



Interpreting The Secretary of the Interior's Standards for Rehabilitation

Subject: Industrial Bridges in Mill Complexes

- Applicable Standards:
2. Retention of Historic Character
 6. Repair/Replacement of Deteriorated or Missing Features
 9. Compatible New Additions/Alterations

Issue: Industrial bridges linking upper floors between buildings were often essential to the operation of a historic mill complex. They were constructed to facilitate the movement of power and materials from one place to another. The earliest of these were open "pipe bridges" where pipelines carrying steam and/or electrical lines were hung between buildings, connecting them to the mill power house. Enclosed bridges soon became the norm, thereby permitting raw and manufactured materials to be moved between buildings throughout the year, regardless of the weather. Some connecting bridges were framed in wood, others in iron or steel. Among the earliest enclosed bridges were those covered with wood siding or shingles and with simple double-hung windows. Later metal and even stucco over wood membranes were used to better protect the bridges from fire.



Two-story industrial bridge before rehabilitation.



In rehabilitation projects, these industrial bridges are often converted to pedestrian bridges. When deteriorated, they should be repaired or replaced with elements and materials that match the originals. Embellishing simple, unadorned walls or surfaces with high-style details, or introducing materials that convey a non-industrial character should be avoided.

Application 1 (**Incompatible** treatment corrected to meet the Standards): A mill complex built in 1901 and substantially expanded in 1939 was converted to residential use creating 60 live/work lofts. The complex included a two-story industrial bridge that linked the second and third floors of two of the buildings. In the initial proposal, the two-story bridge was to be stripped of its outer metal sheathing and encased in a three-story wall of glass that extended to the ground. Converting the two-story metal covered bridge into a three-story glass connector would have changed the historic industrial character of the bridge and the mill complex and, therefore, did not meet the Secretary of the Interior's Standards for Rehabilitation. The design was revised using a more industrial vocabulary of materials that included new corrugated metal resheathing of the two-story bridge



Introducing a three-story glass wall as seen above in the drawing, would have altered the character of the bridge and did not meet the Standards. A more compatible treatment was approved where existing window openings were retained and a metal corrugated wall membrane and simple canopy were added (bottom).

and a new metal canopy. This revised treatment, which was determined to be compatible with the historic mill complex, meets the Standards.

Application 2 (Compatible treatment): A historic industrial bridge in this 19th century mill complex connects the second, third, and fourth floors of two adjacent buildings. Once a manufacturer of precision tools, this complex was recently converted to market-rate housing. Recognizing the importance of the bridge in his rehabilitation program, the owner repaired the existing structural members, replaced the exterior siding and roofing in kind and installed windows to match those that existed historically. This projects meets the Standards.



Industrial bridge before rehabilitation.



Repair and replacement in kind allowed this industrial bridge to retain its historic appearance and to continue its service as a connector.

Application 3 (Compatible treatment): This mill complex, which was constructed between 1849 and 1951, consists of six buildings. The property includes an industrial bridge that links the third floors of the two buildings. Investigation of the bridge revealed that it was an early wood-frame feature of the complex originally clapboarded, but now covered with a steel membrane. The proposal for converting the property into

commercial and residential use—including 38 low-income and market rate units—called for reusing the bridge, but not as a pedestrian walkway. Instead, the bridge was chosen to serve as a signboard to showcase the new name of the complex—a practical, creative and compatible new use for this historic covered industrial bridge. This treatment meets the Standards.

An important historic feature such as this industrial bridge can serve a variety of useful purposes in the new use of the property. Enveloped in steel a number of years ago and found to be in good condition, the bridge became an ideal backdrop for the property's new name and a focal point of the complex.



Industrial building and bridge before rehabilitation.



Industrial building and bridge after rehabilitation.

Kaaren Staveteig, Technical Preservation Services, National Park Service

These bulletins are issued to explain preservation project decisions made by the U.S. Department of the Interior. The resulting determinations, based on the [Secretary of the Interior's Standards for Rehabilitation](#), are not necessarily applicable beyond the unique facts and circumstances of each particular case.