Ahead of the Game

BY JAY GRIMES
Interest in the weather-resistive barriers has been sparked by code revisions throughout the country. As interest has increased, confusion related to the selection of weather-resistive barriers also has increased.

In simple terms, weather-resistive barriers are designed to provide redundancy and work in conjunction with exterior cladding to protect the structure from water intrusion. Much of the confusion can be attributed to inconsistencies between the national building codes and the broad availability of products being marketed as weather-resistive barriers.

Federal Specification UU-B-790a classifies weather-resistive barriers based on three performance criteria: water resistance (ASTM D-779), moisture vapor transmission rate (ASTM E-96 Proc. A) and tensile strength (ASTM D-779). Each individual weather-resistive barrier will then fall into one of four grades, A through D, based on its collective physical properties performance.

- Grade A barriers offer high water resistance but low permeability.
- Grade B barriers offer moderate water resistance but low permeability.
- Grade C barriers are water resistant but offer limited vapor permeability.
- Grade D barriers offer minimum 10-minute water resistance and are also water vapor permeable.

Greater interest for weather-resistive barriers is centered around the Grade D products due to the need for vapor per-
meability, or breathable attributes, for use in residential and light commercial construction.

**Let It Breathe**

Vapor permeable products allow moisture vapor created inside the building to exit through the wall cavity, beyond and onto the weather-resistant barrier before condensation occurs to protect moisture sensitive substrates such as oriented strand board or plywood.

A non-breathing product will prohibit air flow and cause condensation between the substrate and the weather-

**Weather-resistant barriers fall into one of four grades, A through D, based on the barrier’s properties.**

resistive barrier, likely resulting in damage to the interior. There is also potential for problems associated with products with extremely high MVTRs. Water resistance and vapor permeability are typically found to be in direct correlation.

Within the class of Grade D, weather-resistant barriers offer a range of products. Among this vast group are asphalt saturated Kraft building paper with 10-, 30- and 60-minute water resistance, asphalt saturated rag felt, nonwoven polyolefin and woven polyethylene.

Each type of weather-resistant barrier has its strengths and weaknesses. The felts also tend to be the least workable and most vulnerable to tearing when compared to all other weather-resistant barriers.

Nonwoven polyolefin and woven polyethylene tend to not be well balanced. They have extremely high vapor permeability that may contribute to lower water resistance. The strength of these products is typically high, although they tend to be more costly.

**Proper Installation**

An important aspect of all weather-resistant barriers is the need for correct installation. In many cases the perfor-
The performance of the product depends heavily on the way it was installed.

Manufacturers and independent agencies, which have a wealth of information on installation methods of weather-resistive barriers, exterior cladding and design considerations, are an integral part of the building equation.

The interest in weather-resistive barriers will continue to rise. This interest is healthy for the wall and ceiling industry, and may lead to improved building practices, including correct wall, window and roofing flashing integration.

The confusion regarding weather-resistive barriers can be overcome by researching the products available and relating the needs of the project in terms of product performance and cost. The balance between water resistance and vapor permeability is critical in the performance of weather-resistive barriers. Trade associations, promotional bureaus, manufacturers and other agencies have additional information available.

### Grade Requirements

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Grade A</th>
<th>Grade B</th>
<th>Grade C</th>
<th>Grade D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Resistance Hours</td>
<td>24 +</td>
<td>16 +</td>
<td>8 +</td>
<td>Minimum</td>
</tr>
<tr>
<td>Moisture Vapor Transmission grams per square meter per 24 hours</td>
<td>Max. 4</td>
<td>Max. 6</td>
<td>N/A</td>
<td>Max. 8</td>
</tr>
<tr>
<td>Dry Tensile Strength lb. minimum</td>
<td>20 lb.</td>
<td>20 lb.</td>
<td>20 lb.</td>
<td>20 lb.</td>
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</tbody>
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**About the Author**

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