Level 2 - ASM
DESCRIPTION OF THE SUBSTRATE

Dimensional lumber is a term used for lumber that is finished, planed and cut to standardized width and depth specified in inches. Examples of common sizes are 2"x4", 2"x6", and 4"x4", specified separately from the width and depth. It is thus possible to find 2"x4's that are four, eight, or twelve feet in length. In the United States the standard lengths of lumber range from 8 9/16 inches, 16 1/4 inches, and 16 1/4 inches.

Dimension lumber is what's used to make glue-laminated beams, decks, and some of the other wood constructions we'll discuss in subsequent sections. It's used for siding, columns, beams, joists, and roof trusses. Some softwoods such as cedar, pine, spruce and fir are commonly used as dimension lumber. These woods can be delivered to the job site unfinished or factory primed. The types of wood used typically include softwoods, such as cedars, pine, fir and spruce. Wood used for siding and fence boards is available in smooth to rough surfaces of various widths, thicknesses and types.

What to look for

Unfinished lumber should be stored in a dry area. The wood will easily pick up moisture and subsequently swell. Wood that has been stored outside without protection should have a moist finishing work is attempted.

Most paint failures on new wood construction can be attributed to the use of "green" or uncurved wood that releases sap, partially solidified resin, or water after being painted. Pine and fir sap or pitch trapped in knots and depressions within the wood board. These can sometimes appear after painting and cause the paint film to lift when sap or pitch moisture is exuded, pressurized and cause failure through blistering, splitting, cracking and staining. This is more frequently a problem if a coating with low permeability is used, such as a gloss alkyd.

On knots and areas where sap has been removed from the surface, vinyl-based knot sealers can be used to seal surfaces and minimize or prevent further sap release.

Factory Primed Surfaces

Factory primed wood can present a problem because often, the primer chosen by the factory cannot be relied upon to properly seal the wood surface. The wood supplier must provide cartons of the specified surface preparation and primer. If this cannot be confirmed, the primer may have to be removed and an appropriate primer re-applied, especially for exterior applications. Extremely susceptible to expansion and contraction from temperature/moisture intrusion, making proper adhesion of the primer too critical to compromise.

Avoiding Problems with Moisture

Exterior wood must be well protected from water intrusion, as this often leads to swelling, cracking and cupping in the wood and blistering, peeling and cracking in the coating. End sealing used to reduce water intrusion in horizontally and vertically placed wood. "Back Priming" refers to the practice of priming the entire wood component including the back and edges. All edges 'back primed' prior to installation; for interior applications, all wood surfaces that may come in contact with moist areas must be back primed before installation.

To seal areas often left unpainted (such as the contact point at the rail), fence boards are best coated on all sides, edges, and ends, before attaching to the fence. Cedar siding applied bel must be sealed by back priming. Water contacting the masonry or stucco surface can pick up alkali salts, accelerating the extraction of soluble tannins from the wood, and leading to yellowing.

Coating Failures on Dimension Lumber

It is not possible to guarantee long term coating protection if the backs of the wood surfaces cannot be primed.
MPI ONLINE TRAINING

MPI PAINT SYSTEMS

Exterior and Interior Systems Options

When you click on the link for the systems another browser will open with the specific systems. You can safely close this browser at any time without leaving the training site. Once in the system choice is highlighted. This is the best gloss level to use in most circumstances.

6.2 Dimension Lumber

Options for Exterior Systems

Options for Interior Systems
SURFACE PREPARATION AND PAINT APPLICATION

Since water and poor preparation work are generally the main sources for coating adhesion failures, it must again be emphasized how important it is to keep moisture out of the substrate work.

Proper surface preparation on dimension lumber should include the protocols discussed in the previous section, including:

- All surfaces must be free of dust, dirt, oil, grease, silicone, wax, and other foreign matter.
- On softwoods such as pine and fir, all sap and pitch must be removed. All pitch pockets and sap-effected areas must be sealed with an appropriate sealer.
- If a paint system is specified, all tight knots should be sealed with an appropriate knot sealer. If a semi-transparent stain system is used, knots should be left unsealed and appear patchy. Loose knots should be removed and filled with an appropriate caulking compound.
- If a clear finish or semi-transparent stain is to be applied, all discolorations such as water stains, scuff marks, pencil marks, etc. must be removed from the surface. Sand before, and between coats, with a fine grade of sandpaper to maintain a smooth surface, and tack rag surfaces to remove all sanding debris.
- Nail holes, cracks, and nicks shall be filled with an appropriate filler or caulking compound level with the surrounding surfaces after application of the primer layer (2-3mm) should not be the responsibility of the painting contractor.

If the surface to be coated is newly installed pressure treated lumber, always refer to the lumber manufacturer’s instructions for how to paint it. And contrary to our admonitions against pre-treatment, aging or weathering in exposure to UV light will actually be required to break down the glaze on the surface.

For “factory-primed” material, the manufacturer/supplier shall provide certification that the specified surface preparation and priming has been performed utilizing the appropriate MPI appr
IMPORTANT NOTES

DESCRIPTION OF THE SUBSTRATE

Dimensional lumber is a term used for lumber that is finishedplaned and cut to standardized width and depth specified in inches.

Softwoods such as cedar, pine, spruce and fir are commonly used as dimension lumber.

Unfinished lumber should be stored in a dry area.

Most paint failures on new wood construction can be attributed to the use of "green" or uncured wood that releases sap, partially solidified resin, or water after being painted.

Factory primed wood can present a problem because often, the primer chosen by the factory cannot be relied upon to properly seal the wood surface.

End sealing and back priming are two methods used to reduce water intrusion in horizontally and vertically placed wood.

Cedar siding applied below masonry or stucco wall surfaces must be sealed by back priming.

CHOOSING A PAINT SYSTEMS

For exterior applications, using a primer can also facilitate recoating with minimal surface preparation after the surface has weathered.

Alkyd and oil based stain-resistant primers, are also recommended to block water contact and reduce stain bleeding on wood species prone to extractive and tannin bleeding, such as cedars.

Rough surfaced wood is often coated with flatter finishes, a flat finish assists in improving the uniformity of slightly rough surfaces.

Fire-retardant coatings are available as both pigmented or clear penetrating finishes that show moderate exterior or interior durability.

The coating type should be selected based on the particular fire rating required for the application.

Systems for exterior service: The alkylal primer and creates a uniform surface for the latex finish coat and reduces the probability of extractive staining from colored wood.

Two component aliphatic polyurethane clear such as MPI #7S are durable clear finishes with excellent resistance to chemicals, solvents, abrasion, and UV light.

Surface Precaution: All stains tend to lap do not stain in the direct sun or on a hot surface, and use two coats on badly weathered or new wood.

SURFACE PREPARATION AND PAINT APPLICATION

On softwoods, such as pine & fir, all sap and pitch must be removed and the areas sealed with an appropriate sealer.

If a clear finish is to be applied, all discolorations must be removed from the surface.

Nail, holes, cracks, etc. must be filled with an appropriate filler or caulk compound.

If the lumber is pressure treated always refer to the lumber manufacturer’s instructions.
STUDY Q & A - QUESTIONS

Questions - Dimensional Lumber

1. Dimension lumber is what's used to make _____, decks, siding, columns, beams, _____, fencing, etc.

2. Pine & fir species often contain _____ or _____ trapped in knots and deep pockets within the wood board.

3. Exterior wood surfaces are extremely susceptible to expansion and contraction form temperature/moisture intrusion, making proper _____ of the primer to _____.

4. _____ _____ refers to the practice of priming the entire wood component including the back and edges.

5. _____ primers are designed for wood surfaces where penetration into the wood fiber is required for optimum adhesion.

6. _____ and _____ finishes reduce dirt and dust accumulation and are more cleanable, but accentuate surface roughness so are better suited for smooth surfaces.

7. “Fire retardant” paints may be _____, which means that when subjected to heat or flames, they form a char-like material that insulates the combustible substrate.

8. Both intumescent and non-intumescent paints are rated and tested by the _____ _____ for flame spread and smoke development.

9. Exterior wood stains are _____ types manufactured as solid color.

10. Using an alkyd stain over a previously stained surface can lead to _____ (the non-uniform appearance of a coating evidenced by noticeable variations in the color).

11. Stain effects may vary by _____ _____, so it's always recommended to do a sample brushout.

12. The premium multicolor system uses a _____ _____ coating as the last coat to improve the abrasion, detergent and dirt-resistance in moderate traffic areas.

13. _____ _____ stains have a low level of pigmentation that enhances the wood grain and texture, giving a natural appearance.