



# Evaluation Report

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## Stewart Facility Building One

State of Nevada Public Works Board  
SPWB Project Number: 10-A103



June 9, 2010

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## PROJECT TEAM

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## EXECUTIVE SUMMARY

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The State of Nevada Public Works Board (SPWB) is evaluating the condition of the Stewart Facility Building One located in Carson City, Nevada for the purposes of code compliance, occupancy, and historical renovation.

## INTRODUCTION

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Built in 1923, the former Administration Building, now referred to as Building One, has performed multiple functions during its history. A few of these functions include the Stewart Indian School superintendent's office, Novake (student store), and the Bureau of Indian Affairs offices. Today, the State of Nevada Indian Commission (NIC) looks to the future and plans to continue the use of the building as a museum. Appropriately named, the Stewart Indian Cultural Center will display historical items relative to the Stewart Indian School and serve the community as a place to gather.

This evaluation report will analyze the current building and building systems and recommend the necessary upgrades to bring Building One up to current codes and reasonable occupancy.

## CODE SUMMARY

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Below is a list of codes used for the initial evaluation of Building One and information presented in this report:

- 2006 International Building Code
- 2006 International Existing Building Code
- 2005 National Electric Code
- The Secretary of the Interior's Standards for the Treatment of Historic Properties
- State Public Works Board Adopted Standards

These codes are a starting point to help determine how the building needs to be modified in order to meet current codes. The International Existing Building Code will provide relief from the requirements of the International Building Code. However, only one code may be used, not both. Ultimately, the scope of work will help determine the appropriate code to use. A thorough code analysis will be conducted once the program and scope of work have been finalized.

## USER/OWNER INPUT

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The user/owner has identified a new occupancy for Building One as a museum. Priorities of occupancy per floor level have been identified by the user just in case it is necessary to take a phased approach. Primary occupancy would take place on the main floor level, followed by the second floor, and finally the basement.

The user desires the following components as a part of the museum experience:

- Interactive Displays
- Static Displays
- Archives
- Retail space
- Reception area

The proposed new function of a museum lends itself to consider building modifications to be adaptive re-use per the codes researched. However, the historical significance of the building should be respected and considered during design and construction of the project. A period of significance as an architectural design standard has been brought to light, but an actual historical period or historical function has not been determined.

Ultimately, the adaptive re-use approach and historical renovation approach will need to be balanced for the benefit of the building history and building use.

## **HISTORIC PRESERVATION POTENTIAL**

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The State Historic Preservation Office (SHPO) has expressed potential ideas for the renovation of Building One. Below is a list of ideas open for discussion and incorporation into the project:

- Restore the building to a period of significance.
- Replace the windows that are not original to the building with windows that resemble the original windows.
- Restore the entry porch to the original configuration.
- Reconfigure the stairs to the original configuration.

It is unknown at this point the extent of historical preservation desired to be incorporated into the project with initial funds. Historical preservation may be phased into the work of the building as funding becomes available. Costs of each historical preservation idea can be developed once a better scope of preservation is identified.

## **SITE DEVELOPMENT**

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Currently, the building lacks site accessibility access from the adjacent parking area and the adjacent parking area lacks accessible parking for the building. It will be necessary to provide accessible parking and an accessible route to the building.

Portions of the existing sidewalk in the east-west direction will need to be removed and reconstructed and the existing ramp will require handrails in order to meet current codes. Accessible parking stalls will need to be located, leveled, and marked.

Additional site development will include lighting of the accessible route as noted in the electrical portion of this report.

All site work should be coordinated with the Cultural Landscape Report prepared by Wyss Associates, Inc. dated August 31, 2009.

## **ARCHITECTURE**

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In 2008 Architectural upgrades were performed on the interior and exterior of Building One. The goal of these upgrades was to preserve and stabilize the unoccupied building. Exterior upgrades included replacement of an old asphalt composition roof with a new asphalt composition roof, restoration and painting of fascia, trim, shingle siding, and decorative wood elements. This work was coupled with structural upgrades to the roof system. Interior upgrades included patching and repairing walls where structural upgrades were performed.

Upgrades necessary to meet current codes encompass the following areas; life safety, accessibility, and building systems. Other upgrades necessary to occupy the building include interior finishes and aesthetics. It is recommended to prioritize these upgrades as follows:

- Life safety
- Accessibility
- Building systems
- Finishes/Aesthetics

Deficiencies in the area of life safety include the lack of fire detection, fire alarm, and fire sprinklers. These systems are elaborated on further in the report.

