



## Schematic Design Manual

### STEWART INDIAN CULTURAL CENTER

State of Nevada Public Works Board Project 11-A003

August 12, 2011



## PROJECT TEAM

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## SCOPE OF WORK

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This Schematic Design Manual contains design narrative, diagrams, supporting information, and the drawing set.

Also included in the project scope is an enhanced Schematic Design structural submittal. Due to the timing of the contract endorsement for that work it will be included as an Appendix to this manual.

Schematic Design is the only phase currently under contract. Future design and documentation phases will be performed as funding allows. Future phases may include Design Development, Contract Documents, Bidding and Negotiation, and Construction. Capital campaigning should also be considered during the design and construction processes.

## HISTORIC PRESERVATION

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The Stewart Indian School is a National Register of Historic Places property. Building 1 is currently under consideration for nomination as a National Historic Landmark. This designation is the highest designation of a historic resource given by the United States government, Department of the Interior. The nomination status is not known at the time of the publication of this document.

The deed from the federal government to the State of Nevada requires historic preservation of Building 1 and use of the building as a cultural center. All work must be done in accordance with The Secretary of the Interior's Standards for the Treatment of Historic Properties (SOIS), for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. It is anticipated that each treatment defined in SOIS will be utilized for the Stewart Indian Cultural Center.

The State Historic Preservation Office (SHPO) has been an integral part during programming and schematic design phases and has shared character-defining features of Building 1. SHPO has also offered to be a resource for input and information regarding the historical treatments for Building 1.

## HISTORY OF STEWART INDIAN SCHOOL

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The historical narrative for the Stewart Indian School was included in the Architectural Program.

## THE COLLECTION

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There are over 1,000 items in the collection. The collection is housed at various locations in and around Carson City. The narrative on the display and storage locations of the collection was included in the Architectural Program.

The collection includes photographs, furniture, basketry, bead work, clothing, trophies and other memorabilia of the Indian School. Some of the collection, such as basketry, clothing, photographs and textiles are very sensitive to light and require strict environmental control for proper preservation and display.

It is anticipated the displays in the building will be a combination of reproductions and original materials. Some photographs may be reproduced so the originals may stay in the archives. Items are expected to be displayed hanging on walls, in cases and as a part of interpretive displays.

The Schematic Design submittal has developed concepts for lighting control in exhibit areas, exhibit presentation, HVAC systems, lighting and electrical/communication systems relative to exhibiting the Collection. These components will be further developed in future phases.

## BUILDING 1 HISTORIC ELEMENTS

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The presentation of historic elements was contained in the Architectural Program. The Schematic Design submittal contains conceptual design narrative and drawings on the treatment of the historic elements in the project.

### Floor Plans

The Schematic Design Floor Plans show both the existing and proposed treatment of character defining features.

### Restrooms

The present restrooms are not as they were historically and have been updated with modern fixtures. Both restrooms will be remodeled and reconfigured to meet handicap accessibility requirements.

### Windows and Glazing

Detailed narrative on windows and glazing was included in the Architectural Program.

The window on the north side of the second floor appears to be the original double hung window with original head jamb and sill trim. It will be stabilized initially with wood filler and paint. The window will be restored with new glazing where required, reconditioned wood and reconditioned hardware. It will be painted on the exterior and interior.

The window on the south side of the 2nd floor appears to be of the period of the addition. It is assumed it is the original historic double hung window and historic trim. It will be stabilized initially with wood filler and paint. The window will be restored with new glazing where required, reconditioned wood and reconditioned hardware. It will be painted on the exterior and interior.

The wood double hung windows in the old porch (east and west sides of the building) appear to be original and date to the period when the porch was enclosed. They appear to be the original windows and trim. They will be stabilized initially with wood filler and paint. These two windows will be restored with new glazing, reconditioned wood and reconditioned hardware. They are to be painted on the exterior and interior.

The steel casement windows in the south addition (1st floor and basement) are original to the building. They were restored as a part of the weatherization project (summer of 2011). They were stripped to the base metal and repainted. Defective glazing putty was replaced. Broken glass was replaced with in kind glazing and broken hardware was replaced and/or repaired.

