

1983 Chapel Restoration

Introduction

This report documents the conservation work carried out at the Pandosy Mission Historic site on the Father Pandosy Chapel between September 29 and December 20 of 1983. The project was initiated and funded by the Building Committee of the Okanagan Historical Society, with the support of a grant from the B.C. Heritage Trust.

The restoration complies with guidelines set for the conservation of historic structures by the Heritage Canada Foundation and the American Association for State and Local History. The objective of the project was to execute a thorough restoration encompassing both structural and aesthetic detail. With the exception of an external staircase, retained at the request of the society, the building is as it appeared in 1864. This project prepares the Chapel for the introduction of a display program typifying the Chapel as it appeared to the parish of Father Pandosy.

The design and implementation of the restoration was carried out by Ken Scopick and Gary Zack of B.T. Innerprizes. We wish to thank Dr. Walter Anderson, chairman of the Building Committee, for his assistance and cooperation during the project. Our gratitude is also extended to Mr. Leo Bjorkland and Lade (caretakers) for their hospitality and the members of the Historical Society who helped make our stay both rewarding and enjoyable. On behalf of the Heritage Trust, Mr. Ralph Gillett of the Heritage Conservation Branch visited the project for a final inspection.

Ken Scopick
Gary Zack

B.T. Innerprizes
Barkerville, B.C.

As Found Conditions

The Chapel, constructed in 1864, is a storey and a half log structure 13' x 16'. Workmanship in the building is typical of the period. The wall structure is formed from hewn logs fitted together with dovetail and chamfer notches. The large logs (exposed surfaces of up to 22" can be found) are hewn to a narrow atypical width to 4 ¾". This finer structure is complimented in the interior with hand planed walls which removes most of the crudeness of axe work from the exterior of the building. A finished ceiling of 1x10 boards with exposed and carefully planned beams enhances the interior of the building. It appears the lower floor of the Chapel housed the "congregation" while the upstairs formed a private residence. Access to the building is gained through a single door on the west wall and through a second floor south wall doorway, which is approached via a staircase. Security barriers have been constructed within the interior of the entries.

The building rests on a concrete footing which replaces sill logs that have been removed from the west and south walls. A concrete slab in the interior of the building supports the existing floor which has been constructed of 1x12 barnboards. A staircase, in a state of disrepair, has been added to the south wall of the Chapel permitting visitors to view the displays on the second floor.

A number of projects carried out at the Pandosy Mission Site during the past few years have saved the building from destruction. The work stabilized the decay conditions in the Chapel and other historic structures on the site. The buildings stand as a testament to the volunteers whose work must be commended.

Site Preparations

Prior to the conservation displays in the lower part of the Chapel were dismantled. The artifacts were removed to safe storage on the property. A display in the Root Cellar, adjacent to the Chapel, was rearranged to permit the use of the building as a tool crib. Additional storage for equipment and material was provided in the site Blacksmith Shop.

Excavation

Excavation of the foundation revealed a footing of concrete one foot wide and three feet deep extending the length of the south and west walls. The north and east walls were supported on a rock and mortar foundation that was an extension of the slab which was poured under the floor. The perimeter of the building was excavated and a trench surrounding the foundation exposed the sub-surface. Using a jack hammer and sledge the concrete was broken out in sections, oxy-acetylene torches were required to cut the reinforcing steel. Blocking piles were used to support the building once the concrete had been removed. The building was then raised to its original elevation and placed on temporary support.

Materials

Replacement logs for the project were difficult to locate. In order to obtain the required 4 ¾" x 22" timbers; logs diameter to 36" had to be selected. The Gorman Brothers Sawmill at Westbank was able to supply logs of spruce species. (While the original materials in the building was fir, this deviation to spruce was necessary as it was not possible to obtain fir logs of sufficient length and diameter). Kiln dried pine flooring (1 ⅞ x 12) was also obtained through the Gorman Mill and was of the highest quality. The Gorman's took a personal interest in this project and their attention to detail and quality in supplying the material required must be commended. Cut nails used in the project were matched to the original patterns and supplied by the Tremont Nail Company of Massachusetts.

Conservation Work

Log Preparation

Rotten logs were removed from the building measured and recorded. Replacement material corresponding to the original sizing was hewn from the spruce logs. Use of the trees maximized the value of their size. With the large profile existent in the original timbers layout of the replacement wall logs was critical. Notches were duplicated ensuring the retention of characteristics inherent in each of the corners. (The actual final timber created from each tree used about 35% of the wood, the 65% forming the waste was removed with a broad axe.)

