Explaining PS 1 and PS 2 Gradestamps

Gradestamps are applied to structural panels (OSB and plywood) to provide a variety of information to buyers and users. The information may appear to be complicated but once understood, it is relatively easy to follow and understand. This TECH TIP provides a guide to the information that is required or included on gradestamps, which is usually applied with a rubber ink stamp or with an ink-jet printing system. Regardless of how the stamp is applied, the information should be legible and clear.

Gradestamp examples are included at the end of this TECH TIP for reference. The numbers in the left column below identify the sections of the gradestamp to which the information applies.

1 **Manufacturer information**

Besides a company name and/or logo, panel manufacturers include other information on the gradestamp to provide additional information to the user or builder. Such information might include: “SIZED FOR SPACING,” “THIS SIDE DOWN,” “WALL ONLY,” net face dimension, an indication that the panels have tongue and groove (T&G) edges, minimum edge and/or end spacing, and others, to assist in installation.

2 **Third-party inspection agency**

PFS TECO is an accredited agency recognized and accepted by the International Accreditation Service (IAS). PFS TECO’s certification marks—the TECO TESTED® mark shown in the examples that follow and the PFS checkmark—are both registered with the U.S. Patent and Trademark Office (USPTO).

3 **Product standards for structural panels**

U.S. building codes require that structural panels for applications in the U.S. comply with either PS 1 or PS 2. PS 1 and PS 2 are nationally recognized Voluntary Product Standards developed under procedures published by the U.S. Department of Commerce. PS 1, *Structural Plywood,* establishes requirements for structural plywood. PS 2, *Performance Standard for Wood-Based Structural-Use Panels,* establishes requirements for structural wood-based panels such as oriented strand board (OSB), waferboard and certain types of plywood.

4 **Bond classifications**

The Exposure 1 classification appears in both PS 1 and PS 2 product standards, while Exterior classification is only referenced in PS 1. An **Exposure 1** classification means that

the panels are suitable for uses not permanently exposed to the weather (i.e., intended to resist the effects of moisture on structural performance due to construction delays or other conditions of similar severity). An **Exterior** classification means that the panels are suitable for repeated wetting and redrying or long-term exposure to weather or other conditions of similar severity.

5 Panel grades

Panels may be identified as single floor (combination of subfloor and underlayment), sheathing (roof, subfloor, and/or wall), Structural 1 sheathing (roof and/or wall), underlayment, Structural 1 underlayment, concrete form, or marine. In addition, plywood panels are often identified with regard to the quality of the face and back veneers (e.g., A-C, C-D).

- PFS TECO has USPTO registered marks for specific panel applications such as FLOOR SPAN® (single-floor) and SHEATHING SPAN® (sheathing).

6 Group classification (for plywood only)

For plywood manufactured to PS 1 in North America, the species group classification (number 1 – 5) is determined directly by the wood species used in the panel face and back veneers or, for some products, by performance testing. For plywood manufactured to PS 1 outside of North America, most plywood products are Group Classified by performance testing. Lower group classification numbers represent greater product strength, with Group 1 being the strongest. Most commonly, sanded plywood products intended for a variety of industrial and construction uses are identified only with a Group Classification, not with a span rating as explained next.

7 Span rating

The span rating identifies the recommended maximum[1] center-to-center support spacing under normal use conditions. Panels for which there is no span rating are identified by the largest species group number of the face and back, or by the span rating of the next thinner comparable panel. Depending upon the product, a span rating will consist of (1) or (2) numbers, with details as follows:

a) Single-floor panels have a single-number (e.g., 20oc, 24oc) span rating where “oc” refers to “on center” joist spacing (i.e., the center-to-center distance between adjacent joists).

b) Typical sheathing and Structural I sheathing have a two-number span rating (e.g., 24/0, 24/16, 32/16, 48/24). For a two-number span rating, the number on the left identifies the span rating (truss or rafter spacing) if the panel is used in a roof application and the number on the right identifies the span rating (joist spacing) if the panel is used in a subfloor application. Panels with the number zero on the right cannot be used in subfloor applications.

c) Sheathing grade panels are often used in wall applications. Some products are marked with a single-number span rating (e.g., Wall-16 or Wall-24). Alternatively, sheathing products with two-number span ratings may also be used in wall applications by referring to the span rating number on the left. If the number on the left is 16 or 20 (e.g., 16/0,

[1] Certain products may require additional panel edge support to achieve the maximum roof span rating. Consult the building code for additional requirements.