The present wood windows in the original portion of the building appear to have much of the original frame and trim in place, but the sash is non-historic. The drawings contain information on the restoration and replacement of the individual components of these windows.

Control of natural light and temperature into the south exhibit spaces will be accomplished with interior "storm" windows with insulated glazing, or opaque shutters/panels. These interior windows or panels will be required to eliminate air infiltration through the historic windows and to solve environmental issues. They may also include thermal insulation. The panels have been shown in the drawings and will be further developed in future phases. According to historic photos the original (interior) window coverings were venation blinds. Every attempt will be made to have it look from the exterior as original

Notes regarding treatment of existing windows and glazing are included on the drawings.

## Doors

The transoms and trim of both the exterior wood doors appears to be historic. These will be restored. Neither of the of the exterior doors are historic, so each exterior door is being recreated with a wood, trim and glazing to match the assumed appearance and configuration from the Period of Significance.

Some of the interior doors appear to be historic and will be restored. Non-historic doors will be recreated to match assumed appearance and configuration from the Period of Significance.

Notes regarding each door is included on the drawings.

## Flooring

Detailed narrative on flooring was included in the Architectural Program.

Historic flooring has not been fully identified. The entire ground floor is covered with masonite sheathing which is covering any historic flooring that may exist.

Notes regarding floor finishes are included in the drawings. This is a component that will require more detailed investigation and discussion in future phases.

## Wall Finishes

Notes regarding wall finishes are included in the drawings. This is a component that will require more detailed investigation and discussion in future phases.

## Ceiling Finishes

Notes regarding ceiling finishes are included in the drawings. This is a component that will require more detailed investigation and discussion in future phases.

## Security Vaults

The security vaults will be restored to their original condition.

The security vault in the basement is closed. Its contents are not known.

## Stairs

The Schematic Design submittal includes reconstructing the stairs between the ground floor and the second floor to their historic configuration. The submittal also includes re-establishing the interior stairs from the ground floor to the basement.

## Trim/Finish Carpentry

The interior trim is still being evaluated for presence of historic fabric.

Notes regarding trim and finish carpentry are included in the drawings. This is a component that will require more detailed investigation and discussion in future phases.

## Roofing

There are no plans to work on the roof at the time of the Schematic design submittal. The roofing was replaced under a different contract in 2007.

## Masonry & Pointing

The majority of the exterior walls' historic stone is still intact. SHPO has requested some of the pointing done during the 2008 structural upgrade project that is darker in color be repointed.

This work will be detailed in future phases.

## Fireplace

As a part of an earlier seismic retrofit the masonry fireplace and chimney in the once Superintendent's Office was filled in with steel, concrete, and brick. The removal of the brick in the fireplace will be evaluated in the Enhanced Structural Schematic Design submittal to see if it can be removed and another structural reinforcing concept used so the fireplace can be designed closer to its original appearance.

## Front Porch

The front porch is shown on the Schematic Design drawings.

## BUILDING 1 CURRENT CONDITIONS

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### Site Development

Site development still needs to be researched. The Schematic Design submittal does not contain site work, other than the front porch and utility work.

Accessibility throughout the site needs to be reviewed with SPWB, SHPO and NIC relative to programs and code requirements.

All site work will need to be coordinated with the Cultural Landscape Report prepared by Wyss Associates, Inc. dated August 31, 2009 and must be reviewed by SHPO for both state and federal compliance.

### Architecture

Architectural work is indicated on the architectural drawings.

### Structural

The building is a one and a half-story building with a partial basement. The existing roof and floors are wood framed. The exterior bearing walls are of unreinforced stone masonry construction. Interior bearing conditions are a combination of unreinforced stone masonry walls, wood stud walls, and wood post and beam systems.

In 2008 a partial structural repair, strengthening, and seismic retrofit project was completed on this building. The focus of this project was to upgrade just the roof structure using International Existing Building Code guidelines for unreinforced masonry wall buildings. The specific items addressed included the following:

- Strengthen the roof diaphragm by adding plywood sheathing over the existing sheathing and by adding straps to resist chord and drag forces.
- Strengthen the roof framing for the support of gravity loads.
- 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.

## Mechanical

Currently there are four existing split systems installed with flexible type ductwork. The four split systems will be completely removed from the building and returned to the owner. 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. All existing supply and return grilles will be removed and replaced with grilles that will more closely maintain the historical appearance of the ceiling.

