SECTION 10 26 41

BULLET-RESISTANT PANELS

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* ArmorCore by Waco Composites; panels and wallboard.
This section is based on the products of ArmorCore by Waco Composites, which is located at:
P. O. Box 20008
Waco, TX 76702-0008
Toll Free Tel: 866-688-3088
Tel: 254-752-3622
Fax: 254-752-3634
Email: [request info (zroberts@armorcore.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=ArmorCore+by+Waco+Composites&coid=38153&rep=&fax=254-752-3634&message=RE:%20Spec%20Question%20(10265wci):%20%20&mf=)
Web: <http://www.armorcore.com>
 [ [Click Here](https://www.arcat.com/arcatcos/cos38/arc38153.html) ] for additional information.
ArmorCore is our line of UL Listed Bullet Resistant Fiberglass Panels. Armorcore is manufactured and sold worldwide direct from the Heart of Texas daily. Waco Composites has focused exclusively on this product line during the last decade and has become a leading manufacturer in the security industry. ArmorCore panels combine woven-roving fiberglass with resin and are cured in a press with heat and pressure. These panels encapture the ballistic projectiles in a process called ply-delamination. This process defeats the projectiles without ricocheting or spalling. This design makes ArmorCore one of the safest, most inexpensive, and easy to work with ballistic protection solutions available. ArmorCore is used primarily in wall systems, furniture and doors, and vehicle armor.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Bullet resistant fiberglass panels of the following ballistic rating level:
			1. ArmorCore Level 1.
			2. ArmorCore Level 2.
			3. ArmorCore Level 3.
			4. ArmorCore Level 4.
			5. ArmorCore Level 5.
			6. ArmorCore Level 6.
			7. ArmorCore Level 7.
			8. ArmorCore Level 8.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 09 21 16.33 - Gypsum Board Area Separation Wall Assemblies.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):

\*\* NOTE TO SPECIFIER \*\* Applies to acoustically rated panels only. Level 4, Level 5, Level 8 panels only. Delete if not required.

* + - 1. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
			2. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

\*\* NOTE TO SPECIFIER \*\* Applies to acoustically rated panels only. Level 4, Level 5, Level 8 panels only. Delete if not required.

* + - 1. ASTM E 413 - Classification for Rating Sound Insulation.
			2. ASTM F 1233 - Standard Test Method for Security Glazing Materials and Systems.

\*\* NOTE TO SPECIFIER \*\* Applies to acoustically rated panels only. Level 4, Level 5, Level 8 panels only. Delete if not required.

* + - 1. ASTM E 1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation.
		1. International Organization for Standardization (ISO):
			1. ISO 9001-2015 - Quality Management System.

\*\* NOTE TO SPECIFIER \*\* Applies to panels with ballistic armor type rating by NIJ. Level 2, Level 3, Level 5, Level 6, Level 8 panels only. Delete if not required.

* + 1. National Institute of Justice Ballistic Standards (NIJ):
			1. NIJ Standard 0108.01.
		2. Small Business Administration (SBA):
			1. SBA Small Business Size Standard.
		3. Underwriters Laboratories (UL):
			1. UL 752 Specifications and Ammunition, 11th Edition, Standard for Bullet Resisting Equipment published September 9, 2005, revised December 21, 2006.
		4. The United States Department of State:
			1. The International Traffic in Arms Regulations (ITAR).
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Details of installation of bullet resistant fiberglass panels.
		4. Certificates: Submit printed data to indicate compliance with following requirements.
			1. UL Listing Verification and UL752 Current Test Results as provided by Underwriters Laboratories.
			2. ASTM E 119.
			3. ASTM F 1233.

\*\* NOTE TO SPECIFIER \*\* Applies to acoustically rated panels only. Level 4, Level 5, Level 8 panels only. Delete if not required.

* + - 1. ASTM E 90.

\*\* NOTE TO SPECIFIER \*\* Applies to acoustically rated panels only. Level 4, Level 5, Level 8 panels only. Delete if not required.

* + - 1. ASTM E 413.

\*\* NOTE TO SPECIFIER \*\* Applies to acoustically rated panels only. Level 4, Level 5, Level 8 panels only. Delete if not required.