Accessibility needs to be provided at the building entrance with the use of appropriate hardware. Also, restrooms need to be fully upgraded. The restrooms are currently in the process of being upgraded with accessible lavatories and new water closets; however the water closets do not appear accessible. Clearances need to be verified and accessories need to be installed. Accessibility is not provided to the second floor or the basement.

Deficiencies in the area of building systems include the structural system, HVAC system, and electrical system. These systems are addressed further in the report.

Finishes and aesthetics also need to be considered for building occupancy. This would include flooring, wall repairs and painting, staining of the ceiling, window repairs, door repairs and historical considerations. Historical considerations may include replacement of windows, restoration of stairs to their original configuration, restoration of the front porch, etc. Currently, the extent of historical preservation is undetermined.

## **STRUCTURAL**

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In 2006 Hyytinen Engineering was hired by Oxoby Architecture to perform a structural review of 25 buildings at the Stewart Facility for SPWB Project 05-M46. Hyytinen's recommendations are included in the appendix of Oxoby's report titled "Stewart Complex Structural Repairs & Roofing Building Assessment" dated August 25, 2006. The intent of the report was to "present recommendations that will help arrest the degradation of the buildings, ensure the continued operation of the occupied buildings, and help preserve the unoccupied buildings." Based on the information provided in the report, the SPWB proceeded with hiring Hyytinen Engineering to design structural repairs and seismic retrofits for only the roofs of several buildings, including Building One. The actual construction of these roof repairs was completed in 2008.

As noted in the original report, Building One does require structural repairs, strengthening, and a seismic retrofit prior to being re-occupied. The roof portion of the repairs, which have already been completed in the previous project, are as follows:

- Strengthen the roof diaphragm by adding plywood sheathing over the existing sheathing.
- Provide a continuous load path for roof diaphragm forces to be transferred into the walls.
- Brace the top of masonry walls at gabled ends of the building.
- Anchor the walls into the roof diaphragm and 2<sup>nd</sup> floor diaphragm.
- Reinforce the chimneys and anchor them into the roof to prevent collapse during an earthquake.

The Structural tasks that would be required to retrofit the remainder of the building include the following:

### **Stewart Facility Building One**

- Anchor the walls to the 1<sup>st</sup> floor diaphragm.
- Strengthen and provide a continuous load path for 1<sup>st</sup> floor diaphragm forces to be transferred into the walls.
- Strengthen and provide a continuous load path for 2<sup>nd</sup> floor diaphragm forces to be transferred into shear walls.
- Repair existing floor framing which has been notched or otherwise damaged.
- Strengthen 1<sup>st</sup> floor framing to support the high floor loads required for museum type occupancy.
- Strengthen second floor framing to be able to support the loads mandated for either an office or museum type occupancy as directed by the Owner.
- Review and strengthen existing shear and bearing walls where required.
- Review wall settlement and provide reinforcing and patches at cracks in masonry.
- Review cracked stone masonry lintels and reinforce as needed.

Structural work will be done with sensitivity towards the existing building. Structural retrofitting will be analyzed as to whether or not it can be hidden or expressed.

These recommendations are based on known structural issues and past experience designing retrofits for buildings of similar construction. The structural cost estimates assume that the International Existing Building Code (IEBC) would be used for retrofit requirements. If it is required to fully upgrade the building to current International Building Code (IBC) standards greater retrofit costs will apply. Prior to any construction, the full design of the repairs with the preparation of plans and specifications will be required.

## **MECHANICAL**

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Outlined below is a list of the current heating, ventilation and air conditioning (HVAC) systems:

- The building has been divided into four individual temperature control zones, each being conditioned by a residential style, horizontal gas furnace with a DX cooling coil and remote ground mounted condensing units. Furnaces are located in the attic area of the second floor level.
- The first floor level contains three temperature controls zones; northeast, northwest and south.
- The finished portions of the second floor level are a single temperature control zone.
- There are no provisions for heating, cooling, or ventilating at the basement level of the building.
- The four heating and cooling units are of similar make, model, and capacity:
  - Horizontal Furnace  
Bryant "Plus 90" Model 350MAV048100F Series D  
100,000 BTUH input, 93,000 BTUH output, natural gas fired heat  
½ H.P. fan, maximum 0.5" external static pressure  
115v 1ph, 10.2 amps  
Manufactured November 2001
  - Cooling Coil  
Model CK3BXA048021 AAAA  
R-22 or R-410A refrigerant
  - Remote Condensing Unit  
Bryant Model 561CJ048



