

◆ MOORE PIANO SERVICES ◆

Greenwood, South Carolina · Certified Piano Technician

# The South Carolina *Piano Humidity* Guide

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How SC's climate damages pianos — and how to stop it

A season-by-season breakdown of what humidity does to wood,  
felt, and steel wire — and the one system that fixes it permanently.

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# South Carolina Is Hard on Pianos.

Upstate SC summers routinely push indoor relative humidity above 70%. Winter heating drops it below 25%. That 45-point swing — repeated every year — is one of the most destructive forces a piano will face in its lifetime. This guide explains exactly what's happening inside your piano across each season, why it matters, and what you can do about it.

## I. Why Humidity Is a Piano's Greatest Threat

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A piano is built almost entirely of wood, felt, and steel wire — all materials that respond constantly to moisture in the air. Unlike furniture, a piano has thousands of moving parts whose fit and alignment depend on consistent wood dimensions. When humidity rises and falls with the seasons, here's what actually happens:

### **Soundboard swells and contracts**

The soundboard — the large wooden panel beneath the strings — is designed with a slight upward curve (crown) that amplifies tone. Seasonal swelling and shrinking gradually flattens this crown, reducing sustain and warmth. Over years, it cracks.

### **Tuning instability becomes chronic**

String tension is anchored by tuning pins set into the pinblock — a block of laminated hardwood at the top of the piano. As humidity cycles, the pinblock swells and shrinks repeatedly, slowly loosening its grip on the pins. Eventually the piano won't hold a tuning between visits.

### **Action parts wear unevenly**

The hundreds of felt and leather parts in the action absorb and release moisture. In humid conditions, hammers swell and keys feel sluggish. In dry conditions, felt shrinks and gaps open between parts, affecting key travel and touch.

### **Bridges crack at the contact points**

The bridges — the wooden ridges the strings cross on their way to the soundboard — develop hairline cracks over years of seasonal movement, causing buzzing or dead notes.

*“Humidity control is the single best investment any SC piano owner can make — before the damage is done.” — Davis Moore, CPT*

## II. What Each Season Does to Your Piano

SC's climate doesn't damage pianos all at once — it works in a slow seasonal cycle. Here's what's happening inside your instrument month by month.

### ■ Spring

**Typical RH:** 55–72% RH

Rising humidity causes swelling across all wooden components. Keys may feel slightly stiffer. Tuning drifts sharp as the soundboard crown rises. Good time to schedule a tuning before summer peaks.

### ■ Summer

**Typical RH:** 65–85% RH

Peak humidity — the most damaging period for most SC pianos. Felt swells, key action slows, and the dehumidifier bar in a Dampp-Chaser system works hardest. Watch for sluggish repetition.

### ■ Fall

**Typical RH:** 45–60% RH

Humidity dropping — soundboard crown falls, tuning drifts flat. The humidifier side of the Dampp-Chaser activates. Schedule your second annual tuning now, before the heating season.

### ❄ Winter

**Typical RH:** 20–35% RH

Driest period — heating systems remove remaining moisture. Listen for clicking or cracking sounds from the case: signs of dryness stress. A room humidifier helps but doesn't replace an internal Dampp-Chaser system.

## III. The Target: 38–45% Relative Humidity, Year-Round

Piano manufacturers engineer their instruments for a stable relative humidity between 38% and 45%. Staying within this range year-round essentially eliminates humidity as a source of damage. Here's what hitting — and missing — that target looks like:

| RH LEVEL  | WHAT IT MEANS FOR YOUR PIANO                                                |
|-----------|-----------------------------------------------------------------------------|
| Below 25% | Extreme dryness — soundboard cracks, action parts gap, glue joints fail     |
| 25–38%    | Dry — tuning drifts flat, felt shrinks, keys may feel lighter than normal   |
| 38–45%    | ✓ Target range — stable tuning, consistent action, minimal wear             |
| 45–60%    | Humid — tuning drifts sharp, keys may feel heavier, slight swelling         |
| Above 60% | High humidity — significant swelling, sluggish action, rust risk on strings |
| Above 70% | Extreme — rapid damage to soundboard, pinblock, and all wooden parts        |

## IV. The Dampp-Chaser Piano Life Saver System

A Dampp-Chaser system is an internal humidity control unit installed directly inside your piano's cabinet. Unlike a room humidifier, it maintains stable humidity at the instrument itself — regardless of what the rest of the room is doing. Davis Moore is a Certified Piano Life Saver Installer.

