# EFFECTIVE February 22, 2021 AND SUPERSEDES ALL PREVIOUS VERSIONS.

SECTION 07 27 00

INTERIOR AIR AND VAPOR CONTROL LAYER

**SIGA MAJREX®200**

1. **GENERAL**
	* + 1. **GENERAL REQUIREMENTS**
				1. The General Conditions, Supplementary Conditions, Instructions to Bidders, and Division 01- General Requirements shall be read in conjunction with and govern this Section.
				2. This Specification Section should be read by all parties concerned. The contractor is responsible to make clear to the installing subcontractor the extent of their work.
				3. This Section specifies the requirements for the supply and installation of the elements required for air and vapor control membranes.
			2. **SECTION INCLUDES**
				1. This Section includes requirements for supplying labor, materials, tools, and equipment to complete the work as shown on the drawings architectural division as specified herein including, but not limited to, the following:

Mechanically attached interior air and vapor control layer (SIGA Majrex 200).

Accessories:

* 1. Flashing Tapes (SIGA Rissan®, SIGA Fentrim® IS 20).
	2. Double-sided adhesive assembly-aid tape (SIGA Twinet®).
	3. Adhesive/Primer (SIGA Dockskin® 100).
	4. Sealant (SIGA Meltell® 300).
1. Sealant (SIGA Meltell® 300). Note to Specifier: Carefully and completely edit "WORK SPECIFIED IN OTHER SECTIONS" below to coordinate with other sections being included in the project manual.
	* + 1. **RELATED SECTIONS**

(Specifier Note: Carefully and completely edit " RELATED SECTIONS" below to coordinate with other sections being included in the project manual).

* + - * 1. Section 07 21 00 – Thermal Insulation.
				2. Section 07 26 00 – Vapor Retarders.
				3. Section 07 50 00 - Membrane Roofing; requirement for coordination with sequencing of membrane roofing; requirement to seal roof membrane to wall air barrier.
				4. Section 07 65 00 – Flexible flashing tapes.
				5. Section 07 92 00 – Joint Sealant
			1. **REFERENCES**
				1. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
				2. ASTM E 96 - Test Methods for Water Vapor Transmission of Materials.
				3. ASTM E2178 - Standard Test method for. Air Permeance of Building Materials.
				4. AAMA 711-13 - Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products.
				5. [EN 1848-2- Flexible sheets for waterproofing - Determination of dimensions.](http://infostore.saiglobal.com/store/details.aspx?ProductID=270741)
				6. EN 1849-2 - Flexible sheets for waterproofing - Determination of thickness and mass per unit area.
				7. EN 12310-1 - Flexible sheets for waterproofing. Determination of resistance to tearing (nail shank).
				8. EN 12311-1 - Flexible sheets for waterproofing. Determination of tensile properties.
				9. EN 1931- Flexible sheets for waterproofing. Determination of water vapour transmission properties.
				10. EN ISO 12572 -Hygrothermal performance of building materials and products - Determination of water vapor transmission properties - Cup method.
				11. EN 1296-Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roofing - Method of artificial ageing by long term exposure to elevated temperature.
				12. EN 1928- Flexible sheets for waterproofing. Determination of watertightness.
				13. EN 13501-1-Fire classification of construction products and building elements.
			2. **SUBMITTALS**
				1. General: Submit listed submittals in accordance with Conditions of the Contract and Division 01 Submittal Procedures Section.
				2. Product Data: Submit manufacturers’ current product data sheets, details and installation instructions for the air barrier vapor control layer, and drainage matrix membrane components and accessories.
				3. Samples:

Submit 6 inch x 6 inch (152 x 152 mm) samples of specified membrane(s).

Submit minimum length 5” samples of specified tape(s).

* + - 1. **QUALITY ASSURANCE**
				1. Qualifications.

Installer shall have experience with installation of Interior air and vapor control layer assemblies. Installer shall be acceptable to manufacturer.

Installation shall be in accordance with Interior air and vapor control layer manufacturer’s installation guidelines and recommendations.

Source Limitations: Provide Interior air and vapor control layer and accessory materials produced by single manufacturer.

Whenever possible, installer shall undergo an onsite SIGA installation training before the installation of SIGA products begin, at no charge.

(Specifier Note: Include a mock-up if the project size and/or quality warrant taking such a precaution).

* + - * 1. Mock-Up: Provide a mock-up for evaluation of installation techniques and application workmanship.

Prior to installation of airtight layer, mock up airtight layer as follows to verify details and to demonstrate connections to adjoining construction elements, and other termination conditions.

Install mockup of airtight layer in location designated by Architect.

Do not proceed with remaining work until workmanship and application technique are approved by Architect.