208/230v 1ph  
R-22 refrigerant  
Manufactured 2001

- Space Thermostat  
Honeywell, seven-day programmable electronic thermostat, surface mounted with surface mounted wire mold.  
The space thermostat of the furnace serving the second floor has not been mounted or the control wiring installed.
- The supply and return ductwork throughout the facility is of the insulated, flexible type.
- There are no provisions to introduce outdoor ventilation into the occupied spaces through the HVAC system.
- The mechanical systems appear to be in conformance with current building codes.

The Mechanical tasks that would be required to retrofit the remainder of the building in order to meet current codes include the following:

- The flexible type ductwork is not in compliance with Section 7.3.10 of the January 2009 edition of the Nevada State Public Works Board Adopted Standards limiting the length of flexible ductwork to 5'-0" maximum. Therefore, replacement of all supply and return ductwork with rigid, galvanized steel materials will be necessary, or acceptance of current ductwork by SPWB.
- Provide for mechanical ventilation and relief for all occupied spaces.
- Complete the installation of the heating and cooling units, space thermostats, etc. Start-up and check-out equipment operation. Identify, report, and/or repair any deficiencies found due to equipment remaining idle since manufacture and installation.
- Determine if the basement level of the building is to be occupied, and provide an HVAC system as appropriate.

## **PLUMBING**

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Outlined below is a list of the current plumbing systems:

- All restroom facilities are located on the first floor level of the building.
- Men's restroom with one tank type toilet and one wall hung lavatory.
- Women's restroom with one tank type toilet and one wall hung lavatory.
- Unisex restroom with one tank type toilet and one wall hung lavatory.
- Domestic water heater is located at the basement level. Bradford White Model MII30R6DS13, electric water heater, 30 gallon storage capacity and 4500 watt input. 240v 1ph.
- There is no domestic hot water recirculation system.
- Domestic hot and cold water piping is copper.
- Waste and vent piping above grade is ABS plastic.
- The plumbing systems appear to be in conformance with current building codes.

The Plumbing tasks that would be required to retrofit the remainder of the building in order to meet current codes include the following:

- Provide and install protective covers on trap and supplies at the ADA lavatory in the Uni-sex toilet room.

## **Stewart Facility Building One**

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- Modify domestic hot water system as required to add a recirculation loop and pump.
- The ABS waste and vent piping above the basement finished floor line is not in compliance with Section 7.4.2 of the January 2009 edition of the Nevada State Public Works Board Adopted Standards. Unless written approval by the SPWB allowing the piping to remain, all systems must be removed and replaced with the appropriate materials.
- Inspect all plumbing fixture working parts, and repair as necessary to bring to proper operation. This applies to seals, diaphragms, valves, etc.

## **FIRE PROTECTION**

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- Currently, the building is not protected by a fire sprinkler system.

The Fire Protection task that would be required to retrofit the remainder of the building in order to meet current codes includes the following:

- Provide a full coverage, wet pipe, fire sprinkler system throughout the facility in accordance with NFPA 13 and the Nevada State Fire Marshal.

## **ELECTRICAL**

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Outlined below is a list of the current Electrical systems:

- Main Electrical Service Entrance
  - The existing electrical power supply to the building is fed from the Stewart facilities local overhead power line to the main electrical service panel located on the north exterior face of the building. The service entrance is a surface mounted, weatherproof, 200 amp, 120/240 v, single phase panel; including, meter, main breaker and distribution. This service entrance appears to have been installed within the last few years and is considered suitable for continued use.
- Building Power Distribution
  - The existing electrical distribution system in the building consists of two 100 amp, 120/240 v subpanels, and the consequent branch wiring to the various loads. One of these subpanels is located in the basement and the other subpanel panel is located in an attic space. These subpanels were visually inspected, and are evaluated as follows:
    - The basement subpanel feeds 4-four ton air conditioning condensers, a 50 amp range outlet, an electric water heater, lighting and receptacles on the first floor. Because of the quantity of existing load, this subpanel is currently overloaded, and will not function; and does not meet the electrical code.
    - The attic subpanel feeds four furnaces combined with air conditioning DX coils, lighting and receptacles on the second floor. This subpanel is correctly configured and is in accordance with the electrical code.

