

Fire Retardant Treating vs. Coatings

Protecting wood from the dangers of fire is not easy, since wood itself is a combustible material. The unpredictable nature of fire, as well as the many different ways wood is used in construction, makes it critically important that any protection must be durable and present inside and outside the wood.

There are a host of coating products promoted today to protect wood from fire. While these coatings can offer some protection, there are significant differences when compared to wood that has been infused with fire retardants.

These differences are recognized in the International Building Code, Section 2303.2, which defines fire retardant-treated wood as **“wood products impregnated with chemicals by a pressure process.”** If not applied through pressure, the treatment **“shall be an integral part of the manufacturing process of the wood product.”** The 2018 edition of the IBC further clarifies what is allowed in Section 2303.2.2: **“The use of paints, coating, stains or other surface treatments are not an approved method of protection as required in this section.”**

Benefits of Infusion

Pressure treating infuses the fire retardant deep into the cells of the wood, not just the surface. The combination of pressure and fire retardant treatments change the chemistry of the wood, so when it is heated, it gives off water and carbon dioxide which slows or stops the spread of flames. Infused fire retardants dilute the flammable gases that are created when wood is heated and encourage charring, which insulates the wood below and slows fire growth.

Impregnating wood with fire retardants adds to the durability of the treatment. Since it is in the wood cells, the fire retardant is not damaged during or after construction. This long-lasting durability is unmatched compared to coatings.

Surface Coatings

By comparison, fire retardant coatings only cover the surface of the wood. Many claim to “adhere” to the wood, however they fail over time to react the same as infused retardants.

Wood is a hygroscopic material, meaning it takes in and releases moisture based the environment where it is used. As such, wood will shrink or swell over time. These changes create cracks or gaps in a surface coating, creating pathways for fire to impact the wood.

Coatings also can be damaged from moisture, handling and installation. The impact from tools such as hammers, power nailers and saws on coated wood could create breaks in the coating, both at the point of impact and beyond where force was applied.

About Color

Fire retardants used in pressure treating are typically colorless and don’t change the appearance of the wood. Since the fire retardant wood looks much like untreated wood, the only indication of treatment is the required quality mark on the wood.

Some wood treaters may use light color tints, or place markings such as a colored line on the narrow edge of the wood to help laborers identify fire retardant-treated wood products. These colors and markings also are helpful for building code inspectors to identify fire retardant wood that has been cut or trimmed and there is no quality mark on the piece.

Color should not be considered as the only indicator the wood has been pressure treated with fire retardants. Some wood products are promoted as having fire retardant qualities, appearing with pink, green and blue tints. But they lack the code-mandated quality mark and fail to meet the building code requirements.



Color should not be used as the only indicator for fire retardant-treated wood. The best identifier is the code-required quality mark, which assures the wood has been infused with the approved fire protection.