Construct typical interior wall, 10 feet wide by 10 feet long, illustrating materials interface and connections (tape, adhesives, gaskets), incorporating specified options including but not limited to the following:

junctions of walls, foundations, ceilings, floors and roof,

window and doorframe connections,

corner conditions,

blow-in insulation seals/battens.

* + - * 1. Pre-installation Meeting.

Refer to Section **[01 31 19 Project Meetings] [insert section number and title]**.

(Specifier Note: A Pre-installation meeting is recommended for projects where the SIGA Products 10 Year Limited Warranty is specified and recommended for all projects using SIGA Majrex® 200. Requirement may be DELETED if SIGA Warranty is not specified).

Convene a pre-installation conference a minimum of two weeks prior to start of air barrier installation. Attendees shall include all subcontractors affected by the work. Agenda shall include materials, details of construction, compatibility of materials, sequencing of construction/installation of membranes, the airtightness goal and emphasize that the success during the blowerdoor test is dependent on the collaboration of all subcontractors.

Review all related project requirements and submittals, status of substrate work and preparation, areas of potential conflict and interface, availability of air barrier vapor control layer system materials and components, installer’s training requirements, equipment, facilities and scaffolding. Coordinate methods, procedures and sequencing requirements for full and proper installation, integration and protection.

After meeting, post a warning in a prominent and visible location at all building entrances in order to protect the air and vapor control layer.



* + - 1. **DELIVERY, STORAGE & HANDLING**
				1. Store products off the ground, in dry conditions, under cover and in manufacturer's unopened packaging until ready for installation.
				2. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
				3. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
			2. **WARRANTY**
				1. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
				2. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Warranty Period: 10 years commencing on Date of Substantial Completion.

1. **PRODUCTS**

(Specifier Note: Product Information is proprietary to SIGA Majrex® 200. If additional products are required for competitive procurement, contact SIGA applications advisor for assistance).

* + - 1. **MANUFACTURER**
				1. Manufacturer, Basis-of-Design: SIGA Cover Inc., 2355 Highway 36 West, Suite 400, Roseville, MN 55113; +1-855-733-7442; [www.siga.swiss](http://www.siga.swiss).
				2. Substitutions: No substitutions permitted.
			2. **MATERIALS**

(Specifier Note: Components of the airtight layer system are dependent upon construction conditions. DELETE products that are unnecessary and inappropriate for specific project).

* + - * 1. Basis of Design : SIGA Majrex 200

Description: Hygrobrid®+ moisture variable vapour control layer for permanently airtight building envelopes for roof, wall and ceiling structures made form modified PE/PA reinforced with PET fibres.

Performance Characteristics:

Dimensions (width x length): 4.9’x164’ ( 1.5m x 50m).

Effective thickness : 12mils (0,3 mm).

Basis Weight: 0.49 oz/ft2 (150 g/m2).

Airtight material : 0.00002cfm/sf when tested in accordance with ASTM E2178

Dynamic diffusion-equivalent air layer thickness : <0.097 - ≥4.25. (Sd value from <≤0,8 - >35) when tested in accordance with ISO 12572.

Water Vapor Transmission ASTM E96:

Direction 1: 0.17 US perms (dry cup), 3.8 US perms (wet cup)

Direction 2: 0.16 US perms (dry cup), 1.3 US perms (wet cup)

Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84.

Flame Spread: 0 (Class A)

Smoke Developed: 55 (Class A)

Tear resistance (nail shank) when tested in accordance with EN 12310-1:

>110 N (140 N) Lengthwise.

>120 N (135 N) Crosswise.

Tensile properties:Maximum tensile strength,when tested in accordance with EN 12311-1 :

> 270N/50mm (310N/50mm) Lengthwise.

> 210N/50mm (260N/50mm)Crosswise.

Tensile properties: Elongation at maximum tensile strength , when tested in accordance with EN 12311-1:

> 20 % (35 %) Lengthwise.

> 20 % (35 %) Crosswise.

* + - * 1. Airtight interior double-sided adhesive assembly-aid tape: SIGA Twinet®.

Pressure sensitive, with acrylic based adhesive for the pre-installation of membranes on hard substrates.

Thickness: 0.014" (0.35 mm).

Width: 0.79"( 20 mm ).

SIGA Twinet is not suitable for permanent load-bearing applications. After installation, the vapour control layer must be additionally fastened, e.g. using jack rafters, counter battens, facing.

* + - * 1. Airtight interior joint tape: SIGA Rissan®.

Pressure sensitive, with acrylic based adhesive for seams, pipe/cable penetrations on penetrations in vapor control layers and wood-based panels.