The existing mechanical system was described in the Architectural Program.

## Plumbing

The existing plumbing systems were described in the Architectural Program.

It is anticipated all plumbing fixtures and some of the piping will be removed and replaced as needed.

## Fire Protection

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

## Building Power

### 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 partially completed, having only minimal 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 partially 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.

## FACILITY REQUIREMENTS

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### Functional Requirements

The stakeholders (NIC, SHPO, and SPWB) have identified the following components as a part of the Cultural Center:

- Interactive Displays (actual/virtual)
- Static Displays
- Archives (paper/digital)
- Retail space
- Reception area
- Archives and curatorial areas.
- Computer lab

### Space Planning

Primary public functions will take place on the ground floor level. The basement will have select public activities and will contain some storage. The second floor will have administrative functions and most of the storage and possible archival research area.

The design of the building as a cultural center, as opposed to a museum, will inform the architectural design. The north portion of the ground floor will be designed for activities and interpretive exhibits. The north portion of the ground floor will also include some restoration of the entry spaces to provide a feeling for the historic nature of the administrative spaces. The program for these areas includes storytelling, computer research and interactive displays. The south rooms of the ground floor will accommodate static displays of artifacts and memorabilia. These rooms will have more sophisticated temperature and humidity controls, dust control, security and lighting.

The middle portion of the ground floor will remain largely as it currently exists in the east side to provide restrooms. It is anticipated the stairs will be reversed to their original configuration so they rise from south to north. The rooms on the west will house a computer lab and kitchenette. This area will be the transition between the interpretive north portion and the adapted south portion.

The south portion of the ground floor will be returned to the Novake (student store) era. The wall in the Hallway will be revised to add the windows that existed during the Novake era. The Novake era has been established as 1968 through 1980.

The basement is anticipated to house periodic workshops and crafts. It will also house storage for less sensitive materials. A ramp or other alternatives may be required to allow public access to the basement from the exterior. It is hoped the interior stairs will connect the ground floor to the basement.

The second floor is not anticipated to be open to the general public. It will be used by cultural center staff and select researchers. It will have administrative and archive spaces, in addition to storage.

A small material lift was discussed during design workshops. The location and size can be found in the Schematic Design drawings.

### Exhibit Planning

This section includes a conceptual level of information regarding exhibit planning. A number of areas must be carefully considered when designing museum work areas and exhibit spaces. Many details need to be developed for each of the bulleted items noted below.

Of utmost concern in any museum design is the security and safety of artifacts and collections housed or exhibited at the facility. Security systems, exhibit cases and components, lighting and storage must be considered in future design phases. Also museums depend on fund raising events, grants and donations to maintain collections and it is important to include a Donor Wall and programming space for lectures, fund raising events and exhibit openings.

Environmental design that provides the necessary light levels, mechanical systems and other criteria is critical. Temperature control and shielding the spaces for direct light are extremely important. It is necessary to match federal specifications for environmental controls as some of the collection is federal ownership. It is anticipated the BIA collection will require the highest level of exhibit standards. Museum requirements and guidelines for the BIA collection are available online at [museum.doi.gov](http://museum.doi.gov).

Components that will be considered include:

Functional Requirements

- Type of exhibit space
- Admissions Desk
- Donor Wall
- Acoustic Ceiling material
- Portable modular walls units
- Hard surface floors - carpeting is not appropriate in exhibit areas
- Window coverings that provide screening of solar gain
- Information and Directional Signage
- Flat screen monitors
- Portable exhibit cases
- Sheetrock walls with a backer board cantilevered over the base board
- Banner brackets on interior and exterior
- Exterior signage
- Storage space for exhibit components, cases, platforms, portable walls, light fixtures and carts

#### Building Systems

- Appropriate fire suppression
- Electronic flood alarms
- Temperature controls
- Exhibit track lighting
- Electrical floor outlets
- Ceiling mounted work and security lighting
- Public address system and speaker system
- Security systems alarms and cameras including offsite monitoring

#### Site Elements

- Loading Dock in nonpublic area for shipping and receiving
- Highway Signage

#### Collections Space

- Filtered light in accordance with either open or closed storage units
- Fire suppression
- Double doors or extra wide doors to accommodate artifact cabinets and or art storage units
- Security level depending on collections

#### Gift Shop

- Extension of Exhibit Space

The highest priority for furniture display will be to display the furniture used in the building. This includes the historic switchboard. The second priority is to display furniture used at Stewart, but not necessarily in Building 1.

