

Agency: Commerce, Community and Economic Development**Grants to Named Recipients (AS 37.05.316)****Grant Recipient: Knik Historical Museum****Federal Tax ID: 2010-063****Project Title:****Project Type: Maintenance and Repairs**

Wasilla-Knik Historical Society - Furnace Replacement and Building Maintenance

State Funding Requested: \$25,000**House District: Mat-Su Areawide (13-16)**

One-Time Need

Brief Project Description:

New

Funding Plan:

Total Project Cost:	\$25,000
Funding Already Secured:	(\$0)
FY2013 State Funding Request:	<u>(\$25,000)</u>
Project Deficit:	\$0

*Funding Details:**New Project***Detailed Project Description and Justification:**

The Knik Historical Museum has recently experienced total failure of the boiler, and requires immediate assistance with procurement and installation of a new boiler. In conjunction with this project, an engineering assessment completed by PND Engineers, Inc. in December 2011 identified numerous other maintenance needs of the structure, including the natural gas boiler, need for a new water heater and components, and museum staff report the need for modifications to plumbing and insulation associated with these systems. Without these emergency maintenance projects, the facility cannot open to the public, and will forfeit most of the tourism season. The PND report assessed the cost of replacing the boiler, water heater, and related components as \$25,000. If funding allows, the museum also requires a new front sidewalk, as the former one was dismantled with the foundation replacement. In current condition, the building is not wheelchair-friendly and has a dirt path leading up to the front door.

Project Timeline:

Replacement of the boiler and other mechanical components will occur as soon as funds are available.

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Mat-Su Borough

Grant Recipient Contact Information:

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Has this project been through a public review process at the local level and is it a community priority? Yes No

<i>For use by Co-chair Staff Only:</i>
3:18 PM 5/2/2012

Knik Museum

Summary of Remaining Renovations & Improvements

Prepared for: Matanuska-Susitna Borough

December 2011



Prepared by:



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1.1 Introduction

PND Engineers, Inc. completed an on-site structural review of Knik Museum on February 10, 2010. The Knik Museum is a wood framed building originally constructed in 1910. It is two-stories in height. It is located on the site of its original construction. Photos from the time of construction indicate a wood framed structure in a balloon framed configuration.

The purpose of the review was to identify deficiencies in the existing structural systems. The structural findings and recommendations were summarized in the PND report titled, "Knik Museum, Report on Existing Structural Condition" which is dated February 2010. The findings contained in the report were used by the Matanuska Susitna Borough to plan for the future retrofit and strengthening of the building which was accomplished during the fall of 2011.

1.2 Summary of Deficiencies and Recommendations from 2010 Survey

Table 1 contains the noted structural deficiencies and structural recommendations for the Knik Museum from the February 2010 PND Report titled "Report on Existing Structural Condition." The Matanuska Susitna Borough and PND used the following table to prioritize the required improvements and renovations to be conducted with the funds available.

Table 1 – Structural Review Summary

Item Number	Structural Component	Description	Status	Recommendations	Completed in 2011
1.	Roof Deck	6"x1" Wood Decking	Condition Good - Newer Framing likely Repaired in the Recent Past	None	N/A
2.	Roof Joist	2"x6" Wood Joists	Condition Good - Newer Framing likely Repaired in the Recent Past.	We Understand Roof to be Replaced - Check Rafter Tie Connection During Roof Replacement to Determine if Connection is Adequate.	N/A
3.	Roof System	Unable to Inspect due to Snow on Structure.	No Roof Eave Vents Provided. 3 Layers of Fiberglass Batt on Attic Floor.	We Understand Roof to be Replaced - Install Eave Vents.	No

Item Number	Structural Component	Description	Status	Recommendations	Completed in 2011
4.	Floor Diaphragm	12"x1" Wood Decking	Condition Good	None	N/A
5.	Floor Beams	6"x6" Timbers with 2"x6" Running Perpendicular	Condition Good - Newer 2x6 Framing added next to old Floor Framing to Repair Damage at Exterior Walls due to Rot. Some Framing Clips are in Poor Condition due to Corrosion.	Replace Framing Clips Damaged by Corrosion.	No
6.	Foundation Wall	Concrete Piers with Wood Retaining Walls	Structurally Unsound - Not a Permanent Foundation. Wood Framing Partially Buried on Inside. Exterior Wall Condition Unknown. Wall not Properly Insulated for Warm Crawlspace. Moisture Buildup in Crawlspace is evidenced by the Rusted Framing Clips and Nails.	Construct New CMU Foundation Wall on Structural Footing. Properly Waterproof and Insulate New Foundation Wall.	Yes
7.	Foundation Sill	Wood Rim in Direction Contact with Ground	Condition Poor - Rot caused by Soil Pressed against Exterior Wood Rim and Siding.	Re-grade the Ground Level to 6" Below the Wood Rim and Siding or Raise Building and Replace Damaged Wood.	Yes
8.	Foundation Pier Supports	Concrete and Timber Piers	Structurally Unsound - Concrete and Timber Piers are likely not on Proper Foundation. Timber Piers have Low Unknown Capacity and are in Poor Condition.	Replace Timber Piers with New Capacity Rated Timber or Steel Post. Construct Structural Concrete Footing under all of the Pier Supports.	Yes
9.	Exterior Siding	Wood Siding	Condition Poor in some Areas - Visible Rot and Holes in Exterior Wood Siding, especially near the Exterior Staircase.	Replace/Repair Damaged Siding according to Historical Building Guidelines and Rules.	No

Item Number	Structural Component	Description	Status	Recommendations	Completed in 2011
10.	Exterior Windows/Doors	Wood Trim & Framing	Condition Poor - Visible Rot in Exterior Wood Trim and Framing.	Replace Windows, Doors and Trim according to Historical Building Guidelines and Rules.	No
11.	Exterior Stairway	Treated Wood Framing	Structurally Unsound - Stairway Framing in Good Condition but Improperly attached to Structure.	Properly Attach Stairway to Structure's Floor Framing or add Posts next to Structure to Support Stairway.	Yes

Based on these structural observations, it was determined that the immediate priority was to address items 6, 7, 8 and 11 which includes constructing a new concrete foundation and repairing and preventing future wood rot. PND Engineers provided the design drawings dated April 15, 2011 for the renovations and the work was completed by Fike Industrial Construction, LLC in the fall of 2011.

1.3 Summary of Renovations & Improvements Completed in 2011

Since there were insufficient funds to address all of the structural deficiencies of the structure, the available funds were used to deal with the most significant structural deficiencies and to address any other deficiencies which may lead to and/or accelerate further damage to the structure.

All work was completed in accordance with *The Secretary of the Interior's Standards for Treatment of Historic Properties*. The renovations included raising the building, disconnecting the utilities, removing the existing foundation elements, constructing a new concrete foundation, repairing wood damaged by rot, lowering the building onto the new foundation, reconnecting the utilities and constructing new wood entry decks.

The existing foundation was a wood wall foundation which was installed prior to 1982 and had exceeded its useful life. Drawings by Don W. Wycoff Architects dated June 23, 1982 depicts the configuration of the wood wall foundation which was replaced.

The building was raised for two reasons. First, the structure was lifted to permit the construction of the new concrete foundation. Second, the structure was raised 6 inches to increase the finished floor elevation to prevent ground contact against wood sill members and to allow water to run away from the structure. Much of the sill plate damage was caused by ground and water coming into contact with the wood sill members. While the structure was raised the damaged wood sill and floor members were replaced with new treated wood members and waterproofing and flashing were added to protect the wood members from exposure to ground and water contact.

The new foundation consists of 8” reinforced concrete exterior walls on continuous concrete strip footings and interior timber posts on concrete spread footings. The footings were placed on the native sandy soil. The soil surface was compacted with a vibratory compactor prior to concrete placement. After the exterior foundation walls were constructed the building was lowered and the interior timber posts and pony walls were installed. The new foundation walls were properly insulated and a vapor barrier was installed over the sandy crawlspace floor to prevent future moisture buildup and damage in the warm crawl space.

The exterior stairway was previously fastened to the side of the building improperly. The stair attachment was structurally unsound and was trapping water against the wood siding. The trapped water was causing substantial rot and decay of the wood siding. The exterior stairway was removed before lifting the building and was saved for reuse. Additional timber columns on concrete foundations were added underneath the stairway. The new stairway supports strengthens the stairway and prevents the stairway for coming into direct contact with the side of the structure to prevent further damage to the wood siding.