- Lighting
  - The existing lighting on the building interior is a combination of decorative incandescent pendants and surface mounted fluorescent fixtures which vary from room to room. The rooms are well lighted for general purpose use.
  - There is only a single lighting fixture at the entrance for lighting the exterior of the building.
  - There is neither exit signage, nor emergency lighting fixtures existing in the building.
  
- Fire Alarm
  - The fire alarm system is only partial completed, having only a little wiring and a few detectors installed throughout the building and there is no fire alarm control panel (FACP) installed at this time. Currently the installed cabling is un-terminated in the basement.
  
- Security System
  - The intrusion alarm system (burglar alarm) is only partial completed, having only some wiring and a few detectors installed throughout the building, and there is no intrusion alarm control panel installed at this time. Currently the installed cabling is un-terminated in the basement. Additional cabling, intrusion detectors, and other devices, final connections and a control panel need to be provided for a completely functional alarm system. There are no code requirements for an intrusion alarm system at this time.
  
- Telephone System/Communications
  - Telephone cabling and jacks have been installed in all rooms with the cabling running “wild” to a common point in the basement.
  - There is neither telephone back board for the termination of the existing cabling nor connection facilities for future cabling and devices. Telephone service is not now provided from the phone company.
  - Currently, there is no cabling for high-speed internet access or cable TV.

The Electrical tasks that would be required to retrofit the remainder of the building in order to meet current codes and reasonable occupancy include the following:

- Building Power Distribution
  - An additional subpanel and a new feeder from the main electrical service must be installed to transfer the existing air conditioning condenser loads to a separate panel. The other connected loads may remain in place and will be satisfactory.
  - Additional receptacles and other power outlets may be required to serve a museum function.
  
- Lighting
  - Additional lighting fixtures for a future museum will be required to support the installation of various exhibits and room uses. A complete lighting design review should be performed to determine the required lighting foot-candle levels for various museum functional areas. Lighting

- fixtures may then be added or existing fixtures relocated to satisfy the calculated lighting requirements.
  - Any future public use will require the installation of additional lighting around the exterior of the building, on the pathways leading to the building and for the stairs leading to the basement.
  - A lighting management and control system, including occupancy lighting controls may be installed to conserve energy and to comply with the latest energy conservation codes. However, this is a historic building and is exempt from current lighting energy codes.
  - Exit signage and emergency lighting fixtures need to be added for a future public/museum use.
- Fire Alarm
  - Additional cabling, fire alarm detectors, strobe alarms, and horn alarm devices, final connections and a control panel need to be provided for a completely functional and code compliant fire alarm system. It is unknown if the Stewart Facility requires off site alarms.
- Security System
  - Additional cabling, intrusion detectors, and other devices, final connections and a control panel need to be provided for a completely functional alarm system. There are no code requirements for an intrusion alarm system at this time.
- Telephone System/Communications
  - A new telephone company entrance and distribution back board needs to be installed to complete the system. Final service from the phone company needs to be established.
  - Cable TV may be necessary for the museum function of providing high speed internet access, wireless internet access, and other multi-media resources.

**OPINION OF PROBABLE COST**

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Below are conceptual costs in order to bring Building One up to current codes and reasonable occupancy, these costs do not include historical preservation:

**Architectural**

Site Accessibility	\$17,655.00
Interior Accessibility	\$ 5,000.00
Windows and Doors	\$10,250.00
<u>Interior Finishes</u>	<u>\$54,271.00</u>
Total Architectural	\$87,176.00

**Structural**

Demolition	\$ 2,025.00
Rough Carpentry	\$65,488.00
Masonry	\$23,250.00
Structural Steel	\$15,500.00
<u>Concrete</u>	<u>\$18,200.00</u>
Total Structural	\$124,463.00

**Mechanical/Plumbing**

HVAC	\$92,600.00
Plumbing	\$ 8,400.00
Fire Protection	\$46,800.00
<u>Testing and Balancing</u>	<u>\$14,040.00</u>
Total Mechanical/Plumbing	\$161,840.00