* + - 1. ASTM E 1332.
			2. Manufacturer's third party certificate of registration with ISO 9001:2008.
			3. Manufacturer's U.S. Dept. of State ITAR Statement of Registration.
			4. Manufacturer's SBA Profile verifying small business status by the SBA.
		1. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
	1. QUALITY ASSURANCE
		1. Sourcing: Panels manufactured in the United States of America with raw materials sourced from the U.S.A. for quality assurance purposes and to comply with any applicable "Buy American" provisions.
		2. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
		3. Installer Qualifications: Minimum 2 year experience installing similar products.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Finish areas designated by Architect.
			2. Do not proceed with remaining work until workmanship is approved by Architect.
			3. Refinish mock-up area as required to produce acceptable work.
	1. PRE-INSTALLATION MEETINGS
		1. Convene minimum two weeks prior to starting work of this section.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
		2. Deliver materials to project with manufacturer's UL Listed labels intact and legible.
		3. Handle material with care to prevent damage. Store materials inside under cover, stack flat and off the floor.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. SEQUENCING
		1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	5. WARRANTY
		1. Provide manufacturer's standard limited warranty for materials and workmanship against defects for a period of ten years from the date of Substantial Completion.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: ArmorCore by Waco Composites, which is located at: P. O. Box 20008; Waco, TX 76702-0008; Toll Free Tel: 866-688-3088; Tel: 254-752-3622; Fax: 254-752-3634; Email: [request info (zroberts@armorcore.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=ArmorCore+by+Waco+Composites&coid=38153&rep=&fax=254-752-3634&message=RE:%20Spec%20Question%20(10265wci):%20%20&mf=); Web: <http://www.armorcore.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. BULLET RESISTANT PANELS
		1. General:
			1. Bullet Resistant Fiberglass Panels shall be "non-ricochet type" to permit the encapture and retention of an attacking projectile lessening the potential of a random injury or lateral penetration.
			2. Bullet resistance of joints: Equal to that of the panel.
		2. Product: Panels shall be fabricated of multiple layers of woven roving ballistic grade fiberglass cloth impregnated with a thermoset polyester resin and compressed into flat rigid sheets as manufactured by Waco Composites.
		3. Panel Product: ArmorCore Level 1.
			1. Panel Rating: UL752 Level 1.
			2. Physical Characteristics: 1/4 inch (6 mm) thick, 2.6 lbs. per sq.ft. (12.7 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
			5. Panel Size: 4 feet x 8 feet (1219 mm x 2438 mm).
			6. Panel Size: 4 feet x 9 feet (1219 mm x 2743 mm).
			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
			11. Panel Size: Custom. Refer to Drawings.
		1. Panel Product: ArmorCore Level 2.
			1. Panel Rating: UL752 Level 2.
			2. Armor Type: NIJ Standard 0108.01 - Type IIa.
			3. Physical Characteristics: 5/16 inch (7.9 mm) thick, 3.6 lbs. per sq.ft. (17.6 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
			5. Panel Size: 4 feet x 8 feet (1219 mm x 2438 mm).
			6. Panel Size: 4 feet x 9 feet (1219 mm x 2743 mm).
			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
		1. Panel Product: ArmorCore Level 3.
			1. Panel Rating: UL752 Level 3.
			2. Armor Type: NIJ Standard 0108.01 - Type IIIa.
			3. Physical Characteristics: 7/16 inch (11.1 mm) thick, 4.8 lbs. per sq.ft. (23.4 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
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			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
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			6. Panel Size: 4 feet x 9 feet (1219 mm x 2743 mm).
			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
		1. Panel Product: ArmorCore Level 4.
			1. Panel Rating: UL752 Level 4.
			2. Physical Characteristics: 1-3/8 inches (34.9 mm) thick, 13.9 lbs. per sq.ft. (67.9 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
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			6. Panel Size: 4 feet x 9 feet (1219 mm x 2743 mm).
			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
		1. Panel Product: ArmorCore Level 5.
			1. Panel Rating: UL752 Level 5.
			2. Armor Type: NIJ Standard 0108.01 - Type III.
			3. Physical Characteristics: 1-7/16 inches (36.5 mm) thick, 14.8 lbs. per sq. ft. (72.3 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
			5. Panel Size: 4 feet x 8 feet (1219 mm x 2438 mm).
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			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
		1. Panel Product: ArmorCore Level 6.
			1. Panel Rating: UL752 Level 6.
			2. Armor Type: NIJ Standard 0108.01 - Type II.
			3. Physical Characteristics: 3/8 inch (9.5 mm) thick, 3.9 lbs. per sq.ft. (19.0 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
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			6. Panel Size: 4 feet x 9 feet (1219 mm x 2743 mm).
			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
		1. Panel Product: ArmorCore Level 7.
			1. Panel Rating: UL752 Level 7.
			2. Physical Characteristics: 1-1/8 inches (28.6 mm) thick, 11.9 lbs. per sq.ft. (58.1 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
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			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
		1. Panel Product: ArmorCore Level 8.
			1. Panel Rating: UL752 Level 8.
			2. Armor Type: NIJ Standard 0108.01 - Type III.
			3. Physical Characteristics: 1-7/16 inches (36.5 mm) thick, 15.2 lbs. per sq.ft. (74.2 kg per sq. m).

\*\* NOTE TO SPECIFIER \*\* Delete panel size not required.

* + - 1. Panel Size: Maximum size to limit number of seams.
			2. Panel Size: 3 feet x 8 feet (914 mm x 2438 mm).
			3. Panel Size: 3 feet x 9 feet (914 mm x 2743 mm).
			4. Panel Size: 3 feet x 10 feet (914 mm x 3048 mm).
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			6. Panel Size: 4 feet x 9 feet (1219 mm x 2743 mm).
			7. Panel Size: 4 feet x 10 feet (1219 mm x 3048 mm).
			8. Panel Size: 5 feet x 8 feet (1524 mm x 2438 mm).
			9. Panel Size: 5 feet x 9 feet (1524 mm x 2743 mm).
			10. Panel Size: 5 feet x 10 feet (1524 mm x 3048 mm).
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. Prior to starting installation, verify work of related trades required in contract documents and architectural drawings is complete to the point where work of this Section may properly commence.
		3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction.
		2. Reinforce joints with a back-up layer of bullet resistive material. Minimum width of reinforcing layer at joint shall be 4 inches (102 mm), centered on panel joints.
		3. Install panels in accordance with manufacturer's printed recommendations and as required by contract documents.
		4. Secure armor panels using screws, bolts, or an industrial adhesive.
		5. Method of application shall install panels minimizing vulnerabilities by fitting tightly to adjacent surfaces including concrete floor slab, concrete roof slab, bullet resistive door frames, bullet resistive window frames, and other assemblies.
	4. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION