



MOISTURE MANAGEMENT FOR THE
Flooring and Building Industries



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Why Flooring Installers and Inspectors Use Moisture Meters for Wood

Wood floors are highly valued by today's homeowners and buyers. As a natural accent, they add ageless beauty to virtually any decor style. To preserve that look over time, it's critically important to install the flooring correctly. Installation errors of any size or type can lead to warped, cracked, or bowed floors, which are both unattractive and a potential safety hazard. In many cases, moisture causes the wood floors to fail, and to control that concern both during installation and over the life of the floor, flooring installers and inspectors rely on Delmhorst moisture meters to track the precise moisture content (MC) of the resource they're handling.

Why Wood Floors Fail

Selecting hardwood for flooring is usually a 'long game' choice. Well installed and properly maintained hardwood flooring can last 30 to 100 years, give or take a few due to environment, usage, etc. Inappropriate moisture levels in the wood itself, or an environment with naturally high or low ambient moisture content, will adversely affect the installation's quality and negatively impact the floor's durability. Being alert to these concerns during the installation process can reduce or eliminate the chance that your new floor won't last its entire expected lifetime.

Too much moisture

Excess moisture within the boards before and during installation can cause both the individual board and the entire floor to fail:

- They can cup, which happens when the edges of each board curl up due to a high moisture content.
- Or they can crown, which is the opposite of cupping – the edges curl downward from the center of the board.
- Buckling occurs when heat causes expansion in wood that's too wet. In warmer temperatures, swollen boards can rise up from the subfloor and then shrink back down again when the temperature drops.
- Finish issues can arise, too, if the underlying material is too moist or its %MC is inconsistent.

Too little moisture

- Insufficient %MC can cause gaps to develop between floorboards or can cause the boards themselves to crack and split.
- Sometimes hardwood flooring that's too dry can be noisy to walk on, which interrupts its user's enjoyment.
- Loose boards can also create tripping and slipping hazards.

Assessing and assuring appropriate moisture levels throughout the hardwood stock prior to installation is the best way to avoid any or all of these failure types.



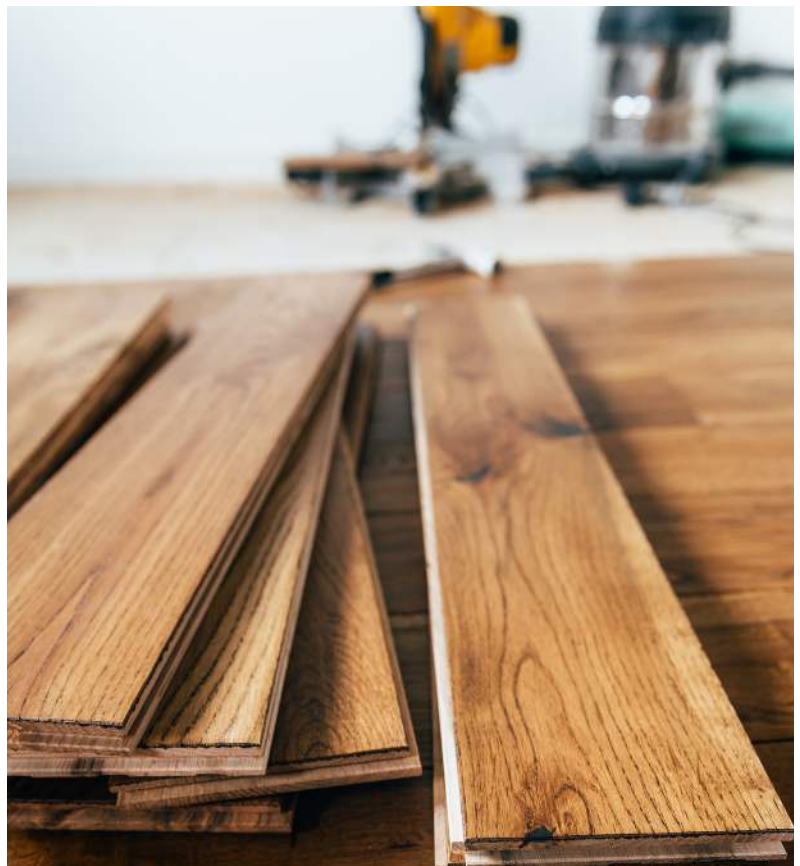
Retaining Value Requires Vigilance

Monitoring the %MC of the flooring before, during, and after installation will assure the flooring professional and the floor owner that the hardwood is adequately conditioned for optimal usage. For this purpose, many installers and inspectors use several types of moisture meters to accurately and comprehensively measure moisture levels throughout the process. Both wood moisture meters and thermo-hygrometers are helpful in these applications because they can capture data from every relevant element of the installation site to alert workers to potential problems.

