INTRODUCTION

DuPont has developed installation methods for lap siding when installed over Tyvek® ThermaWrap® R5.0 and has also completed wind load testing to ensure proper holding power of the siding when installed over Tyvek® ThermaWrap® R5.0.

This bulletin provides information about installation accessories, installation methods, and presents the results of the wind load testing for engineered wood and fiber cement lap sidings when installed over Tyvek® ThermaWrap® R5.0.

• The DuPont™ Insulated Batten CT (DIB CT) was developed to be used around the termination points of a wall – window and door openings, corners, and top and bottom of the wall. “CT” stands for Corners and Trim. The DIB CT provides a structural base for window and door installation.

Both the DIB and the DIB CT are composed of ¾” plywood adhered to a foam backing. The plywood provides a structural base to nail siding and/or trim, and the foam backing provides a thermal break from the framing behind. For more information about DIB and DIB CT installation, refer to the Tyvek® ThermaWrap® R5.0 Installation Guidelines or the DuPont™ Insulated Battens brochure (K27305).

NOTE: It is acceptable to use dimensional lumber in place of the DIB CT, however the R-value will decrease in any areas where dimensional lumber is substituted. It is not acceptable to use dimensional lumber in place of the DIB in the field of the wall.

DU Pont™ INSULATED BAT TEN S

DuPont™ Insulated Battens were developed to assist with the installation of Tyvek® ThermaWrap® R5.0. There are two different types of battens:

• The DuPont™ Insulated Batten (DIB) is designed to be fastened into each stud in the field of the wall to provide structural support for rigid lap sidings while also maintaining the R-value of the insulation when Tyvek® ThermaWrap® R5.0 is installed over a DIB.
TYPICAL WALL CONSTRUCTION
A typical wall with lap siding installed over Tyvek® ThermaWrap® R5.0 will be composed of the following layers:

- Interior gypsum wallboard
- 2x4” or 2x6” wood studs built either 16” or 24” on center
- Cavity insulation
- OSB or plywood sheathing
- DuPont™ Insulated Battens
- Tyvek® ThermaWrap® R5.0
- Wood or fiber cement lap siding

LAP SIDING INSTALLATION
For a typical wall, basic installation steps for lap siding installed over Tyvek® ThermaWrap® R5.0 are as follows:

1. DuPont™ Insulated Battens CT are installed around windows, doors, corners, and top/bottom of the wall.*
2. DuPont™ Insulated Battens are installed in the field of the wall into each stud member, either 16” or 24” on center.*
3. Tyvek® ThermaWrap® R5.0 is installed over the DuPont™ Insulated Battens and fastened into each batten.
4. Lap siding is installed over the Tyvek® ThermaWrap® R5.0 and fastened into each DuPont™ Insulated Batten. DuPont recommends a 1 ½” Maze Ring Shank nail or equivalent.

*NOTE: For the DuPont™ Insulated Batten and the DuPont™ Insulated Batten CT, DuPont recommends a 3” common 10d nail fastened 2” from each end of a batten and every 10-12” along the length of the batten.

WIND LOAD TESTING
Wind load testing was completed with engineered wood and fiber cement lap sidings installed over Tyvek® ThermaWrap® R5.0. Wall assemblies were tested to failure in order to determine the ultimate wind pressure. The ultimate wind design speeds were then calculated from the ultimate wind pressure results per 2012 IBC and ASCE 7-10. The calculations require an input for building height, and 30 feet was used. These calculations vary by exposure category, which are described on the following page.

Engineered Wood Siding Installed over Tyvek® ThermaWrap® R5.0.
LAP SIDING INSTALLED OVER DUPONT™
TYVEK® THERMAWRAP® R5.0

The results of the wind load testing showed that installing lap sidings over Tyvek® ThermaWrap® R5.0 using the DuPont recommended methods is acceptable in the continental United States and Canada. The testing does not accommodate the highest wind zone areas of Florida and the Gulf Coast. A more robust fastening schedule is required in these regions. A summary of the test results can be seen in the tables below.

Wind Load Test Results for Fiber Cement Siding

<table>
<thead>
<tr>
<th>Siding Dimensions</th>
<th>Siding Fastener Type</th>
<th>Stud Spacing (on center)</th>
<th>Test Results: Ultimate Wind Pressure (psf)</th>
<th>Ultimate Wind Design Speed by Exposure Category - Calculated per 2012 IBC/ASCE 7-10 (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (in.)</td>
<td>Width (in.)</td>
<td></td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>5/16</td>
<td>7.25</td>
<td>1 1/2 Ring Shank Nail</td>
<td>16&quot;</td>
<td>-70</td>
</tr>
<tr>
<td>5/16</td>
<td>7.25</td>
<td>1 1/2 Ring Shank Nail</td>
<td>24&quot;</td>
<td>-47</td>
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</tbody>
</table>

Wind Load Test Results for Engineered Wood Siding

<table>
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<th>Siding Dimensions</th>
<th>Siding Fastener Type</th>
<th>Stud Spacing (on center)</th>
<th>Test Results: Ultimate Wind Pressure (psf)</th>
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</thead>
<tbody>
<tr>
<td>Thickness (in.)</td>
<td>Width (in.)</td>
<td></td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>0.31</td>
<td>7.84</td>
<td>1 1/2 Ring Shank Nail</td>
<td>16&quot;</td>
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<tr>
<td>0.31</td>
<td>7.84</td>
<td>1 1/2 Ring Shank Nail</td>
<td>24&quot;</td>
<td>-75</td>
</tr>
</tbody>
</table>

Exposure B  Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.

Exposure C  Open terrain with scattered obstructions having heights generally less than 30 ft. This category includes flat open country and grasslands.

Exposure D  Flat, unobstructed areas and water surfaces outside hurricane prone regions.

CONCLUSION
When properly installed, Tyvek® ThermaWrap™ R5.0 delivers the air and water management benefits of all DuPont™ Tyvek® weather barriers plus an R-value of 5.0. Lap sidings such as fiber cement and engineered wood have comparable wind load resistance when installed over DuPont™ Tyvek® ThermaWrap® R5.0.

For more information about Tyvek® ThermaWrap™ R5.0, please call 1-800-44-Tyvek or visit us at www.ThermaWrapR5.Tyvek.com