Both permanent displays and rotating exhibits are anticipated. Travelling exhibits are also a possibility. Environmental controls will need to accommodate the widest possible range of potential travelling exhibits. The displays will be a combination of reproductions and original pieces.

The display of textiles will rotate pieces from the collection.

Walls will need to be designed for flexible hanging. Plywood sheathing may be installed under new plaster wall surfaces to allow for the widest range of hanging displays. Historic walls that will not be altered may have railing systems added to them so their historic surfaces are not compromised.

Walls also need to be designed for easy painting of exhibits. A reveal at the base and top of wall allows for painting of display surfaces without masking inside corners.

The second floor area will be primarily staff work areas. Adequate ventilation, HVAC and plumbing needs to be provided. Room finishes need to respond to the exhibit preparation and storage uses. The amount of space available in the building for storage and archiving needs to be determined. There are concerns about storing valuable pieces of the collection in the basement due to potential flooding and a damp environment. The ground floor needs to have exhibit and public interaction as its primary focus. Storage and archiving will be optimized on the second floor. Some storage may also occur in Building 3.

## Structural

The building requires additional structural repairs, strengthening, and seismic retrofit measures prior to being re-occupied. These measures include the following:

- Anchor the masonry walls to the 1<sup>st</sup> floor diaphragm: The floor diaphragm consists of the floor sheathing and framing. During an earthquake, the floor diaphragm provides lateral support for walls which run perpendicular to the direction of ground movement, preventing the walls from pulling away from the building and collapsing. The existing connections between the walls and floor diaphragm are not sufficient to resist the seismic loads. To strengthen this connection, new epoxy anchors will be placed into the masonry walls below the floor level. These epoxy anchors would act in tension during an earthquake and would be attached to the floor framing with steel hardware. This will provide a direct connection between the wall and the diaphragm.
- Review and strengthen the 1<sup>st</sup> floor diaphragm: The floor diaphragm must have adequate strength transfer the load it collects from the walls it is bracing out to the shearwalls. Further review is required to determine if the existing floor sheathing provides sufficient strength. If it is found that more capacity is required, new plywood sheathing will be placed over the existing floor sheathing.
- Strengthen and provide a continuous load path for 1<sup>st</sup> floor diaphragm forces to be transferred into the shearwalls: Masonry walls which run parallel to the direction of seismic ground movement act as shearwalls. These brace the floor diaphragms and transfer the seismic forces into the ground. The existing connections between the floor diaphragm and the wall are not sufficient to resist these shear forces. The same epoxy anchors placed to brace the wall against pulling away from the building would be detailed to also act in shear for an earthquake acting parallel to the wall. Wood blocking would be added against the wall under the floor to engage the epoxy anchors in this direction.
- Strengthen and provide a continuous load path for 2<sup>nd</sup> floor diaphragm forces to be transferred into shear walls: Similar to the 1<sup>st</sup> floor diaphragm, the seismic detailing at the second floor level needs to be strengthened to resist seismic forces.
- Repair existing floor framing which has been notched or otherwise damaged: In past reviews we've discovered locations where existing 1<sup>st</sup> floor joists have been notched or cut. These cuts weaken the joist and will need to be strengthened by nailing a new framing member to the cut joist.
- Strengthen 1<sup>st</sup> floor framing to support the high floor loads required for museum type occupancy: The original use of this building was for an office type occupancy. The proposed cultural center more closely resembles a museum type occupancy which requires a higher floor live load. At this time, we have not performed a full review of the capacity of the existing floor framing but it is anticipated that some strengthening will be required to support the higher loads. This strengthening will likely involve some combination of the following measures:

- o Doubling up floor joists and beams.
  - o Adding new columns and footings under existing floor beams.
  - o Adding new lines of support beams and footings under existing floor joists.
- Review and strengthen second floor framing to be able to support the loads mandated for the final occupancy decided upon for this space: We have not yet performed a full review of the capacity of the floor framing at the 2<sup>nd</sup> floor level. Regardless of final occupancy, it is anticipated that at least some strengthening of the floor structure will be required. The extent of repairs will depend on occupancy type. Office occupancy will require the least strengthening and museum or light storage occupancy will require the greatest. This strengthening will probably consist of the following:
    - o Doubling up some floor joists.
    - o Strengthening or adding new beam framing.
    - o Adding new columns.
    - o Strengthening existing walls to bear loads from the 2<sup>nd</sup> floor.