20/0), the allowable wall span rating (stud spacing) is 16 inches. If the number on the left is 24 or greater (e.g., 24/16, 32/16), the allowable wall span rating (stud spacing) is 24 inches.

8 Performance Category

A panel designation related to the panel thickness range that is linked to the nominal panel thickness designations used in the International Building Code and the International Residential Code. For purposes of labeling, abbreviations PERF CAT, CAT, or Category are permitted.

9 Strength axis (OSB only)

OSB panels are marked to identify the orientation with the greatest strength (strength axis). The strength axis is parallel to the flake or grain orientation of the panel face and back surfaces, which is generally aligned with the long panel dimension.

10 Mill number

The mill number is assigned by PFS TECO to identify the individual panel manufacturer. PFS TECO mill numbers and corresponding manufacturer names and locations are listed on the PFS TECO website at http://www.pfsteco.com/clients.

11 Thickness label

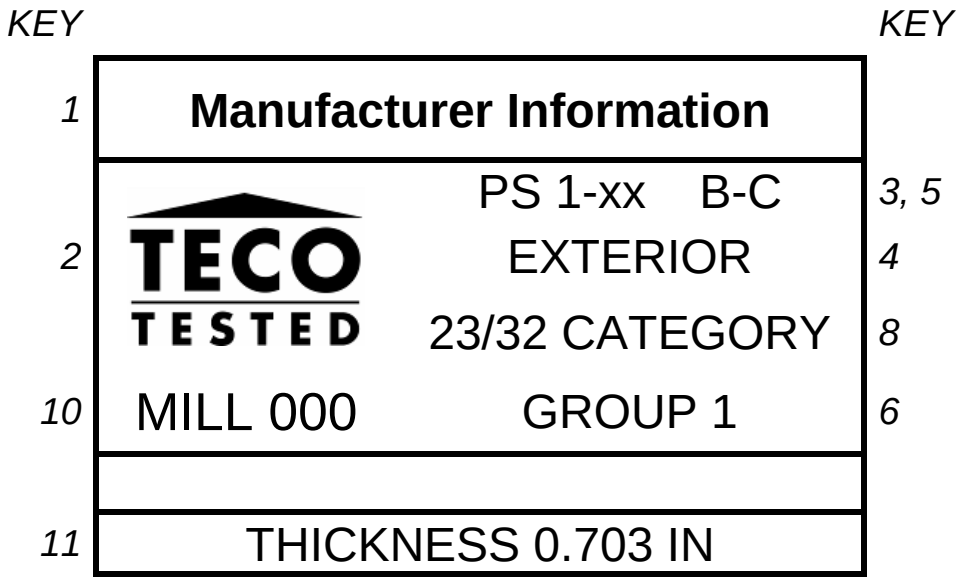
The thickness in 1000ths of an inch must be labeled on the panel. For PS 1 unsanded, touch sanded, and overlaid panels and all PS 2 panels, a tolerance of plus or minus 1/32" is allowed on a trademark-specified Performance Category of 13/16 or less and plus or minus 5% of a trademark-specified Performance Category for panels greater than a 13/16 Category. Sanded PS 1 panels are allowed a tolerance of plus or minus 1/64" for a trademark-specified Performance Category of 3/4 or less and plus or minus 3% of a trademark-specified Performance Category for panels greater than a 3/4 Category.