Widths: 2.4” (60mm) ,4” (100mm), 6” (150mm).

Performance Characteristics:

Special, reinforced PE film, elastic.

Water Vapor Transmission: 0.09 perms, when tested in accordance with ASTM E 96, Method A.

Slit backing strip on SIGA Rissan 4” (100mm) and 6” (150mm).

* + - * 1. Airtight interior pre-folded tape: SIGA Fentrim® IS 20

Pressure sensitive, with acrylic based adhesive for sealing windows, doors.

Widths: 3” (75mm) , 3.9” (100mm), 5.9” (150mm), 7.9” (200mm), 9.8” (250mm), 11.8” (300mm).

Performance Characteristics:

Special film/fleece combination made of PO.

Water Vapor Transmission: 0.17 US perms for SIGA Fentrim IS 20, when tested in accordance with ASTM E 96, Method A.

Thickness: 26 mils/ 0.7mm.

Specification for self-adhered flashing used for exterior wall fenestration installation: TYPE A (no primers needed), level 3 thermal exposure.

Tensile strength: Pass, when tested in accordance with ASTM D5034 per AAMA 711-13.

Water penetration resistance around nails: Pass/Dry when tested in accordance with ASTM D1970 per AAMA 711-13.

90 peel adhesion: Pass all conditions and standard test substrates; OSB, anodized aluminum extruded PVC plywood, accelerated aging w/UV-A, elevated temperature exposure, thermal cycling, adhesion after water immersion, when tested in accordance with D3330 and conditioning per AAMA 711-13.

* + - * 1. Primer : SIGA Dockskin® 100

(Specifier Note: (Specifier Note: Product listed below is only recommended for inclusion when required, and should be EDITED for specific project. When using SIGA Rissan, primer will be required in concrete, masonry, plaster and softboards applications. For the correct choise of product for the intended application, the substrate matrix, the application recommendations and product information in the SIGA manual must be considered. The currently valid SIGA manual is available at https://www.siga.swiss).

High-performance primer for strengthening sandy and fibrous substrates.

Performance Characteristics:

Water-based solvent-free acrylate-copolymer dispersion.

Application Temperature: Above 15 degrees Fahrenheit (-10 degrees Celsius).

Solvent-free.

* + - * 1. Interior Sealant : SIGA Meltell® 300.

A 1-component hybrid polymer-based sealant, for sealing joints and penetrations on vapor control layer.

Performance Characteristics:

Color : white , black , grey

Can be painted over.

1. **EXECUTION**
	* + 1. **EXAMINATION**
				1. Do not begin installation until substrates/surfaces have been properly prepared and cleaned from dust, silicones, oils and grease. Before installation, verify substrate is free of splinters, nails or other objects that could puncture membranes.
				2. Verify that all exterior and interior wall, partition, and floor/ceiling assembly construction has been completed to the point where the insulation may correctly be installed.
				3. Verify that mechanical and electrical services in ceilings, walls and floors have been installed and tested and, if appropriate, verify that adjacent materials are dry and ready to receive insulation.
				4. 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 VAPOR CONTROL LAYER**
				1. Apply airtight layer/vapor control layer in accordance with manufacturer's instructions.
				2. Install membranes taut and without creases along the substrate, with the writing facing the installer.
				3. Overlap SIGA Majrex® 200 by approx. 4” (10cm). Use the printed lines on the membrane as a guide.
				4. SIGA Majrex 200 Attachment: Fasten securely to a stud, structural sheathing or through insulation board to an underlying framing member.

 (Specifier Note: Attachment method is dependent upon substrate construction. DELETE methods that are unnecessary and inappropriate for specific project)

Double-sided tape adhesive SIGA Twinet®.

(Specifier Note: on galvanize steel studs or timber substructures).

Apply double-sided adhesive SIGA Twinet on substrate.

Press firmly with a hard rubber roller.

Remove backing paper.

Bond SIGA Majrex 200 , with the smooth side and the writing facing the installer.

Avoid leaky stapling points.

AND/OR

 Staple Fasteners.

(Specifier Note : on timber substructures, if insulation is already in place).

Attach SIGA Majrex® 200 with staples flush with the studs , with the smooth side and the writing facing the installer.

Secure with spacing no greater than 4" intervals along the stud faces, vertically.

For maximum tear resistance apply the staples in parallel to the line of the studs.

Minimum staple length of 1/2" is recommended. No maximum length is specified, but longer staples require more air for driving, and can pinch the insulation, reducing its effectiveness near the studs.

 OR

(Specifier Note : on timber substructures, if dense pack insulation is blown behind the SIGA Majrex 200).