Wood is inherently hygroscopic. It absorbs the ambient moisture – the relative humidity (RH) – in the air around it and sweats it out when it's excessive. Eventually, it will achieve an 'equilibrium moisture content' (EMC) that matches its environment. The thermo-hygrometer measures the RH of the environment while the wood moisture meter measures the %MC in the wood itself. These tools together facilitate accurate and appropriate moisture measurement guidelines for the wood species used in that location.

You'll want to take more than one measurement, too. Adverse %MC levels can occur in different locations at the same site and even at varying points in the same piece of flooring. According to the National Wood Flooring Association, two best practices should be followed when assessing when the time is right to install your new wood floor:

- Measure the area of the subfloor you are covering. Installers should take at least 20 MC readings for every 1000 sq.ft. of subfloor.
- Also measure the total sq. ft. of installed floor. For every 1,000 sq. ft. of flooring, at least 40 individual boards should be checked.



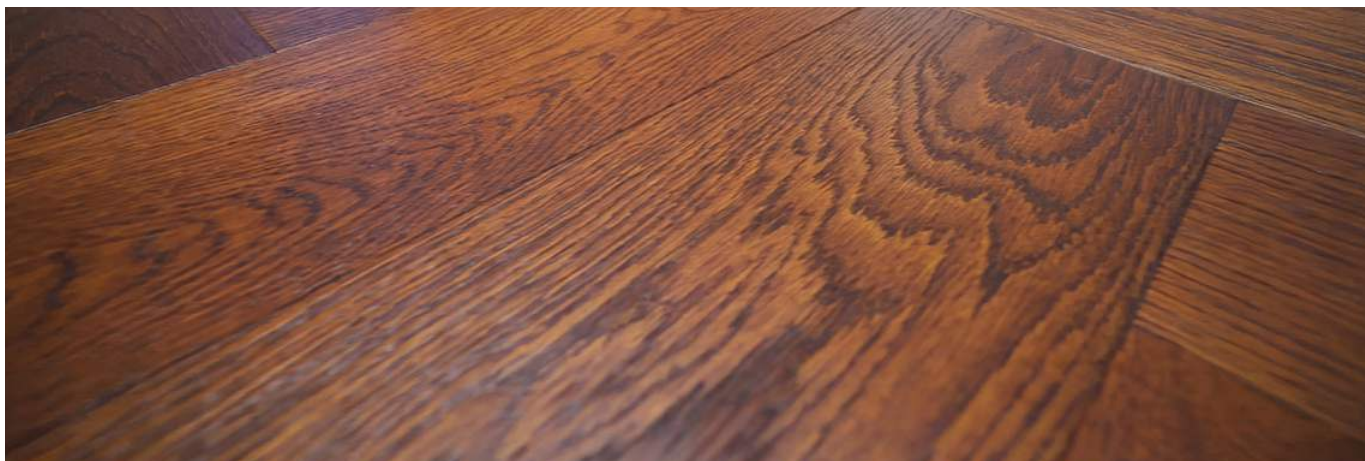
Delmhorst's Navigator™ Series: Designed for Success

Delmhorst designed its moisture meters for wood specifically to address the conditions that are typically present in a wood floor application. The company's recent addition of its exciting **EDGE™** app to the Navigator™ series of meters accents the already stellar performance those devices offer.

Bluetooth® connectivity in the device feeds %MC data to the app as it generates, then transmits that information wherever needed. The app also records timestamps and geotags for each measurement and can export that data to .csv-formatted documents. Additionally, they are programmable for customized LED ranges based on your needs and those of your project. Plus, the meters can save unlimited readings, so you can easily track the progress of MC levels over the course of the job.

- For flooring installers (or anyone working with wood or lumber), Delmhorst's JX-30 is the Navigator™ device of choice. The instrument measures the %MC of 74 wood species with access to data for 123 more through the **EDGE™** app. Its comfortable E-Z grip handle and easy-to-read back-lit display make it user-friendly regardless of where it's deployed.
- For building contractors, restoration techs, and inspectors (those who check more than just flooring), Delmhorst's BDX-30 meter offers similar services with equally high quality assurance capabilities. Three packages with specialized electrodes accommodate most construction projects:
 - The P01 for 'behind the wall' capacities,
 - The P02 for wood flooring projects,
 - The P03 for contractors tracking exterior insulation and finish systems
- The HTX-30 rounds out Delmhorst's **EDGE™** app-enabled devices for flooring installers, restoration techs, building contractors, and inspectors. It measures temperature and relative humidity, and calculates GPP, dew point, and vapor pressure – all vital measurements for flooring and building projects.