Wood decks on concrete foundations were also constructed at the rear and side of the structure to replace the concrete stairs which were removed during the construction of the new foundation. The wood decks were constructed with handrails and guardrails to permit safe access in and out of the structure.

These structural improvements were completed to the Knik Museum to extend the service life of the building and also to help minimize any additional damage to the building components until additional funds can be procured to finish restoring the historical structure.

1.4 Summary of Remaining Deficiencies and Recommendations

Table 2 identifies the remaining structural deficiencies and recommendations after the renovations and improvements were completed in the fall of 2011. Table 2 also identifies other non-structural improvements needed at the Knik Museum.

Table 2 – Updated Structural Review Summary

Item Number	Structural Component	Description	Status	Recommendations	Estimated Repair Cost
1.	Roof Deck	6"x1" Wood Decking	Condition Good - Newer Framing likely Repaired in the Recent Past	None	-

Item Number	Structural Component	Description	Status	Recommendations	Estimated Repair Cost
2.	Roof Joist	2"x6" Wood Joists	Condition Good - Newer Framing likely Repaired in the Recent Past.	Check Rafter Tie Connection during Roof Eave Vent Installation to Determine if Connection is Adequate.	-
3.	Roof System	Asphalt Shingle System on Wood Deck	No Roof Eave Vents Provided. 3 Layers of Fiberglass Batt on Attic Floor.	Install Eave Vents.	\$2,500
4.	Floor Diaphragm	12"x1" Wood Decking	Condition Good	None	-
5.	Floor Beams	6"x6" Timbers with 2"x6" Running Perpendicular	Condition Good - Newer 2x6 Framing added next to old Floor Framing to Repair Damage at Exterior Walls due to Rot. Some Framing Clips are in Poor Condition due to Corrosion.	Replace Framing Clips Damaged by Corrosion.	\$2,500
6.	Foundation Wall	8" Concrete Stem Wall on Continuous Concrete Strip Footing	Constructed in 2011	None	-
7.	Foundation Sill	Wood Rim	Sill Repaired in 2011	None	-
8.	Foundation Pier Supports	6x6 Wood Posts on Concrete Spread Footings	Constructed in 2011	None	-
9.	Exterior Siding	Wood Siding on North Side & Miscellaneous Eave and Sill Areas	Condition Poor in some Areas - Visible Rot and Holes in Exterior Wood Siding, especially near the Exterior Staircase and Areas near Ground Level.	Replace/Repair Damaged Siding according to Historical Building Guidelines and Rules. Paint to Match Existing Siding.	\$15,000 + Abatement Contingency See Item #16

Item Number	Structural Component	Description	Status	Recommendations	Estimated Repair Cost
10.	Exterior Windows/Doors	Wood Trim & Framing	Condition Poor - Visible Rot in Exterior Wood Trim and Framing.	Replace Windows. Doors and Trim according to Historical Building Guidelines and Rules.	\$20,000 + Abatement Contingency See Item #16
11.	Exterior Stairway	Treated Wood Framing	Covered Stairway	None	\$20,000
12.	Side Walks	Concrete Side Walks	Side Walks were Removed during Construction of New Foundation in 2011.	Construct New Side Walks at all Entrances	\$5,000
13.	Crawl Space Stairway	Wood Stairs	Condition Poor	Replace Stairway with New Wood Stairway with Hand Rail	\$5,000
14.	Crawl Space Lighting	One Pull Chain Light Fixture	Light Cannot be Turned on until you Walk Down the Stairway in the Dark. Provides insufficient light in crawl space to work on Mechanical Equipment.	Install Additional Crawl Space Lighting which can be Controlled by a switch before going down the Crawl Space Stairway.	\$1,500
15.	Mechanical Equipment	Natural Gas Boiler & Water Heater & Components	Inoperable	Install New Boiler with Boiler Mate and Water treatment System on a New Concrete Housekeeping Pad in the Crawl Space.	\$25,000
16.	Lead Testing & Abatement	-	Presence of Lead Unknown.	Test for Presence of Lead. Use Proper Abatement techniques if Lead is Determined to be a Hazard	Testing: \$1,000 Abatement Contingency: \$12,500
Total					\$110,000