

## Wood Moisture-Meter Library Loan Program

**Description:** The Vermont Department of Environmental Conservation (VT DEC) developed an innovative wood moisture-meter loan program by partnering with the state library system to make meters and wood-burning outreach materials available for loan throughout the state.

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| Title  | Wood Moisture-Meter Library Loan Program  |
| Location<br>(City, Counties, Region)   | Vermont, state-wide   |
| Population/Number of homes covered by project  | <ul style="list-style-type: none"> <li>Population: 623,989 (2019)</li> <li>Housing Units: 339,439 (2019)</li> </ul>   |
| Objectives<br>(NAAQS attainment/maintenance, indoor air, visibility, air toxics, public education)                             | <ul style="list-style-type: none"> <li>Reduce fine particles (PM<sub>2.5</sub>) from wintertime woodsmoke.</li> <li>Remain in attainment with PM<sub>2.5</sub> air-quality standards.</li> <li>Educate the public on proper wood-burning practices to prevent indoor and outdoor air pollution to protect public health. See Strategies For Reducing Residential Wood Smoke at: <a href="https://www.epa.gov/sites/default/files/documents/strategies.pdf">https://www.epa.gov/sites/default/files/documents/strategies.pdf</a>.</li> </ul>   |
| Milestones<br>(Project time frame, number of changeouts, air quality goals, number of low-income homes targeted if applicable) | <ul style="list-style-type: none"> <li>Phase 1: 2019-2020: Valley ID tool and census data used to identify 50 communities of interest. Acquire and distribute moisture meters to public libraries in communities of interest along with information from EPA's Burn Wise program regarding best practices for wood burning.</li> <li>Phase 2: 2020-2021: Continue moisture-meter loan program and evaluate its effectiveness by collecting counts of meter check-outs and time-in-circulation from libraries.</li> </ul>  |
| Budget<br>(Projected/actual cost)  | <ul style="list-style-type: none"> <li>Initially \$3,000 for 50 meters in Phase 1</li> <li>Department of Libraries funded additional 20 meters (estimated \$50/meter)</li> </ul>  |
| Funding Sources<br>(Government funds, grants, Supplemental Environmental Project, fees, etc.)                                  | <ul style="list-style-type: none"> <li>Vermont DEC's Air Quality and Climate Division</li> <li>Vermont Department of Libraries</li> </ul>   |
| Partners<br>(Government/private organizations involved)  | <ul style="list-style-type: none"> <li>Vermont Department of Environmental Conservation (DEC) <a href="https://dec.vermont.gov/">https://dec.vermont.gov/</a></li> <li>Vermont Department of Libraries</li> <li>EPA Region 1</li> </ul>   |
| Incentives Offered (Rebates, discounts, vouchers, incentives for low-income homes, etc.)                                       | <ul style="list-style-type: none"> <li>VT residents can borrow moisture meters cost-free from local libraries.</li> <li>EPA Burn Wise information is distributed with the meters to inform the public about cleaner burning practices. See Burn Wise Tip Sheet: <a href="https://www.epa.gov/sites/default/files/documents/burnwisetips.pdf">https://www.epa.gov/sites/default/files/documents/burnwisetips.pdf</a>. Also see Test your Wood with a Moisture Meter: <a href="https://www.epa.gov/sites/default/files/2017-02/documents/moisture_meter_v1_01-04-2017final.pdf">https://www.epa.gov/sites/default/files/2017-02/documents/moisture_meter_v1_01-04-2017final.pdf</a>.</li> </ul> |
| Ordinances/Regulations<br>(Mandates for cleaner-burning hearth devices)  | <ul style="list-style-type: none"> <li>Uncertified OWBs were required to be retired by December 31, 2012. See 10 V.S.A. section 584(g): <a href="https://law.justia.com/codes/vermont/2012/title10/chapter23/section584">https://law.justia.com/codes/vermont/2012/title10/chapter23/section584</a></li> <li>Any EPA-certified wood-fired central heater, woodstove or wood-pellet stove can be sold in Vermont.</li> </ul>   |