Delmhorst's Navigator™ series of meters offers %MC control for a range of industries and uses. The industry leader designed its moisture meters to give woodworking and inspection professionals the tools needed to determine precisely where moisture concerns might be present so they can address them before they become problems. Further, the company's **EDGE™** app brings advanced technology to moisture control, assuring users that their completed projects – including their new flooring project – will retain the quality and useability they expect for years to come.





Top 5 Moisture Meters for Building Inspections

Today's building inspectors seek more than just compliance with building codes. They must also be alert for potential moisture concerns that might impair the quality of the construction. Sometimes, uncontrolled moisture levels are readily apparent, and evidence of them is easily detectable, such as damp spots on walls or cracks in dry floorboards. Other times, however, the naked eye cannot see if there is too much or too little moisture in the materials or environment. In these cases, construction professionals rely on the moisture detection capacities of Delmhorst's many moisture-tracking meters. Delmhorst's moisture meters provide the capabilities and reliability needed to assess and ensure the accuracy and appropriateness of moisture levels throughout the construction process.

A Meter for Every Type of Moisture Measurement

Moisture is a known threat to every structure. Uncontrolled moisture levels can cause materials to decay, weaken structural integrity, and even reduce thermal capabilities, making the space potentially unsafe or uninhabitable. Weather issues, leaky pipes or hoses, and even excessive ambient humidity can all cause moisture problems. Building inspectors understand the concerns posed by unchecked moisture exposure and use moisture measurement tools to identify and address the issue. Many choose to use Delmhorst's extensive slate of moisture meters to ensure their investigation is comprehensive and effective in identifying and reducing risks due to high or low moisture content (MC). Now, to accompany its legacy line of meters, Delmhorst is introducing its Navigator™ series, enhanced with the company's proprietary **EDGE™** app. Each meter in the series is designed to resolve one or more of the challenges inspectors face at almost every job site. These five Delmhorst instruments offer stellar service for practically all construction project moisture measurement needs:

The BDX-30

Delmhorst accents its popular 'BD' series with the BDX-30 moisture meter, a pin meter that tracks moisture levels in wood, plaster, drywall, and other hygroscopic materials. Like its companion, the BDX-20, the BDX-30 is a sturdy, comfortable, and easy-to-read instrument. However, the BDX-30 is technologically enhanced with the **EDGE™** app, which uses Bluetooth® connectivity to link the meter to a mobile device. Embedded in the app functionality is meter customization, selection of many different species of wood, the ability to add timestamps and geotags, and the ability to export data to any enabled tablet or phone.

The ProScan

This pinless moisture meter is designed to detect moisture levels in wood products and several other building materials. Moisture readings are non-invasive as the instrument uses radio waves to determine the presence of moisture in the material. ProScan also facilitates species corrections for wood with a specific gravity of between .30 and .80, and it effectively identifies relative moisture levels in concrete and drywall. Its overall flexibility makes it a convenient tool for the inspection process.

The TotalCheck - A 3-in-1 Marvel

This adaptable device includes pins and scanning functions and also a thermo-hygrometer. Its detachable relative humidity and temperature sensor measures ambient moisture in the environment, and calculates the dew point and GPP (grains per pound). The device is compliant with ASTM F-2170 standards, making it ideal for in-situ RH testing in concrete slabs. Its capacity to measure the moisture content in many different materials, as well as the ambient environment, makes it a convenient tool to have on hand at every construction site.



The TechCheck Plus

When ease-of-use is top-of-mind, the TechCheck Plus is the choice. Delmhorst designed this instrument to be easy to use in almost any setting. As a 2-in-1 device, pin mode is used on wood, drywall and most building materials, while its scanning capacity is ideal for tracking moisture in drywall especially. The multi-function tool provides contractors with a simple-to-use, easy-to-read device to optimize their installations and assure their customers of a high-quality job.

The BD-10

This popular analog meter also uses pins to measure moisture in a variety of building materials including wood, drywall, plaster, insulation, and concrete. It's easy to read, and the single button press makes it almost effortless to manage. The instrument's lightweight, comfortable design also makes it easy to carry to and use at any location. The BD-10 is perfect for entry-level users who need quick and easy readings at a reasonable cost and with a short lead time to mastery.

All of these devices come with a sturdy carrying case, a variety of pins and probes, and package variations that address your specific prerequisites. Instruments programmed with the **EDGE™** app also bring digital connectivity, unlimited reading storage, data transfer, and a library of corrections for over 100 species of wood.

Delmhorst designed its construction-focused line of moisture meters to streamline and simplify the process of finding and managing moisture levels through the construction process and beyond. Whether you're a builder, tradesperson, or inspector, any one of these devices will help you identify and alleviate moisture concerns quickly, comprehensively, and accurately so your project can move forward on time and on budget.





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Monitoring Moisture Content in Wood Product Production

There should be no doubt that the moisture content (MC) of the wood used in manufacturing of furniture, cabinets, flooring, and so on is super critical for producing products that perform well in service. As stated in Rx #1, the MC of lumber, of parts, and of the final product should match the expected MC of the product when it is put into use.

Getting the correct MC means proper kiln drying (KD), proper storage after KD, proper MC when processing the lumber begins, proper MC during manufacturing, and proper MC in storage and shipment.

There are three important elements of monitoring MC in production:

- **Knowing the correct target MC to within 0.2% MC** (and not just “6 to 8% MC,” which is too general to be useful). SPECIAL NOTE: If, indeed, we manufacture furniture, cabinets, etc. that is designed to be used between 30% RH and 50% RH (6.0% to 9.0% MC), we should include a written notice to that effect when the product is shipped. If we don’t tell the consumer or installer, who will?
- **Maintaining plant EMC as close as possible to the target EMC.** See Rx #1 for a definition of equilibrium moisture content (EMC) and its relationship to relative humidity. A handheld RH meter that can be carried around to check the humidity in various locations in the plant is Delmhorst’s HTX-30. This thermo-hygrometer is the latest addition to Delmhorst’s Navigator™ family and comes equipped with Delmhorst’s *EDGE*™ app. Using Bluetooth® technology, the meter transmits the data to your mobile device so you can easily analyze and share readings with project participants. It can also be used to check other sensors in the plant. Due to wood dust issues and aging, most cheap sensors (under \$100) lose their calibration within a year or less.

- **Measuring the MC while manufacturing.** As a general rule, wood can tolerate a 1% swing in MC without serious problems, especially if the change is a gain in MC. If the change is done slowly over several months, like the change from summer to winter, a 2%MC change will seldom cause any problems. So, it is important to measure the MC of wood pieces during manufacturing to make sure that they are still correct. This is most often done with a pinless meter.

When doing these checks during manufacturing, we are looking for any prior errors in measuring MC or for changes in MC during prior manufacturing. Essentially, we have MC checks that tell us “Continue” or “Stop.” Here is the basic question: “Why put time and money into wood at the wrong MC and that will likely result in future problems?”

The Delmhorst HTX-30 thermo-hygrometer answers the query; it measures all relevant air conditions present during the manufacturing process. In addition to temperature and relative humidity, it also measures dewpoint, so you’ll know the MC status of your project throughout your building process.

Testing for Moisture Issues

One good test for moisture issues is to look at the top piece of wood in a stack for warp. We assume that initially the panel or other product was flat, so warp means a MC change—100% certainty. The top surface of the warped piece lost or gained moisture when exposed to the plant’s EMC, and then shrank (lost MC) or swelled (gained MC). However, the core and reverse side were not exposed to the plant’s EMC, so they do not change MC. To prove this, we can use a moisture meter with short pins that are pushed about 1/16” into the top surface and then into the bottom surfaces. Differences in MC, top to bottom, will cause warp.

Appreciate that there will be natural variation in moisture content. For example, if the target is 7.0% MC and we hit that target, we will find more than 2/3 of the measured values will be between 6.7% MC and 7.3% MC. This is a normal variation for a very good drying operation.

So, in the plant during manufacturing, the pin meter should be used to make sure that no readings are over 7.9% MC if the target is 7.0% MC. Actually, maybe two out of 100 could be 8.0% MC, but no wetter. If we know that there are no samples wetter than this, we can be fairly certain that we will not have a MC issue in the future (unless the customer has exceptionally dry or wet conditions). The HTX-30 provides quick responses, and its user-friendly interface gives you readings as they develop, so you can immediately adjust your process to accommodate those factors.

To monitor the in-plant MC, the **EDGE™** app lets you add notes and name locations to your readings to track events when and where they occur. In the plant, you need to take three readings once an hour at a particular manufacturing station. If two or three of these readings are over 7.6% MC (when the target is 7.0% MC), then we have a strong suspicion that the lumber either was wetter than we thought or it has picked up moisture in the manufacturing process. Subsequently, using insulated needles to see the MC at different depths will confirm if it is wet lumber (the core MC will be higher with wet lumber) or if the wood is picking up moisture in manufacturing (in this case, the surface will be wetter than the core).