### How it works

The system has three components working together: a humidistat that reads the air inside the cabinet, a humidifier bar that adds moisture when the air is too dry, and a dehumidifier bar that removes moisture when the air is too humid. Together they hold the cabinet environment at the 38–45% target year-round, automatically.

### What it protects

| COMPONENT   | WITHOUT DAMPP-CHASER                      | WITH DAMPP-CHASER                    |
|-------------|-------------------------------------------|--------------------------------------|
| Soundboard  | Cracks and loses crown over 10–20 years   | Crown maintained; cracks prevented   |
| Pinblock    | Loosens gradually; piano won't hold tune  | Grip maintained; tuning stays stable |
| Bridges     | Hairline cracks develop at string contact | Seasonal movement minimized          |
| Action felt | Swells/shrinks seasonally; uneven touch   | Consistent feel year-round           |
| Strings     | Rust develops in humid conditions         | Humidity kept below rust threshold   |

#### ◆ HUMIDITY PROTECTION — AVAILABLE FROM MOORE PIANO SERVICES

- Dampp-Chaser Piano Life Saver Installation — \$700 (upright) to \$1,500 (grand)
- Digital hygrometers to monitor your piano's environment — available in our shop
- Replacement humidifier pads — \$10
- Pad treatment solution (16 oz) — \$15
- Watering can for easy refilling — \$30

*Browse humidity products at [moorepianoservices.com/shop](https://moorepianoservices.com/shop)*

## V. If You Don't Have a Dampp-Chaser System

A Dampp-Chaser is the most effective solution, but there are interim measures that reduce damage while you plan for installation.

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| <p>✓ <b>DO</b></p> <p><b>Keep the piano on an interior wall</b> — Away from exterior walls, windows, and doors where temperature swings are greatest.</p> <p><b>Use a room humidifier in winter</b> — Maintain the room at 40–45% RH during heating season. A hygrometer confirms your readings.</p> <p><b>Keep the piano away from vents</b> — Forced-air heating and cooling vents blow dry or damp air directly onto the instrument.</p> <p><b>Monitor with a hygrometer</b> — A simple digital hygrometer (\$20–30) placed near the piano tells you what your piano is experiencing.</p> <p><b>Tune twice per year</b> — Spring and fall tunings — when humidity is transitioning — keep the piano close to pitch and catch problems early.</p> | <p>✗ <b>DON'T</b></p> <p>Place the piano near a fireplace or wood stove</p> <p>Use a space heater pointed at the piano</p> <p>Position it against an exterior wall in any season</p> <p>Leave windows open next to the piano during rain</p> <p>Skip annual tunings — drifting pitch accelerates string and pin stress</p> |
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## VI. Frequently Asked Questions

### My piano is in an air-conditioned home. Do I still need humidity control?

Yes. AC removes moisture from the air, which helps in summer — but most SC homes then swing to very dry conditions in winter when heating runs. The problem is the swing itself, not just high humidity. A Dampp-Chaser handles both directions.

### How often does the Dampp-Chaser need maintenance?

The humidifier reservoir needs refilling with distilled water every 4–8 weeks depending on the season. Humidifier pads should be replaced once a year. We walk every client through the process at installation — it takes about five minutes.

### Can I just use a room humidifier instead?

A room humidifier is better than nothing, but it can't target the interior of the piano cabinet specifically. The Dampp-Chaser system maintains the microclimate inside the instrument itself — which is what actually matters for the soundboard, pinblock, and action.

### How long before humidity damage shows up?

Some effects are immediate — tuning instability, sluggish keys. Structural damage (soundboard cracks, loose pins) typically accumulates over 5–15 years of uncontrolled humidity exposure. By the time it's visible, it's expensive to address.

◆ **READY TO PROTECT YOUR PIANO?** ◆

Installation takes one visit. The protection lasts for decades.

**Davis L. Moore, CPT · Certified Piano Life Saver Installer · Greenwood, SC**

(864) 340-5916 · [moorepianoservices.com/dampp-chaser-productsinstallation](https://moorepianoservices.com/dampp-chaser-productsinstallation)