As much as possible new framing members would occur in the interstitial space or inside walls to minimize any impact on the occupied space.

- Review and strengthen existing shearwalls where required: Shearwalls transfer seismic loads from the diaphragms to the ground and are necessary for the building's stability during an earthquake. The existing masonry and wood framed walls will be analyzed to determine where strengthening is required. Wood walls which require shearwall strengthening will receive plywood sheathing. Masonry walls which require strengthening will receive a layer of shotcrete. This type of work would be designed with the intent of minimizing the impact on historic features of the building.
- Review wall settlement and provide reinforcing and patches at cracks in masonry: Previous reviews of this building have discovered cracks in the masonry walls. It is believed that most of these cracks were patched during the previous phase of construction. Wall settlement will be re-assessed to determine if any additional patches or repairs are needed.
- Review stone masonry lintels for ways to reinforce as needed: As noted above, cracks in the masonry were repaired in the previous phase of construction. This included cracks in some of the masonry lintels. However, where unreinforced stone masonry lintels support floor and roof loads, they may still need additional reinforcing. The lintels will be reviewed and, where strengthening is required, new bent plate steel frames will be added in the window opening.
- Review the existing ceiling structure: The existing ceiling structure will be reviewed. It is anticipated that some strengthening will be required to support mechanical equipment in the attic. This work would be designed to occur above the ceiling to minimize the impact on historic ceiling features.

#### Structural Historic and Programming Requirements

In addition to strengthening and repair, there are several modifications which have been proposed in order to re-establish historic features of the building and to accommodate the function of the building as a cultural center. These are to:

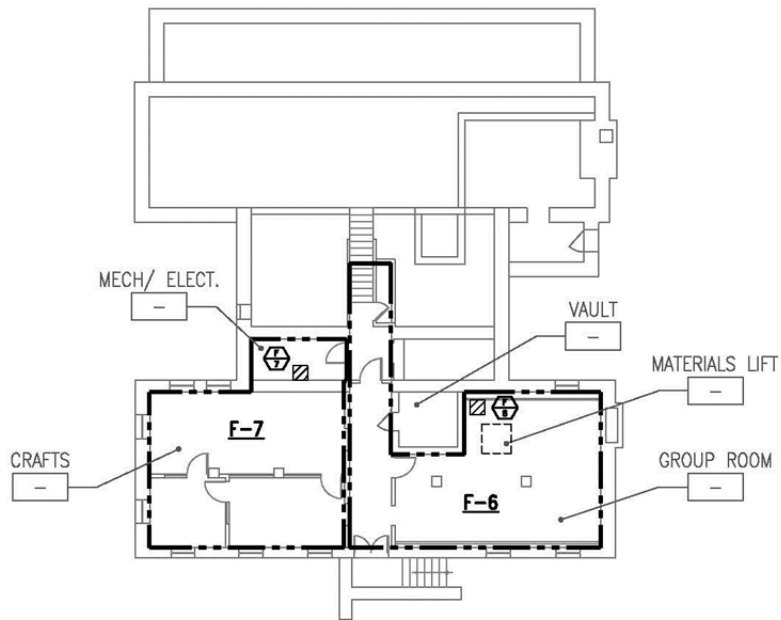
- Remove the existing stairs and reconstruct them in their historic configuration: This is likely to require some strengthening and reconfiguration of the floor framing at both levels around the stair.

