



Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2511-109



Issue Date: October 24, 2025

Revision Date: April 13, 2026

Subject to Renewal: January 1, 2027

Max Roofing® Building Wraps

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 24 19 - Water-Drainage Exterior Insulation and Finish System

Section: 07 25 00 - Water-Resistive Barriers/Weather Barriers

1 Innovative Products Evaluated¹

1.1 Max Roofing Building Wraps:

1.1.1 MaxWrap

1.1.2 MaxWrap Hydro-Channel

2 Product Description and Materials

2.1 The logo for the innovative products evaluated in this report are shown in **Figure 1** and are defined in **Table 1**.



Figure 1. Max Roofing Building Wraps Logo



Table 1. Max Roofing Building Wraps Product Information

Product	Description	Nominal Thickness (in)	Standard Product Roll Dimensions	
			Height	Length
MaxWrap	A 2-Layer, Polypropylene (PP) Woven, Pin-Perforated Building Wrap	0.004	3', 4.5', 5', 9', 10'	100', 150', 195'
MaxWrap Hydro-Channel	A 2-Layer, PP Non-Woven Reinforcement Adhesively Laminated to a Microporous Breathable Film (Non-Perforated)	0.008	3', 4.5', 5', 9', 10'	100', 125', 150'

SI: 1 in = 25.4 mm

2.2 As needed, review material properties for design in **Section 6** and the regulatory evaluation in **Section 8**.

3 Definitions²

- 3.1 New Materials³ are defined as building materials, equipment, appliances, systems, or methods of construction, not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.⁴ The design strength and permissible stresses shall be established by tests⁵ and/or engineering analysis.⁶
- 3.2 Duly authenticated reports⁷ and research reports⁸ are test reports and related engineering evaluations that are written by an approved agency⁹ and/or an approved source.¹⁰
 - 3.2.1 This report utilizes intellectual property and/or trade secrets to create public domain material properties for commercial end-use.
 - 3.2.1.1 This report protects confidential Intellectual Property and trade secrets under the regulation, 18.U.S.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).¹¹
- 3.3 An approved agency is “approved” when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.
- 3.4 An approved source is “approved” when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.¹²
- 3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.
 - 3.5.1 The Center for Building Innovation (CBI) is ANAB¹³ ISO/IEC 17025 and ISO/IEC 17020 accredited.
- 3.6 The regulatory authority shall enforce¹⁴ the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing¹⁵ stating the nonconformance and the path to its cure.
- 3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.¹⁶



- 3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.¹⁷ Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,¹⁸ and can be used in any country that is an MLA signatory found at this link: <https://iaf.nu/en/recognised-abs/>
- 3.9 Approval equity is a fundamental commercial and legal principle.¹⁹

4 Applicable Local, State, and Federal Approvals; Standards; Regulations²⁰

4.1 Local, State, and Federal

- 4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured local jurisdictions: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, St. Louis County, Texas Department of Insurance, and Wichita.²¹
- 4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.²²
- 4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14²³ and Part 3280²⁴ pursuant to the use of ISO/IEC 17065 duly authenticated reports.
- 4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 Regulations

- 4.2.1 *IBC – 18, 21, 24: International Building Code®*
- 4.2.2 *IRC – 18, 21, 24: International Residential Code®*
- 4.2.3 *IECC – 18, 21, 24: International Energy Conservation Code®*

4.3 Standards

- 4.3.1 *AATCC 127: Water Resistance: Hydrostatic Pressure Test*
- 4.3.2 *ASTM D779: Standard Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method*
- 4.3.3 *ASTM D5034: Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)*
- 4.3.4 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 4.3.5 *ASTM E96/E96M: Standard Test Methods for Water Vapor Transmission of Materials*
- 4.3.6 *ASTM E2273: Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies*
- 4.3.7 *ASTM E2556/E2556M: Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment*



5 Listed²⁵

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (e.g., CBI), an approved agency (e.g., CBI and DrJ), and/or and approved source (e.g., DrJ), or other organization(s) concerned with product evaluation (e.g., DrJ), that maintains periodic inspection (e.g., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 Water-Resistive Barrier (WRB)

- 6.1.1 Max Roofing Building Wraps are an approved WRB in accordance with IBC Section 1402.2²⁶ and IRC Section R703.1²⁷ when installed with flashing in accordance with IBC Section 1403.2²⁸ and IRC Section R703.2²⁹.
- 6.1.2 The average breaking force of the Max Roofing Building Wraps was tested in accordance with ASTM D5034, per ASTM E2556 (see **Table 2**).

Table 2. Average Breaking Force of Max Roofing Building Wraps^{1,2}

Product	Orientation	Average Breaking Force (lbf)
MaxWrap	Machine Direction (MD)	78.5
	Cross Direction (CD)	81.1
MaxWrap Hydro-Channel	Machine Direction (MD)	40.3
	Cross Direction (CD)	67.7

1. Tested in accordance with ASTM D5034
2. Values given are after exposure to weathering procedures found in Annex A1.2 of ASTM E2556

- 6.1.3 The water resistance of the Max Roofing Building Wraps was tested in accordance with ASTM D779, or AATCC Test Method 127, per ASTM E2556 (see **Table 3**).

