS	S	S
Test Results: <i>S: No perforation of the glazing by the bullet or parts of the bullet, but with perforation of the witness foil by glass splinters. (See photo No. 2)</i>				
2 <sup>nd</sup> Test piece  Sample#02 500x500x41.5mm	Three shots/ 5.56X45mm (SS109, 62gr) Triangle/ Striking distance: 120mm	940	952	941
		S	S	S
Test Results: <i>S: No perforation of the glazing by the bullet or parts of the bullet, but with perforation of the witness foil by glass splinters. (See photo No. 3)</i>				
3 <sup>rd</sup> Test piece  Sample#04 500x500x41.0mm	Three shots/ 5.56X45mm (SS109, 62gr) Triangle/ Striking distance: 120mm	939	939	934
		NS	S	S
Test Results: <i>S: No perforation of the glazing by the bullet or parts of the bullet, but with perforation of the witness foil by glass splinters. (See photo No. 4)</i>				
<b><u>Performance Requirements According to European Standard EN 1063:</u></b> <i>"NS" (No Splinters): No perforation of the glazing by the bullet or parts of the bullet and no perforation of the witness foil by glass splinters from the rear face. "S" (Splinters): No perforation of the glazing by the bullet or parts of the bullet, but with perforation of the witness foil by glass splinters from the protected face. "P" (Perforation): Piercing of a test piece by a bullet or by bullet fragments, and/or creation of an opening from the attack face to the rear face.</i>				