**Electrical**

Exterior lighting (accessibility)	\$20,000.00
Power Distribution	\$10,000.00
Power outlets and receptacles	\$ 7,500.00
Interior lighting fixtures/controls	\$12,000.00
Telephone service entrance	\$ 3,000.00
<u>Fire alarm and security system</u>	<u>\$20,000.00</u>
Total Electrical	\$72,500.00

**Subtotal** **\$445,979.00**

Conceptual Design Contingency 20%=\$ 89,195.80

**Subtotal** **\$535,174.80**

**General Contractor**

General Requirements - 12.5%	\$ 66,896.85
<u>OH&amp;P - 7.5% of construction</u>	<u>\$ 40,138.11</u>
Total Contractor	\$107,034.96

**Total Cost** **\$642,209.76**

The cost difference from the above opinion of probable cost (\$642,209.76) and the initial construction budget (\$397,200.00) is \$245,009.76. Final costs of the project can be tailored to meet the budget through prioritizing work for the initial phase of construction. A recommended scope of work for an initial phase of construction is included in this report.

**BUDGET AND FUNDING**

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The initial budgeting per the SPWB is as follows:

- |  |                     |
|--|---------------------|
| ▪ Phase 1: Evaluation report for Building One. | Budget \$11,500.00  |
| ▪ Phase 2: Design and Construction Documents.  | Budget \$53,000.00  |
| ▪ Phase 3: Construction.                       | Budget \$397,200.00 |

Funding sources include the following:

- Fundraising Letter campaign: Letters sent to all Nevada Tribes, all Arizona Tribes, all Utah Tribes, California gaming tribes, East Coast gaming tribes, 300 alumni and all of Nevada Indian Commission list serves.

- Stewart Father's Day Powwow (June 18-20, 2010) and Alumni Reception and Silent Auction (June 17, 2010) – fundraiser for the Cultural Center and attracts approximately 4,000 participants and spectators over the 3-day weekend
- National Native American Heritage Month Fundraiser November 2010
- Save America's Treasures Grant – Deadline May 21, 2010; 1 for 1 match; minimum grant request for historic property projects is \$125,000 Federal share; grant period 2-3 years and the non-federal match may be raised and spent during the grant period.

## **RECOMMENDED INITIAL SCOPE OF WORK**

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An initial scope of work to allow for occupancy may include the following:

- No occupancy in the basement.
- No accessible access to the second level.
- Provide historical preservation treatments in later phasing.
- Provide all necessary Structural upgrades for life safety. Assuming museum occupancy on the main level and office occupancy on the second level.
- Provide all necessary Mechanical and Plumbing upgrades for life safety, assuming that the flex ducting and ABS piping will be acceptable to the SPWB and user as currently installed.
- Provide all necessary Electrical upgrades for life safety, not including site work, security system, and new telephone service.
- Provide an accessible entrance and accessible restrooms (men's and women's).
- Provide minimal interior finishes:
  - Flooring
  - Wall repair and selective painting
  - Initial door and window repair (sealing frames and replacing broken glazing)

The estimated opinion of probable cost for the initial scope of work is approximately \$400,000.00. See the attached Recommended Initial Scope of Work Cost for an itemized breakdown.

Subsequent work in future phases may include site work, security systems, additional finishes, historical renovations, and aesthetics. Any alterations after occupancy will impact museum functions.

