

Historic American Engineering Record (HAER) Documentation: Burlington Woolen Mill Company Dam (HAER No. VT-23) Burlington – Winooski, Vermont

In connection with the construction of a new dam for a hydroelectric facility on the Winooski River, the City of Burlington's municipal electric company retained AHS Senior Historian Bruce Clouette, Ph.D., to prepared Historic American Engineering Record (HAER) documentation of the existing dam, a large timber-crib structure built in 1876. In addition to being an impressive example of timber-crib construction, the dam was significant because of its concrete fill, an early use of concrete as a structural material. A sample of the concrete was analyzed by means of electron microscopy, which revealed that the concrete had been "stretched" by including a high portion of lime in the mix, a common practice in the 1870s but one which is never allowed in modern concrete work. It also was much more heterogeneous in structure, indicating that it was produced in a less precise manner than modern concrete, and probably at a lower temperature. It had a high percentage of magnesium, suggesting the use of dolomitic limestone as a source component.



Overview of the dam, with the former Burlington Woolen Mill Co. factory in the background.



Detail of cribwork, showing concrete fill exposed along the top.

When the dam was completed in 1876, the *Burlington Free Press* described it as "the best dam ever built in Vermont."

The HAER documentation of the dam, a contributing structure within the National Register-listed Winooski Falls Mills District, was undertaken at the request of the Vermont State Historic Preservation Office. The black-and-white record photographs were taken by Wayne Fleming Photography under Clouette's direct supervision.