QC people could use the three MC readings every hour in a more sophisticated program to study long-term trends in the average MC and the variations. They can also relate defects in the field to the MC at the time of manufacturing. One powerful tool they have is to make a graph of MC (vertical axis) and time (horizontal axis). The MC on this graph is the average MC of the three samples. As we know, a picture is worth a thousand words.

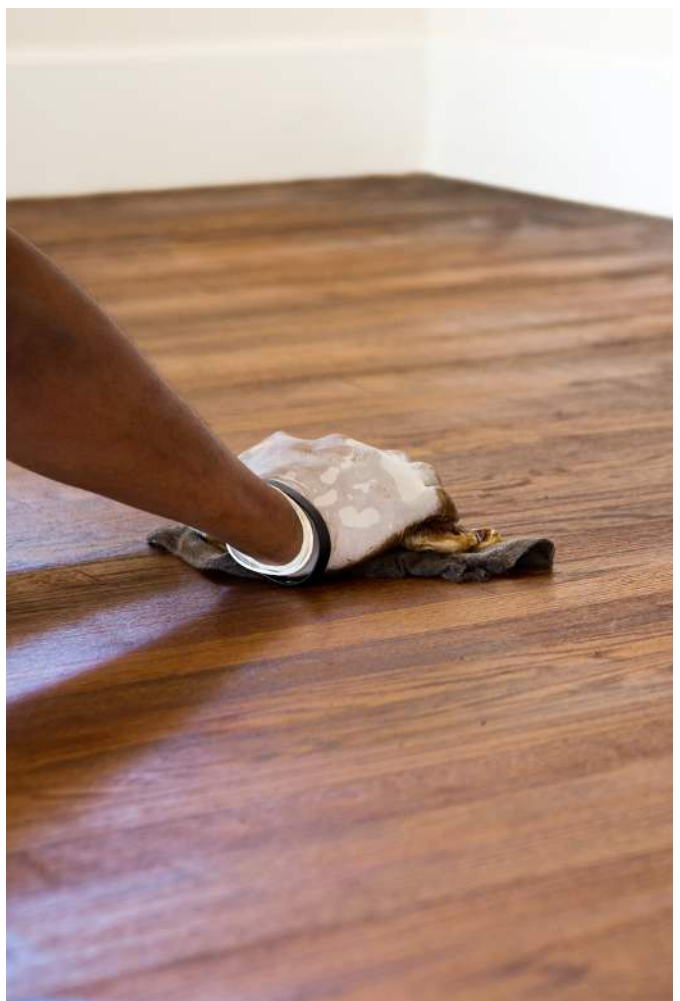
Delmhorst's HTX-30 thermo-hygrometer enhances your production efficiency by giving you a manageable, cost-effective tool to monitor conditions of woodworking production and projects. It is also ideal for measuring air conditions in water damage restoration, building inspection, flooring installation, and various industrial and research settings. The sophisticated device ensures that your finished product will provide optimal performance throughout the course of its useful life.

SPECIAL NOTE #1: Wrapping a finished product in plastic or encapsulating in a plastic bag will assure that the MC will not change for a year or more – that is, no moisture can get into or out of the bag. Because heat alone does not cause wood to shrink, swell, warp, or crack, we are concerned only about the relative humidity.

SPECIAL NOTE #2: It is possible to test the performance of a wood product when it will be used in an abnormally drier or abnormally more humid environment. We can build a very small room with a safe heater and humidifier or dehumidifier and create a different humidity or EMC environment than the plant's. Add heat to 95°F; heat allows any serious problems to show up in a few days.

Rx is from The Wood Doctor, Gene Wengert, President, The Wood Doctor's Rx LLC.

Delmhorst is proud to share this written by The Wood Doctor.





4

How to Determine Mold Risks with Moisture Meters

Mold is everywhere. As a naturally occurring substance, it plays a critical role in maintaining a healthy ecosystem. Uncontrolled mold, however, can present significant challenges if it grows where it's not wanted. It can cause allergic reactions or illnesses in people and also erode the integrity of building materials if it infiltrates them and is left to flourish. Consequently, keeping a vigilant eye for possible mold problems throughout every construction process will ensure your building project doesn't develop a mold issue during construction or after completion.

Understanding Mold's Menace

Usually, it's easy to spot health and safety hazards on the job site. The presence of mold, however, is not always apparent. Often hidden from view, unmitigated mold can affect the integrity of building components, including walls, floors, ceilings, and even framing members. In addition to causing unseemly odors, some types of mold can also trigger allergies and similar reactions, such as sneezing, itchy eyes, and nasal congestion. Mold can also cause serious diseases if exposure to it is left untreated.