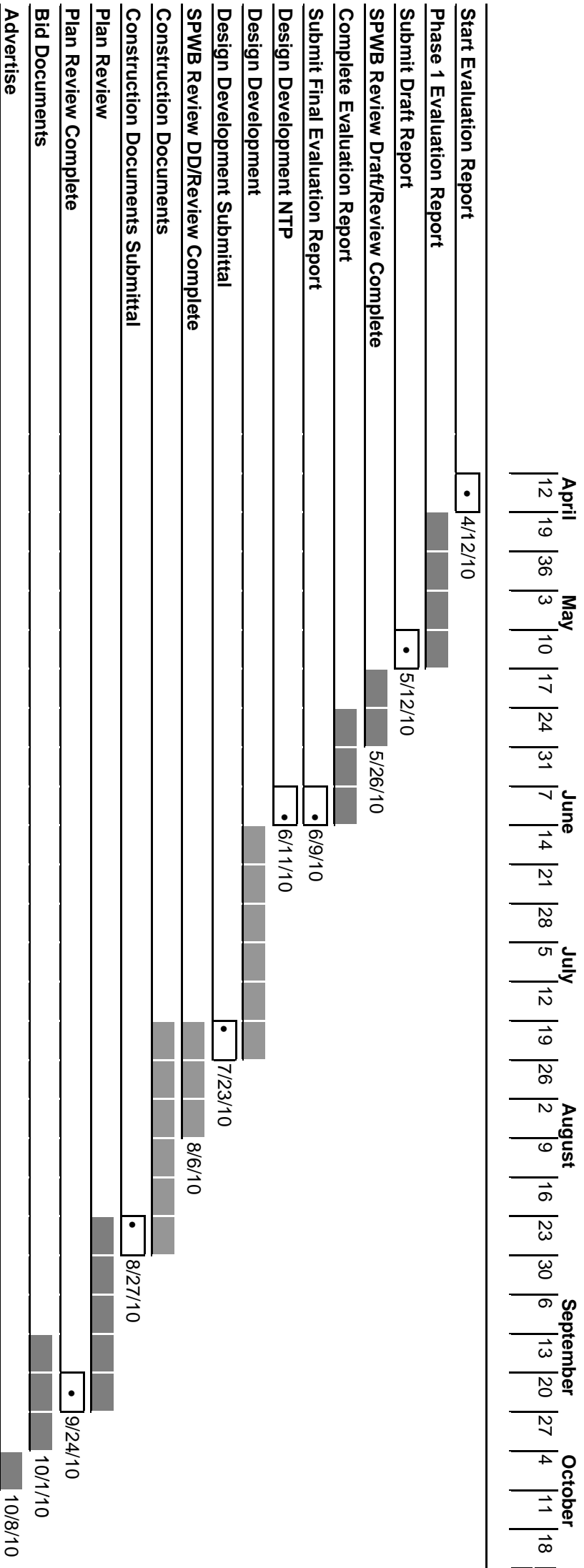
## **ATTACHMENTS**

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- Tentative Project Schedule
- Recommended Initial Scope of Work Cost
- Architectural Opinion of Probable Cost
- Structural Opinion of Probable Cost
- Mechanical Opinion of Probable Cost
- Electrical Opinion of Probable Cost



**Stewart Facility Building One**  
 Tentative Project Schedule  
 April 28, 2010



# Stewart Facility Building One Evaluation Report

## Recommended Initial Scope of Work Cost

### Architectural

Interior selective demolition	1	LS	\$500.00	\$500.00	
Window refurbish and seal	29	EA	\$250.00	\$7,250.00	
Doors refurbish and seal	2	EA	\$1,500.00	\$3,000.00	
Wood flooring	4,000	SF	\$4.50	\$18,000.00	
Accessible restroom	2	EA	\$2,500.00	\$5,000.00	
Interior walls/selective painting	3,500	SF	\$3.50	\$12,250.00	
Interior gypsum board	1	AL	\$1,500.00	\$1,500.00	
Miscellaneous	1	AL	\$3,000.00	\$3,000.00	
					Subtotal Architectural
					<b>\$50,500.00</b>

### Structural

Structural for museum occupancy on first level and office occupancy on second level	1	LS	\$121,963.00	\$121,963.00	
					Subtotal Structural
					<b>\$121,963.00</b>

### Mechanical/Plumbing

Outdoor air ventilation	4	EA	\$750.00	\$3,000.00	
Check-out and Start-up of systems	40	HR	\$65.00	\$2,600.00	
Hot water recirculation system	1	LS	\$750.00	\$750.00	
Repair fixture and devices	1	AL	\$500.00	\$500.00	
Fire sprinkler system	10,400	SF	\$4.50	\$46,800.00	
Testing and balancing	10,400	SF	\$1.35	\$14,040.00	
					Subtotal Mechanical/Plumbing
					<b>\$67,690.00</b>

### Electrical

Interior lighting fixtures / controls	1	AL	\$5,000.00	\$5,000.00	
Power distribution feeder / panels	1	LS	\$10,000.00	\$10,000.00	
Receptacles and power outlets	1	LS	\$7,500.00	\$7,500.00	
Fire alarm system	1	LS	\$15,000.00	\$15,000.00	
					Subtotal Electrical
					<b>\$37,500.00</b>