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|   | <ul style="list-style-type: none"> <li>• Set-back and stack-height regulations apply to hydronic heaters, including a 100-foot setback from the nearest residence, school or health care facility not served by the hydronic heater.</li> </ul>  |
| Project Yardstick<br>(Number of woodsheds constructed, number of stoves replaced with new stoves or other technology, etc.) | <ul style="list-style-type: none"> <li>• Moisture meters are available at 63 public libraries.</li> <li>• Evaluation of effectiveness by count collection of meter check-outs and time-in-circulation. Varied demand for meters at libraries: some had little initial interest while others had waiting lists. 17 libraries reported 120 checkouts for the first year of the program, potentially representing 30 check-outs per month statewide.</li> <li>• Circulation of meters was reduced due to COVID-19 however, program is still ongoing.</li> </ul>   |
| Outreach/Marketing<br>(Radio/TV public service announcements, workshops, woodstoves expo, flyers, mailouts, social media)   | <ul style="list-style-type: none"> <li>• Press release and social media posts in Sept 2020 gave details to the public for obtaining the moisture meters from the libraries.</li> <li>• Used VT Department of Library network to reach out to selected libraries. Word spread among library network and other libraries asked to participate in program.</li> <li>• Front Porch Forum (social media website) was a popular and effective promotion platform.</li> <li>• Local TV station, newspaper, online news announcements. See: <a href="https://www.wcax.com/2020/09/15/moisture-meters-can-be-rented-out-for-free-at-vermont-libraries/">https://www.wcax.com/2020/09/15/moisture-meters-can-be-rented-out-for-free-at-vermont-libraries/</a>; <a href="https://vermontjournal.com/news/firewood-moisture-meter-loan-program-at-rockingham-library/">https://vermontjournal.com/news/firewood-moisture-meter-loan-program-at-rockingham-library/</a>; <a href="https://www.burlingtonfreepress.com/story/news/2020/09/15/you-firewood-ready-burn-vermont-libraries-can-help-you-find-out/5802100002/">https://www.burlingtonfreepress.com/story/news/2020/09/15/you-firewood-ready-burn-vermont-libraries-can-help-you-find-out/5802100002/</a>; <a href="https://www.rutlandherald.com/news/wood-moisture-meters-available-at-select-libraries/article_593efc79-7052-5325-9448-649564dfa404.html">https://www.rutlandherald.com/news/wood-moisture-meters-available-at-select-libraries/article_593efc79-7052-5325-9448-649564dfa404.html</a>.</li> <li>• Posted advertisements and meters on display at the check-out desk in libraries where meters are available. These were effective at raising awareness. See library announcements: <a href="https://www.stowelibrary.org/blog/moisture-meter-now-available-for-loan.php">https://www.stowelibrary.org/blog/moisture-meter-now-available-for-loan.php</a>; <a href="https://richmondfreelibraryvt.org/2020/12/02/moisture-meter-for-testing-firewood-available/">https://richmondfreelibraryvt.org/2020/12/02/moisture-meter-for-testing-firewood-available/</a>.</li> </ul> |
| Air Quality Data/Other Results<br>(Air-quality status of project area. Is improving indoor air quality part of project?)    | <ul style="list-style-type: none"> <li>• PM<sub>2.5</sub> is a major contributor to air pollution on moderate AQI days in Vermont.</li> <li>• Average annual number of “good” AQI days has been continually increasing statewide.</li> <li>• Moisture-meter loan program was developed as part of EPA’s PM Advance Program.</li> <li>• Indirect improvement of air quality (both indoor and outdoor) due to better burn practices from the moisture-meter program is difficult to quantify. However, the program has been effective at raising awareness regarding the importance of fuel quality/moisture content when heating with firewood.</li> </ul>  |
| Lessons Learned   | <ul style="list-style-type: none"> <li>• Contacting state head of libraries is critical for buy-in and support. They network out to all libraries quickly and inter-library loan processes ensure quick delivery of meters.</li> <li>• Educational outreach on proper wood-burning practices is essential.</li> </ul>  |

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| (What worked? What didn't? Tips? How can project be improved?)                            | <ul style="list-style-type: none"><li>• Week-long loan periods appear to work best.</li><li>• Moisture meters are reliable. Only three instances of battery failure or loss of electrode pins were reported, and easily replaced from spare stock.</li></ul>  |
| Project Contact<br>(Name, organization, phone number, email address, web link to project) | <ul style="list-style-type: none"><li>• Ellen Parr-Doering, Vermont Department of Environmental Conservation (<a href="mailto:ellen.parrdoering@vermont.gov">ellen.parrdoering@vermont.gov</a>)</li><li>• <a href="https://dec.vermont.gov/wood-burning">https://dec.vermont.gov/wood-burning</a></li></ul> |