Using Delmhorst Tools to Detect Mold

Mold needs moisture to germinate and grow, so controlling moisture is also critical to preventing mold. Many people rely on Delmhorst's extensive line of moisture measurement tools to manage moisture levels in their homes, offices, and building sites. Any of the devices below can perform mold detection work:

- Delmhorst's **HTX-30 Thermo-Hygrometer** measures the environment's ambient or relative humidity (RH). RH is the actual moisture level in the air compared to how much there would be if the air were saturated. (A high RH level, 80%, for example, means the air is saturated with 80% of its total capacity to hold water.) Measuring the RH of the environment to determine precise moisture levels can help pinpoint where mold risks might arise.
- Delmhorst's pin-type and pinless moisture meters then identify the percentage of moisture content (%MC) in building materials, including wood, drywall, and cement. The Delmhorst **BDX** and **JX** series of pin-type meters are part of its Navigator™ line of meters. Both come with data-sharing capacities through Bluetooth® technology and advanced moisture measuring capabilities using the company's proprietary **EDGE™ App**. Delmhorst's **ProScan** pinless moisture meter for wood quickly scans flat surfaces for underlying moisture without intrusion into the material. Its **TotalCheck 3-in-1** pinless meter offers both pin and scan modes, and acts as a thermo-hygrometer as well, making it indispensable at many construction sites.

These meters offer several methods for detecting the moisture content (%MC) in both the environment and materials to determine whether a risk of mold exists. Individually and together as a system, they offer you the advanced moisture detection capacities needed to control moisture and mold in any location.

Choosing the Right Moisture Meter

The design of each moisture meter is based on the material it will be testing. Wood, for example, presents a different %MC profile than drywall. Accordingly, Delmhorst's range of moisture meters is designed to cover a variety of materials, so there's always one available to monitor moisture in your environment.



Pinless Moisture Meters

Pinless meters use electromagnetic frequencies to check for a high internal moisture content. They don't puncture the testing surface, so their use won't diminish its appearance. Delmhorst's pinless moisture meters are popular because of their ease of use and capacity to cover large areas quickly and efficiently. These devices use a scanning plate pressed against a flat surface; a simple button push activates the scanner, and the test result is delivered via the meter's back-lit screen.

To ensure reliable readings:

1. The surface must be flat and smooth, ideally. Good contact between the scanner and the material ensures a sound reading.
2. Know what you're reading. The meter's sensor captures data across its several square inch face and then averages those %MC readings to register the moisture level.

Pinless meters work best on drywall and smooth wood surfaces.

Pin-type Moisture Meters

When punctures aren't a problem, pin-type moisture meters are the tool of choice. These devices push two electrode pins or probes into the material, forming a circuit. An electrical current is passed through the probes, and the meter measures the material's conductivity as the electricity passes through it. High conductivity reflects a high %MC.

Pin-type meters offer several benefits:

- Insulated pins reveal the location of moisture pockets that can be present in wood and not identified.
- They eliminate the challenges posed by uneven surfaces, which are difficult to measure with a flat plate.
- Longer pins and probes can penetrate deep into the material to find moisture that pinless meters can't.

Pin-type meters take a little more time to use but provide accuracy and reliable readings. On many jobs both pin and pinless meters are used for the advantages each offers.

Five Mold Risk Detection Tips

Mold risks can arise in almost any location, and Delmhorst moisture meters provide the tools you need to find and mitigate them. Following these best practices for detecting unwanted moisture promises your best opportunity for success:

1. Start with the Delmhorst HTX-30 thermo-hygrometer, which tells you where high levels of environmental moisture are occurring and where mold or mold spores might be present.
2. Move to Delmhorst's moisture meters to inspect materials around where water might infiltrate the space. Gaps in attics, exterior walls, and pipe and cable perforations are often the site of moisture intrusions.
3. Use pinless meters for %MC readings in materials with large flat surfaces that present discoloration, such as walls, floors, and ceilings.
4. Use pin-type meters to penetrate into materials. Use longer probes in materials and insulation behind barrier walls, such as drywall.
5. When using a pin-type meter, introduce the probe from multiple angles. Moisture can build up in pockets while not permeating the entire area.

Mold can pose significant risks to human health and building material integrity. Delmhorst's thermo-hygrometers, pin-type, and pinless moisture meters provide fast, reliable environmental and moisture level readings at any building site, giving workers the data they need to ensure a safe and sound construction project.





