



Opus Vitae Construction

Humidity Control Briefing for Fine Art, Antiques & Legacy Materials

Fluctuating humidity can be a silent destroyer of wealth. For homes that house artwork, wine, heirloom furnishings, rare books, and musical instruments, the integrity of the building envelope must include environmental stewardship. Opus Vitae designs homes with stable humidity control to protect valuable collections—and the people who live among them.

1. Target Humidity Range: 40–60% RH¹

- Maintain consistent relative humidity year-round — prevents mold, dust mites, and microbial growth
- Protects hygroscopic materials — preserves canvas, wood, leather, and archival paper

2. Climate-Appropriate Ventilation with Humidity Control²

- HRVs for most of the Willamette Valley — deliver fresh air and stabilize humidity without over-drying
- High-performance ERVs for more humid zones — moderate incoming moisture while ensuring ventilation

3. Airtight Enclosure + Smart Vapor Control

- Airtight envelope with vapor-variable membranes — prevents unwanted exchange and seasonal vapor trapping
- Reduces rural dust infiltration — protects both air quality and finishes

4. Zoned Microclimates for Sensitive Spaces

- Libraries, wine rooms, galleries, and music rooms — monitored and controlled independently

- Localized RH monitoring with alerts — ensures consistency in preservation environments

5. Material-Based Moisture Moderation

- Mass wall systems and clay plasters — absorb and release moisture passively
- Reduce the need for mechanical humidity swings — enhance building balance and resilience

6. Long-Term Monitoring & Documentation

- Data-logging humidity sensors with cloud access — verify stability and support insurance documentation
- Continuous performance tracking — alerts residents before issues cause damage

Who We Are

Opus Vitae builds homes that protect more than people—we preserve investments, collections, and wellness through building science precision.

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¹ https://www.ashrae.org/File%20Library/Technical%20Resources/Bookstore/D-312_Low-Energy-HVAC.pdf

² <https://basc.pnnl.gov/resource-guides/humidity-control>



Vitadurra Standard White Paper

Human-Centered Design: Homes That Reflect and Respect You



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