Corner notch layout incorporated principles of timberwork aided by reproductive templates and scribes. The shaping of the wood was done with traditional tools: axe, mallet and chisel and a slick. All four of the sill logs had to be replaced. Rot discovered in the second log of the west wall marked it for replacement as well. Time was taken to clean concrete from the interior of the Chapel walls, restoring the original finish.

Floor Structure

Replacement of the east and west sill logs was complicated by the installation requirements of the floor joists. Evidence of the original floor design and layout was uncovered in the remains of an east wall sill log. Spacing and joist design was duplicated in the construction of the new sill logs. Hewn floor joists were dovetailed and corresponding mortises were cut into the sills. As in the original design the replacement structure extends under the wall logs. To install the joists the building had to be raised and supported on the north and south walls while the timbers were fitted to the support logs. With the entire floor system intact and accurately fitted it was raised to tie-in to the wall structure of the Chapel.

Installation of the floor system to original specifications, required removal of the concrete slab in the interior of the Chapel. The concrete was broken up with a jackhammer and trucked from the site. The area also had to be excavated to create an airspace. A 12" airspace was created

under the floor permitting ample air circulation, a vapour barrier was also placed on the ground under the floor to reduce moisture transfer.

Final floor covering was completed with hand planed kiln dried pine 1 ½ x 12 planks. The lumber, stained to reduce the impact of the new wood, was fixed to the joists with square nails. The altar and appropriate artifacts were then returned to the Chapel.

Foundation

Once the log work had been completed the final elevation of the chapel was established. Returning the building to the original elevation dictated by the log structure resulted in an elevation difference of approximately 18". The change from the original elevation was a result of settlement and decay over the years. The building was set on a rock foundation. A vapour barrier was placed between the wood and stone surfaces. The grounds were then landscaped to grade the perimeter of the building.

Exterior Staircase

The original access to the upstairs, through the floor via a ladder, has been closed. Public access to the second floor display is obtained via an external staircase located on the south wall. The doorway into the upstairs has been formed through the enlargement of an original window opening. The Building Committee requested that at present this access be maintained to supplement the display program.

In view of this request a structural support and landing formed from hewn 6" x 6" timbers and hand planed fir decking was assembled. Hewn fir risers fitted with hand planed treads were fixed to the landing with square nails. Lag bolts used to reinforce the structure were concealed with dowel plugs. Wherever the unit was fixed to the log wall, pipe sections were used to sleeve the lag bolts and act as a spacer to separate the structure from the wall. The airspace created will reduce the possibility of rot in the area directly behind the landing. As a finishing touch a safety handrail was fixed to the posts and carved with a cross. The objective of this minor project was to create a secure and safe public access to the second floor level with a minimum of impact on the building. As a focal point we used traditional materials, craftsmanship and technology wherever possible.

Chemical Treatment

At the juncture of the original stair landing and the south wall, moisture had been entrapped resulting in the development of a rot situation. The rot in the wall was minimal and did not warrant replacement of the material. Chemical treatment of the area with orthophenylphenol was carried out. This will inhibit fungi growth. The preventative steps taken in the design of the new staircase will contribute to these conditions.

Budget

The budget for the original scope of work in the project was \$12,500. This cost was borne by a grant from the Heritage Trust and money provided by the Okanagan Historical Society.

The material and labor required to construct the joists and staircase, not included in the original scope of work, was donated by B.T. Innerprizes. The value of the donation was \$2,000.

Trucking for the waste material (concrete) and backfill for the landscaping was provided by Harold Duncan of Kelowna. The value of this donation was \$500.

Recommendations

1. Establishing an acceptable site plan is essential to the successful management of any historic site. A site plan which incorporated long term and short range goals and objectives will place the site development on a time line and reduce the possibility of errors in judgement and cross purposing actions. The development of a MASTER PLAN will establish the guidelines and framework required to manage the historic site. This plan will define the structure for management with responsibilities for the site manager and various sub-committees cleared spelled out.
2. Presently, a number of sub-committees could be established to attend to various areas of responsibility at the site. This will help address some of the more urgent problems that must be dealt with. The committees will reduce the overburdening of any one group and distribute the work load more effectively. Sub-committees would assume responsibility for interpretation, displayed, security, collections, etc.
3. The historic structures at the Mission are the primary artifacts at the site. Each building should be studied and the restoration required should be prioritized to maintain the desired progress. The overall restoration should be placed on a time line.
4. Displays at the site should be reviewed and changed periodically. Research should be incorporated to ensure accuracy. The archives of the Oblate Order should be researched to obtain information relative to the site. Assistance from the Catholic Church should be sought in developing appropriate religious displays and acquiring suitable artifacts. The restored Chapel should become the first in a series of new displays at the historic site.
5. Signage on site and leading to the site should be studied to determine its effectiveness. A number of redundant signs on the property should be consolidated to enhance rather than detract from the appearance of the property.
6. Security on the site should be the focal point of a special committee. The introduction of appropriate security lighting will reduce night prowling at the site. Attention to problems of theft, vandalism and fire prevention should be considered.