**Subtotal** **\$277,653.00**

**Conceptual Design Contingency** 20% \$55,530.60

**Subtotal** **\$333,183.60**

### General Contractor

General Requirements	12.50%			\$41,647.95	
Overhead and profit	7.50%			\$24,988.77	
					Subtotal General Contractor
					<b>\$66,636.72</b>

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**Total Initial Scope of Work Cost** **\$399,820.32**



# Stewart Facility Building One Evaluation Report

Conceptual Opinion of Probable Cost

Building Area= 4,935 Gross Square Feet

## Architectural

Demo sidewalk	250	SF	\$2.00	\$500.00
New sidewalk	250	SF	\$5.50	\$1,375.00
Demo ramp	1	LS	\$1,500.00	\$1,500.00
New ramp	1	LS	\$5,000.00	\$5,000.00
Handrails at ramp	68	LF	\$60.00	\$4,080.00
Accessible parking spaces	1	LS	\$5,200.00	\$5,200.00
Interior selective demolition	1	LS	\$500.00	\$500.00
Window refurbish and seal	29	EA	\$250.00	\$7,250.00
Doors refurbish and seal	2	EA	\$1,500.00	\$3,000.00
Wood flooring	4,935	SF	\$4.50	\$22,207.50
Accessible restroom	2	EA	\$2,500.00	\$5,000.00
Interior walls/paint	7,161	SF	\$3.50	\$25,063.50
Interior gypsum board	1	AL	\$1,500.00	\$1,500.00
Miscellaneous	1	AL	\$5,000.00	\$5,000.00

Subtotal Architectural **\$87,176.00** \$17.66

## Subtotal

**\$87,176.00**

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**Structural Opinion of Probable Structural Cost**  
**Building 1, Stewart Facility**  
**Occupancy: 1st Floor Museum, 2nd Floor Office \***

4/30/2010

**DEMOLITION**

Demo 1st Floor Underlayment	3050	sf	at	\$0.50	=	\$1,525
Demo (E) Stair	L.S.				=	\$500
<b>Total Demolition:</b>						<u>\$2,025</u>

**ROUGH CARPENTRY**

2nd Floor Framing	2000	bf	at	\$5.00	=	\$10,000
1st Floor Framing	6000	bf	at	\$5.00	=	\$30,000
Reconfigure Stair	L.S.				=	\$2,000
5/8" 2nd Floor Sheathing	1100	sf	at	\$2.25	=	\$2,475
5/8" 1st Floor Sheathing	3050	sf	at	\$2.25	=	\$6,863
5/8" Shearwall Sheathing	1400	sf	at	\$2.25	=	\$3,150
Straps	L.S.				=	\$1,000
Framing Clips	L.S.				=	\$6,000
Misc.	L.S.				=	\$4,000
<b>Total Carpentry:</b>						<u>\$65,488</u>

**MASONRY**

Epoxy Anchors	250	ea	at	\$45.00	=	\$11,250
Repoint Portions of Existing Walls	L.S.				=	\$10,000
Misc.	L.S.				=	\$2,000
<b>Total Masonry</b>						<u>\$23,250</u>

**STRUCTURAL STEEL**

Reinforce (E) Lintels	27	ea	at	\$500.00	=	\$13,500
Misc.	L.S.				=	\$2,000
<b>Total Steel:</b>						<u>\$15,500</u>

**CONCRETE**

Concrete	3	cy	at	\$600.00	=	\$1,800
Shotcrete	720	sf	at	\$20.00	=	\$14,400
Misc.	L.S.				=	\$2,000
<b>Total Concrete</b>						<u>\$18,200</u>

**TOTAL STRUCTURAL:**

\$124,463

\* Greater costs will apply if the second floor requires museum occupancy instead of office occupancy.