If dense pack insulation is blown behind the SIGA Majrex 200, attach it with staples flush with the studs , with the smooth side and the writing facing the installer.

Secure with spacing no greater than 2" intervals along the stud faces, vertically for even distribution of insulation load.

Secure the support of the dense-pack with horizontal counter-battens. Large spacing (24″ 0.c.) of the counter battening is not recommended.

AND/OR

Screw Fasteners.

(Specifier Note : on galvanize steel studs or timber substructures).

Attach SIGA Majrex 200 with screws flush with the studs , with the smooth side and the writing facing the installer.

Secure with spacing no greater than 12" intervals along the stud faces, vertically.

It is recommended that #7 x 7/16" plated steel or stainless self-tapping or self-drilling cap-head sheet metal screws be used.

Galvanized coatings on the screws are not recommended, as the rough surface can grab the sheeting and cause twisting and tearing.

* + - 1. **SEAMING**
				1. Seal overlap with with seam tape SIGA Rissan® 2.4” (60mm) or wider, at all vertical and horizontal overlapping seams avoiding tension and wrinkles.
				2. Seal any tears or cuts with seam tape SIGA Rissan as recommended by vapor control manufacturer.
			2. **PENETRATIONS**
				1. Round or square penetrations must be sealed with SIGA Rissan.
				2. Apply multiple, short pieces of SIGA Rissan around the penetration to create a gasket.
				3. Products that have flanges should be integrated into the air and vapor control layer using SIGA Rissan.
			3. **SEALING INJECTION HOLES**
				1. Always use injection insulation material according to manufacturer’s instructions.
				2. Attach battens crosswise or lengthwise along the structure (to bear the weight of the insulation material).
				3. Make an X-cut approx. 6″ (150mm) on SIGA Majrex® 200 . It should give sufficient room to move the tube all the way down in the cavity.
				4. Describe venting considerations.
				5. Use squares of SIGA Rissan® 4” (100mm) to patch holes.
			4. **INTERIOR WINDOW AIR-SEALING**

(Specifier Note: Window manufacturer’s instructions over-ride SIGA specifications for window openings. The installer is responsible to resolve any conflicts in the specifications, sequencing, materials or techniques between window manufacturer’s instructions and SIGA specifications before construction. MAINTAIN the following opening preparation and flashing articles, when used in conjunction with non-flanged windows, or flanged windows. Contact SIGA applications advisor for assistance and consult the SIGA Manual https://www.siga.swiss).

* + - * 1. Install materials in strict accordance with manufacturer’s instructions. Surfaces shall be clean and free of frost, oil, grease, mold and efflorescence prior to application of flashing.
				2. Before sealing the interior, insulation must be used around the perimeter of the window in accordance with shop drawings and the insulation manufacturer’s guidelines. Insulation must allow for expansion and contraction of the installed window.
				3. Apply SIGA Fentrim® IS 20 directly on window frame with the pre folded section. Remove backing paper and apply firm pressure using a roller or squeegee. Apply SIGA Fentrim IS 20 along all sections of the window right up to the corner.
				4. Create corner piece and place into corners. Repeat step for all 4 corners.
				5. Tape around the interior face of the window, and seal the mounting brackets or any other possible sources of leakage.
				6. Ensure a minimum overlap of 1” (25mm) with SIGA Fentrim IS 20 in every direction.
			1. **BASE OF WALL**
				1. Before sealing, clean the substrate. The substrate must be dry, structurally sound and free of any dirt and grease. It must not be -adhesive-repellent.
				2. If the intend is to use SIGA Rissan® on concrete,bond the base-joint substrate with high-performance primer SIGA Dockskin® 100. Brush or roll on SIGA Dockskin 100 primer to concrete, and let it dry, clear and tacky.
				3. Align SIGA Rissan 4 “ or wider to the center of the joint, between the concrete base joint and the SIGA Majrex® 200 . A minimum width of 2” has to adhere on the concrete.
				4. Secure in place, and remove backing strip.
				5. Bond without any tension and wrinkles and press on firmly with hand.
			2. **OTHER INSTALLATION DETAILS**
				1. Contact a SIGA applications advisor for assistance with any unlisted installation details.
			3. **PROTECTION**
				1. Protect installed products until completion of project.
				2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

DISCLAIMER: SIGA Cover Inc. Guide Specifications have been written as an aid to the professionally qualified Specifier and Design Professional. The use of this Guideline Specification requires the sole professional judgment and expertise of the qualified Specifier and Design Professional to adapt the information to the specific needs for the Building Owner and the Project, to coordinate with their Construction Document Process, and to meet all the applicable building codes, regulations and laws. SIGA Cover Inc. EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE OF THIS PRODUCT FOR THE PROJECT.