5

How to Determine the Optimal Moisture Content of Drywall and Gypcrete

Are you curious about the optimal moisture levels for drywall and gypcrete?

Look no further! This guide uncovers insights that will help you protect your structures and make informed choices. Our discussion will also shed light on whether materials need replacement or if they are durable, highlighting the [Delmhorst BDX-30](#) moisture meter and the features that set it apart as an indispensable tool.

1. What are the optimal moisture levels for Drywall/Gypcrete?

The optimal moisture level for drywall is typically 1% or lower. If the moisture content in drywall is over 1% it is considered compromised and may need replacement. Moisture meters used for drywall should be calibrated precisely to detect even the tiniest amount of moisture.

The Delmhorst BDX-30 moisture meter has a gypsum scale that detects as low as 0.1% moisture in drywall and gypcrete. This sensitivity level is fundamental to determining if drywall or gypcrete is susceptible to damage.

2. Is It Possible to Save Drywall with Moisture Content Above 1%?

Two factors determine whether drywall can be saved – the extent of moisture (above or below 1%) and the length of time the drywall has been exposed to moisture. There is a chance to save the affected drywall if the drying process is fast. Nevertheless, if you have moisture in drywall, you should leave the decision to an experienced professional. It is safer to replace the drywall if the moisture content is over 2% at any point.

3. What is Gypcrete's Optimal Moisture Level?

Office buildings commonly use gypcrete as a subfloor solution mix of gypsum and sand. This flooring reduces noise, resists fire, and is easily applied to create seamless floors.

Gypcrete is poured onto a surface and allowed to dry gradually. Apply a sealant once the gypcrete is dry as the sealant prevents water absorption.

Gypcrete is made mostly from gypsum, making the Delmhorst BDX-30 moisture meter ideal for measuring it. 1% or lower is recommended for gypsum products, such as wallboard. However, manufacturers may suggest installing flooring over gypcrete with a 5% threshold. It's always a good idea to seek advice from the manufacturer's technical support team.

4. How to Measure Moisture in Drywall and Gypcrete

A drywall moisture meter with a gypsum measuring scale is the easiest way to measure the moisture content of drywall. You can read the drywall meter by inserting the measuring pins into the drywall or gypcrete meter you are using to test, and pressing the button. It will measure the sample's moisture content and provide a reading.

Drywall and dry gypcrete can be tested with a "reference" scale meter if a moisture meter with a direct gypsum scale is unavailable. The scale provides relative, wetter/drier moisture levels and indicates that the gypsum is too wet and either needs to be replaced (if drywall) or dried further (if gypcrete was recently poured).

5. What Are the Advantages of Using the BDX-30 Moisture Meter?

The Delmhorst BDX-30 is the latest addition to the Navigator™ lineup. This powerful meter combines all the design elements and functionalities of the BDX-20, with the added advantage of Bluetooth® integration. The Delmhorst **EDGE™** app means you can export data from anywhere, complete with geotags and timestamps. The **EDGE™** app also offers a selection of 37 species and materials. The BDX-30 is the ultimate solution for making even the most challenging projects easier, more efficient, and accurate using advanced technology whether you are in the field or the office.

Delmhorst BDX-30 Stand-Out Features

Precision in Moisture Management: The BDX-30 uses a gypsum scale to measure moisture and can read levels as low as 0.1%. This precision level is essential to detect moisture early and prevent costly repairs.

Enhanced Sensitivity: BDX moisture meters can detect even the tiniest change in gypsum or drywall moisture early on due to their sensitivity. Early warning systems enable proactive measures to prevent costly replacements and maintain material integrity.

Versatility: Anyone using gypsum-based materials should use the BDX-30's gypsum reading scale. It is the ultimate management tool because it is versatile enough to measure moisture in gypcrete and drywall.

Easy to Use: Users will find the BDX-30 extremely easy to use. The quick press of a button allows for quick and accurate moisture readings, enhancing the efficiency of drywall and gypcrete assessments.

A Reliable Decision Support Tool: Construction professionals need the BDX-30 to support their decision-making process. Moisture detection at an early stage can prevent structural issues and associated costs.

The BDX-30 moisture meter stands out because of their innovative technology and precision. In addition to its seamless integration of Bluetooth® technology through the Delmhorst EDGE™ app, the BDX-30 redefines moisture management standards with precision, sensitivity, and versatility.