Gradestamp Examples

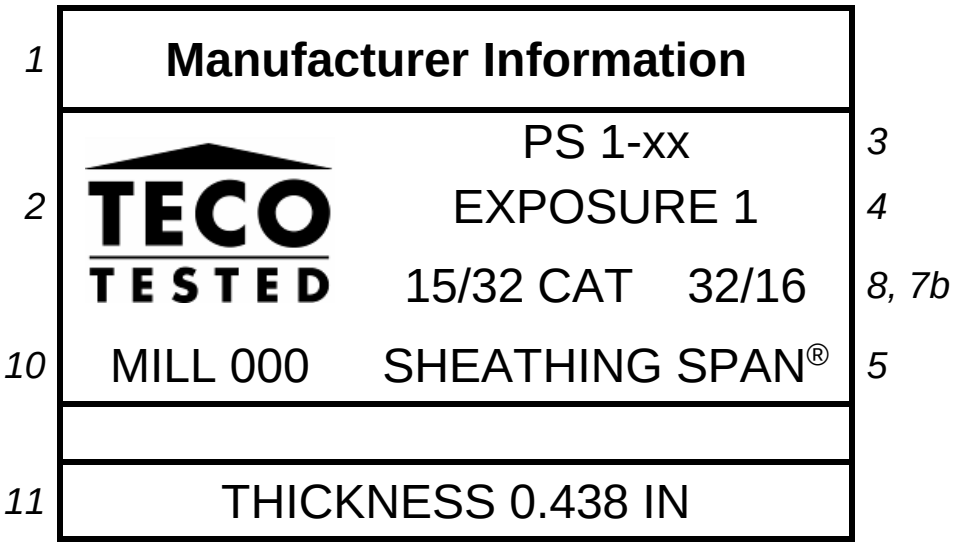
For many years gradestamps were applied to panels using a rubber stamp with dark-colored ink. This system is still very common and used throughout the structural panel industry. However, the use of ink-jet printers is one method that is being used more and more. Depending on the product and the amount of information that a manufacturer must (or desires) to include in a gradestamp, ink-jet printers can print one or multiple lines of information on panels. The examples that follow illustrate the general type of stamp for both methods, to provide users with the general idea of how these stamps appear on panels they buy, install, or inspect.

The first three examples are of gradestamps applied with rubber ink stamps, while the last two are examples of the type of label applied by ink-jet printers. Both methods are acceptable; manufacturers choose one or the other depending on their needs and those of their customers, and relative costs. Some manufacturers use both, depending on the product and the information that is included as part of the gradestamp.

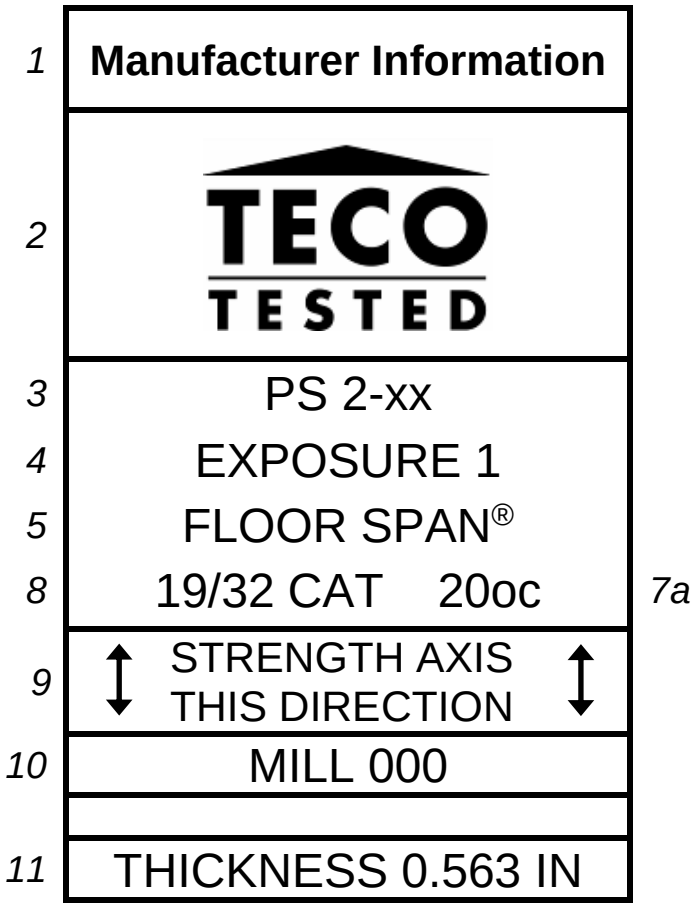
Example 1: PS 1 Group Classified Plywood Gradestamp



Example 2: PS 1 Sheathing Plywood Gradestamp



Example 3: PS 2 Single-Floor OSB Gradestamp



Example 4: PS 2 Sheathing OSB Gradestamp (made by ink-jet printer with 2 lines)

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TECO TESTED®  PS 2-XX  7/16 CAT  24/16   <- STRENGTH AXIS THIS DIRECTION ->
EXPOSURE 1   SHEATHING SPAN®   MILL 000                          0.406 IN
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Example 5: PS 1 Sanded Plywood Gradestamp (made by ink-jet printer with 1 line)

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TECO TESTED®  PS 1-XX  A-B EXT  1/4 CAT  GROUP 1   MILL 000       0.234 IN
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