Table 3. Water-Resistance Properties of Max Roofing Building Wraps

Product	Assessment of Water Resistance
MaxWrap ¹	Pass
MaxWrap Hydro-Channel ²	Pass

1. Tested in accordance with ASTM D779 per ASTM E2556
2. Evaluated in accordance with AATCC 127 and ASTM E2556

- 6.1.4 The pliability of the Max Roofing Building Wraps was tested in accordance with Annex A1.3 of ASTM E2556 (see **Table 4**).

Table 4. Pliability of Max Roofing Building Wraps¹

Product	Assessment of Pliability
MaxWrap	Pass
MaxWrap Hydro-Channel	

1. Tested in accordance with Annex A1.3 of ASTM E2556 at 32°F (0°C)



6.1.5 Max Roofing Building Wraps are a vapor permeable material with a water vapor permeance greater than five (5) perms (see **Table 5**).

Table 5. Water Vapor Barrier Properties¹

Product	Water Vapor Transmission (perm)
MaxWrap	13.6
MaxWrap Hydro-Channel	24
1. Tested in accordance with ASTM E96, Desiccant Method.	

6.2 *Exterior Insulation and Finish System (EIFS) Drainage Plane*

6.2.1 MaxWrap Hydro-Channel meets the requirements of IBC Section 1403.10,³⁰ IBC Section 1407.4.1, and IRC Section R703.9.2 for use in an EIFS with drainage (see **Table 6**).

6.2.2 MaxWrap Hydro-Channel shall be installed with flashing in accordance with IRC Section R703.4 and shall terminate not less than 6" (152 mm) above the finished ground level.

Table 6. EIFS with Drainage Efficiency¹

Product	Drainage Efficiency
MaxWrap Hydro-Channel ²	> 90%
1. Tested in accordance with ASTM E2273.	
2. MaxWrap Hydro-Channel must be installed film side towards the exterior sheathing.	

6.3 *Flame Spread and Smoke Developed Characteristics*

6.3.1 Max Roofing Building Wraps have the flame spread and smoke developed characteristics as shown in **Table 7** in accordance with IBC Section 1402.6.³¹

Table 7. Flame Spread and Smoke Developed Indexes¹

Product	Flame Spread	Smoke Developed
MaxWrap	≤ 25	≤ 450
MaxWrap Hydro-Channel		
1. Tested in accordance with ASTM E84.		

6.4 Alternative techniques shall be permitted in accordance with accepted engineering practice and experience. These provisions for the use of alternative materials, designs, and methods of construction are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed herein. This includes, but is not limited to, the following areas of engineering: mechanics of materials, structures, building science, and fire science.



7 Certified Performance³²

- 7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.³³
- 7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.³⁴

8 Regulatory Evaluation and Accepted Engineering Practice

- 8.1 Max Roofing Building Wraps comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:
 - 8.1.1 WRB in accordance with IBC Section 1403.2 and IRC Section R703.2.
 - 8.1.2 Air barrier material in accordance with IECC Section C402.6.1.
 - 8.1.3 EIFS drainage plane in accordance with IBC Section 1407.4 and IRC Section R703.9.
 - 8.1.4 Flame spread and smoke developed in accordance with IBC Section 1402.6.³⁵
- 8.2 Any building code, regulation and/or accepted engineering evaluations (e.g., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified³⁶ to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,³⁷ respectively.
- 8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is also its areas of professional engineering competence.

9 Installation

- 9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.
- 9.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.
- 9.3 *Installation Procedure*
 - 9.3.1 *Surface Preparation:*
 - 9.3.1.1 Ensure all sheathing surfaces are dry, clean, and free of sharp edges or protrusions.
 - 9.3.2 *General Application:*
 - 9.3.2.1 Beginning at the base of the wall, unroll the first course of Max Roofing Building Wraps horizontally with the printed side facing out. The wrap should overlap the bottom sill plate by a minimum of 1".
 - 9.3.2.2 Proceed with subsequent courses, ensuring each new course overlaps the previous one by a minimum of 6", both horizontally and vertically, in a shingling manner to promote proper water shedding.
 - 9.3.2.3 The wrap shall be overlapped by at least 12" at corners.
 - 9.3.3 *Fastening:*
 - 9.3.3.1 Secure the building wrap using plastic-capped nails or staples.
 - 9.3.3.2 Fasteners should be spaced a maximum of 32" apart, both horizontally and vertically.



9.3.4 Seaming:

- 9.3.4.1 All vertical and horizontal seams, overlaps, and any punctures must be sealed using MaxWrap SeamTape.