6

Case Study – Delmhorst: Your Trusted Partner for Precision Lumber Moisture Control

The Company: McClain Forest Products, LLC

McClain Forest Products, LLC is located in West Plains, Missouri, and is a testament to the entrepreneurial spirit of Hugh McClain, a distinguished military veteran who started his business journey with poultry sales. In 1970, he founded McClain Farms, which initially produced turkeys but gradually expanded to include a feed mill. Over the years, the business diversified by acquiring a wood shavings company and a flooring plant. McClain Farms acquired North Pacific Groups, a hardwood lumber operation, in May 2010. The two companies merged under McClain Forest Products, LLC.

McClain's Raymondville kiln-dry plant is managed by Kevin Evilsizer, who is responsible for plant management and safety/environmental auditing. The kiln plant purchases hardwood lumber from 20-30 sawmill suppliers and processes it in their flagship dry facility, which has a production capacity of 40,000 board feet per day. The lumber is air-dried for three months to reduce its moisture content from 70% to 30%.

It is then transferred to large dry kilns which rotate twice a month, providing a total dry kiln capacity of 800,000 square feet. From there, upper-grade lumber undergoes further processing for flooring.

McClain Forest Products processes hickory, maple varieties such as soft and hard maple, walnut, and cherry, but red and white oak make up 95% of their product line, as the company is known for the unparalleled quality of their oak offerings.

The Challenge: Calibration and Accuracy

The lumber industry faces a challenge in managing moisture in wood products. A moisture content standard of 6-8% is necessary before shipping to ensure product quality for local and international markets.

Calibration: Kevin Evilsizer is responsible for following up with clients who have reported high moisture content readings after receiving lumber from the Raymondville plant. Despite keeping accurate records of moisture readings during air drying and processing, the lumber may get wet during delivery. In many cases, Kevin has discovered that clients incorrectly calibrated their own moisture meters, leading to inaccurate readings despite following the manufacturer's instructions.

Reliability and Accuracy: Kevin commonly receives questions from customers and competitor moisture meter companies about the accuracy of his equipment and measurements. He once demonstrated the accuracy of his Delmhorst moisture readings by conducting a bake-out or oven test, where a wafer is cut from the board, weighed, and baked until it stops losing weight. The wafer is re-weighed, and the smaller number is divided into the larger to determine the moisture content. The results of the bake out test agreed with Delmhorst's meter readings to within half a percent, indicating unmatched accuracy.

The Solution: Delmhorst Excellence

McClain Forest Products has counted on Delmhorst moisture meters for 20 years. Their reputation and brand integrity rely heavily on dependable tools to maintain quality standards. Delmhorst's excellence supports McClain Forest Products in the following ways:

- **Clear Instructions:** Delmhorst's easy-to-use setup instructions and reliable support have been invaluable for over 20 years.
- **Accuracy:** Delmhorst's moisture meter was within half a percent of the expected moisture content after the bake-out test, exceeding competitor and customer expectations. This demonstrates that the Delmhorst moisture meter is reliable and accurate.
- **Exceptional Customer Service:** They offer convenient access to support on their website, and their customer service team promptly addresses concerns.
- **Transparency:** Delmhorst stands out for its transparent communication regarding repair or replacement costs, avoiding unnecessary up-selling. This transparency builds trust and fosters long-term partnerships.
- **Professional Team:** Interaction with Delmhorst's professional team highlights the company's dedication to excellence – it is a pleasure to do business with them!

The Result: Trusted Moisture Meters

McClain Forest Products requires the most advanced technology to measure moisture levels. Kevin recently upgraded to the Delmhorst JX-30 moisture meter, which uses Bluetooth® to access the Delmhorst **EDGE™** App with expanded wood species and customizable settings. Delmhorst's moisture meters have consistently outperformed others, ensuring precise moisture measurements.

The Impact: Superior Quality

McClain Forest Products relies on Delmhorst's moisture meters to maintain the highest quality standards in their hardwood products. Delmhorst has a proven track record of accuracy and dependability, which perfectly aligns with McClain's commitment to delivering superior quality to its customers. With Delmhorst as a trusted partner, the company can confidently maintain its reputation for excellence in the hardwood industry, providing its clients with consistently high-quality products that meet and exceed expectations.

The Future: Trusted Partners

Kevin emphasizes that confidence is a key factor in the lumber industry. It is important to provide high-quality products and excellent customer service. This is where having a reliable moisture meter and a trustworthy supplier becomes indispensable. McClain Forest Products understands the significance of these factors, which is why, he says, they have partnered with Delmhorst.

The future of the lumber industry lies in maintaining quality, ensuring customer satisfaction, and building trusted partnerships. McClain Forest Products is well-positioned for continued success in the industry with Delmhorst as a trusted partner.





Delmhorst Instrument Co. has built a reputation for designing, manufacturing, and marketing the highest quality moisture meters available on the market— right here in the USA!

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