Hyytinen Engineering  
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 Phone: (775) 826-3019  
 Fax: (775) 826-3076

**Structural Opinion of Probable Structural Cost**  
**Building 1, Stewart Facility**  
**Occupancy: 1st Floor Museum, 2nd Floor Museum**

4/30/2010

**DEMOLITION**

Demo 1st Floor Underlayment	3050	sf	at	\$0.50	=	\$1,525
Demo (E) Stair	L.S.				=	\$500
<b>Total Demolition:</b>						<u>\$2,025</u>

**ROUGH CARPENTRY**

2nd Floor Framing	4000	bf	at	\$5.00	=	\$20,000
1st Floor Framing	6000	bf	at	\$5.00	=	\$30,000
Reconfigure Stair	L.S.				=	\$2,000
5/8" 2nd Floor Sheathing	1100	sf	at	\$2.25	=	\$2,475
5/8" 1st Floor Sheathing	3050	sf	at	\$2.25	=	\$6,863
5/8" Shearwall Sheathing	1400	sf	at	\$2.25	=	\$3,150
Straps	L.S.				=	\$1,000
Framing Clips	L.S.				=	\$6,000
Misc.	L.S.				=	\$4,000
<b>Total Carpentry:</b>						<u>\$75,488</u>

**MASONRY**

Epoxy Anchors	250	ea	at	\$45.00	=	\$11,250
Repoint Portions of Existing Walls	L.S.				=	\$10,000
Misc.	L.S.				=	\$2,000
<b>Total Masonry</b>						<u>\$23,250</u>

**STRUCTURAL STEEL**

Reinforce (E) Lintels	27	ea	at	\$500.00	=	\$13,500
Misc.	L.S.				=	\$2,000
<b>Total Steel:</b>						<u>\$15,500</u>

**CONCRETE**

Concrete	3	cy	at	\$600.00	=	\$1,800
Shotcrete	720	sf	at	\$20.00	=	\$14,400
Misc.	L.S.				=	\$2,000
<b>Total Concrete</b>						<u>\$18,200</u>

**TOTAL STRUCTURAL:**

\$134,463

**PETTY & ASSOCIATES, INC.**

Date: 05/03/10

**Mechanical Cost Analysis**

**Project:** Stewart Facility Bld. 1 Evaluation Report  
**Location:** Carson City, Nevada

**Job No:** 292810  
**Square Feet:** 10400 (w/Basement)

<b>HVAC</b>	Quantity	Unit	Unit Cost	Total Cost
Demo and Replace Flexible Ductwork	7000	\$/Sq Ft	6.60	\$46,200
Provisions for Outdoor Air Ventilation	4	Ea Unit	750.00	\$3,000
Check-out and Start-up of Systems	40	\$/Hr	65.00	\$2,600
Basement HVAC	3400	\$/Sq Ft	12.00	\$40,800
				\$0
				\$0
<b>Total HVAC</b>				<b>\$92,600</b>

<b>Plumbing</b>	Quantity	Unit	Unit Cost	Total Cost
ADA Lavatory Trap and Supplies Covers	1	Ea	150.00	\$150
Dom. Hot Water Recirculation System	1	LS	750.00	\$750
Replace Waste and Vent Piping	1	LS	7000.00	\$7,000
Check-out and Repair Fixtures & Devices	1	LS	500.00	\$500
				\$0
				\$0
<b>Total Plumbing</b>				<b>\$8,400</b>

<b>Fire Protection</b>	Quantity	Unit	Unit Cost	Total Cost
Fire Sprinkle All Three Floors	10400	\$/Sq Ft	4.50	\$46,800
				\$0
<b>Total Fire Protection</b>				<b>\$46,800</b>

<b>Miscellaneous</b>	Quantity	Unit	Unit Cost	Total Cost
Testing and Balancing	10400	\$/Sq Ft	1.35	\$14,040
				\$0
<b>Total Miscellaneous</b>				<b>\$14,040</b>

	Cost/SF	Total Cost
HVAC	8.90	\$92,600
Plumbing	0.81	\$8,400
Fire Protection	4.50	\$46,800
Miscellaneous	1.35	\$14,040
<b>Total Mechanical</b>	<b>15.56</b>	<b>\$161,840</b>

Electrical Construction Cost Estimate:

1. Interior Lighting Fixtures and Controls	\$12,000.00
2. New Telephone Service Entrance and cabling	\$3,000.00
3. Power Distribution Feeders and Panels	\$10,000.00
4. Exterior Lighting and Poles	\$20,000.00
5. Receptacles & Power Outlets	\$7,500.00
6. Fire Alarm & Security Systems	<u>\$20,000.00</u>
7. Subtotal	<u>\$72,500.00</u>
8. Contractor's Overhead & Profit	<u>\$18,125.00</u>
9. Total Electrical Construction Cost	<u>\$90,625.00</u>

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