9.3.5 Window and Door Openings:

- 9.3.5.1 Cut the building wrap at rough openings by making a horizontal slice across the top and a vertical cut two-thirds down the center, followed by angled cuts to the lower corners. Fold the resulting flaps into the opening and secure them to the frame.
- 9.3.5.2 Install the window or door according to the manufacturer installation instructions, applying sealant to the top and side flanges only, leaving the bottom flange unsealed for drainage.
- 9.3.5.3 Integrate the opening with the WRB by applying flashing tape. The sill flashing is applied first, followed by the jamb (side) flashing, and finally the head (top) flashing. Each piece of flashing must overlap the piece below it in a shingling manner.

10 Substantiating Data

- 10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
 - 10.1.1 Breaking Strength and Elongation testing in accordance with ASTM D5034
 - 10.1.2 Pliability testing in accordance with ASTM E2556, Annex A1.3
 - 10.1.3 Water Vapor Transmission testing in accordance with ASTM E96/E96M
 - 10.1.4 Water Resistance testing in accordance with AATCC 127 and/or ASTM D779
 - 10.1.5 Surface Burning Characteristics testing in accordance with ASTM E84
 - 10.1.6 Comparative air resistance testing in accordance with TAPPI T460
- 10.2 Surface burning characteristics testing was performed by Southwest Research Institute (SwRI)
- 10.3 Evaluation of air barrier properties for MaxWrap Hydro-Channel
- 10.4 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or an RDP. Accuracy of external test data and resulting analysis is relied upon.
- 10.5 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.
- 10.6 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.
- 10.7 *Testing and Engineering Analysis*
 - 10.7.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.³⁸
- 10.8 Where additional condition of use and/or regulatory compliance information is required, please search for Max Roofing Building Wraps on the DrJ Certification website.



11 Findings

- 11.1 As outlined in **Section 6**, Max Roofing Building Wraps have performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.
- 11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, Max Roofing Building Wraps shall be approved for the following applications:
- 11.2.1 Use as a WRB in accordance with IBC Section 1403.2 and IRC Section R703.2.
 - 11.2.2 MaxWrap Hydro-Channel is approved for use as an air barrier material in accordance with IECC Section C402.6.1.
 - 11.2.3 MaxWrap Hydro-Channel is approved for use as an EIFS drainage plane in accordance with IBC Section 1407.4 and IRC Section R703.9.
- 11.3 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Max Roofing Products, LLC.
- 11.4 IBC Section 104.2.3³⁹ (IRC Section R104.2.2⁴⁰ and IFC Section 104.2.3⁴¹ are similar) in pertinent part state:
- 104.2.3 Alternative Materials, Design and Methods of Construction and Equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.
- 11.5 **Approved:**⁴² Building regulations require that the building official shall accept duly authenticated reports.⁴³
- 11.5.1 An approved agency is “*approved*” when it is ANAB ISO/IEC 17065 accredited.
 - 11.5.2 An approved source is “*approved*” when an RDP is properly licensed to transact engineering commerce.
 - 11.5.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.
- 11.6 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.
- 11.7 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.⁴⁴

12 Conditions of Use

- 12.1 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.
- 12.2 When required by adopted legislation and enforced by the building official, also known as the Authority Having Jurisdiction (AHJ) in which the project is to be constructed:
- 12.2.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.
 - 12.2.2 This report and the installation instructions shall be submitted at the time of permit application.
 - 12.2.3 These innovative products have an internal quality control program and a third-party quality assurance program.
 - 12.2.4 At a minimum, these innovative products shall be installed per **Section 9**.
 - 12.2.5 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.



- 12.2.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.
- 12.2.7 The application of these innovative products in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2, and any other regulatory requirements that may apply.
- 12.3 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *“the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3”*, all of IBC Section 104, and IBC Section 105.3.
- 12.4 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).
- 12.5 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

- 13.1 Max Roofing Building Wraps (MaxWrap and MaxWrap Hydro-Channel), as listed in **Section 1.1**, are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.
- 13.2 Additional technical information can be found at maxfelt.com.

14 Review Schedule

- 14.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.
- 14.2 For information on the status of this report, please contact [DrJ Certification](#).



- 33 <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades>
- 34 <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur>
- 35 [2021 IBC Section 1402.5](#)
- 36 Qualification is performed by a legislatively defined Accreditation Body. [ANSI National Accreditation Board \(ANAB\)](#) is the largest independent accreditation body in North America and provides services in more than 75 countries. [DrJ](#) is an ANAB accredited product certification body.
- 37 <https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prqID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH>
- 38 See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280>
- 39 [2021 IBC Section 104.11](#)
- 40 [2021 IRC Section R104.11](#)
- 41 2018: <https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9> AND 2021: <https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11>
- 42 Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC [Section 201.4](#) (<https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4>) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.
- 43 <https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1>
- 44 Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.