APPENDIX

P-7

Father Pandosy's Chapel build in 1860 has undergone a number of renovations over the years, as a result the original structure is still quite intact.



P-6

Although some work has been done on the foundation, the sill logs still rest on the ground, absorbing moisture and rotting.



P-5

A number of neatly crafted features such as the notched ceiling joists are the trademarks of early craftsmen. The building was found to be considerably out of level even though a few new footing had been poured on two sides.



P-4

In the interest of saving the building volunteers found pouring a log in place the simplest solution to the dry rot problem. In this case the wall logs are imbedded in concrete heightening the risk of moisture related problems.



P-8

A quiet man, Father Pandosy has taken to reading in his recent past. During the restoration he moved upstairs to avoid the disturbance of the workmen. Other artifacts in the Chapel display were relocated in safe storage for their protection.



P-2

Concrete used in the stabilization program covered the lower section of the logs, the discolouration had to be removed with a wire brush and cleaning agents.



P-11



P-12

Using a sledge hammer the surface of the concrete and parts of the rock and mortar foundation were removed.



P-13

Excavation of the concrete footing revealed the depth of the cement was up to three feet, in some cases the wall ford was over a foot thick.



P-10

Foundation rocks have been used to fill-in open sections at the base of the building created by decaying logs. The thin taper of the sill log on the east wall is an example of the structural conditions requiring attention.



P-16

A jack-hammer was used to break up the concrete work.



P-18

The removal of the concrete was complicated by reinforcing steel, a torch was used to cut the sections apart. The builders of this foundation no doubt wanted a clear conscience.



P-19

As the sections of concrete were removed the building as supported on cribbed blocking piles.



P-20

The large quantity of rubble recovered in the excavation and concrete removal gave the site the appearance of a rock quarry.



P-22

In this photo the sill log in the east wall is removed for duplication.



P-23

The rotted section of sill log removed from the east wall of the Chapel revealed critical information for the reconstruction of the floor joist structure.



P-26

To reproduce the sills, logs with diameters of up to 30" were hewn to size, excess material was substantial.



P-25

To aid the hewing process a chainsaw was used to score the logs to within an inch of the desired size.



P-27

A broad axe was used to hew the logs to the desired size. The traditional tool created the unmistakable finish of hewing and scoring on the replacement material.



P-30

With the hewing complete, the logs were scribed and fitted to the existing wall.



P-31

Prior to the installation a vapour barrier was fixed to the base of the sill logs to prevent the transfer of moisture from the stones used in the foundation.



P-1

Joinery used at the corners duplicates the original notch configuration and dimension. Here a combination of chamfer and dovetail notches are used to join the sill logs together.



P-35



P-36

Removal of the flooring revealed a concrete slab that had to be removed if the restoration was to be completed. So, we rattled our fillings a little more breaking up the cement.



P-42

Preparation of the east and west sill logs included the notching of joist pockets to accommodate the hewn floor joists.



P-33

Due to the nature of the original construction and the desire to duplicate the design, with the building supported, the entire floor joist and sill log construction was installed simultaneously.



P-39

Floor joists were dovetailed into the sill logs, spacing and joist dimension was calculated from physical evidence found on the site.



P-40

Using a slick and a draw knife the floor joists are trimmed to allow a flush and level fit for the flooring.



P-43

Duplicating the original flooring, a hand plane was used to surface the replacement materials, 1 ¼" x 12" pine.



P-44

The planed, kiln-dried lumber was pre-stained to soften the impact of the new wood. The floor was fastened with square cut nails.



P-46

Several yards of fill were trucked to the site to grade the area adjacent to the chapel.



P-47

With the log work completed the building was set on foundation stones, appropriate to the original style of construction.



P-50

At some time after the original construction the south wall second floor window was enlarged and a doorway was constructed.



P-55

In view of the desires of the site directors the exterior staircase was reconstructed on the south wall.



P-31A

The new staircase was constructed with large dimension lumber appropriate to the period. The risers and support posts were hewn and the treads were hand planed. Square nails were used to fix the treads to the risers, which are set on stones.



P-53

Steel spacers provide an airspace between the staircase landing and the wall, lag bolts fastening the structure to the building are concealed with dowel plugs.



P-57

A hand-rail was fitted to the staircase and the newel post supporting the balustrade was appropriately carved.



P-7



P-47

The completed restoration project with the ground landscaped and the building set on a stone foundation.



P-8



P-55

Father Pandosy Chapel, January 1984