- Construct a new front porch roof and supporting columns in the configuration of the original historic porch: From the historic photographs, it appears that the original porch had a wood framed roof with stone masonry columns. The new porch would have a wood framed roof with wood or steel columns. To match the historic appearance, stone masonry would be placed around the columns as a veneer but would not act as a structural element.
- Review how the existing chimney reinforcing might be revised to better approximate the appearance of the original fireplace: There is currently a layer of brick over the fireplace opening and there is solid concrete inside. It may be an option to remove just the layer of brick to provide a better sense of depth into the fireplace.
- Possibly add a materials lift to facilitate moving portions of the exhibit between the levels of the building: The addition of a materials lift will require new openings through the floors with new floor framing at each.
- Possibly remove the existing first floor level columns in the southeast wing to open up the floor space for variable exhibit configurations: From the historic plans, it appears that these columns were added to replace the function of bearing walls which were removed during a remodel. It is assumed that these columns frame into a beam which supports the attic floor framing above. Further review is required but it is likely that removing these columns would require that their structural function be replaced. This would entail a new heavier beam or beams to support the attic and probably some new columns down through the first floor to the basement. New columns could be located adjacent to masonry walls or inside wood walls. New beam framing could occur in the interstitial space.
- Reconstruct historic wall and windows at the east side of the proposed Rotating Exhibit / Demonstration room: There is currently a wall with a door opening in this location. It is proposed to re-establish the historic window opening configuration in this wall. The current structural function of this wall is unknown so it will be reviewed. If this wall is acting as a bearing wall or if it contains columns, the new wall structure will need to support any loads which may be present.

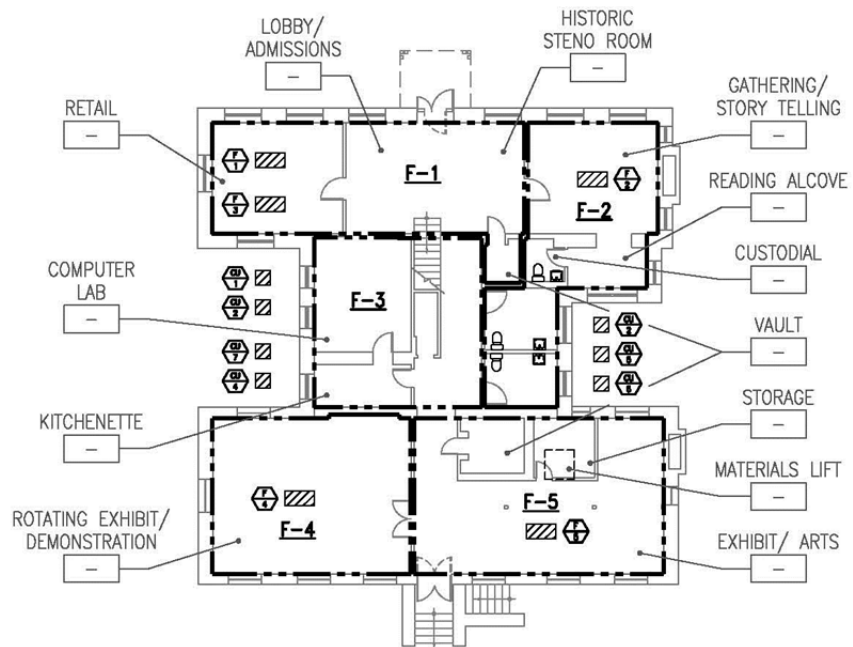
## Mechanical

The new design will require the installation of seven new split systems consisting of a gas fired furnace with a cooling coil and a condensing unit. The basement requires two zones due to clearance issues across the corridor, and dedicated space will need to be determined for the installation of the vertical furnace sections. The first floor non-museum areas will be served by three units, and the museum areas will be served by two units. Refer to proposed zoning plans on following page. All five systems will have horizontal hung furnaces installed in the first floor ceiling space. Since the Bureau of Indian Affairs requires a temperature range of 70°F to 74°F and a relative humidity range of 35% to 65% to house their collections the two units serving museum areas will have duct distribution style humidifiers with duct mounted humidity sensors. In order to maintain these humidity levels the spaces will need to be sealed, as well as separated from the non-museum portion of the building. The second level storage room, the second level Research room, and the Exhibit/Art room are not properly separated from the non-museum portions of the building making it improbable that humidity levels will be maintained. Due to the re-use of existing glass there will also be a potential for condensate production on the interior of the windows in areas being humidified.

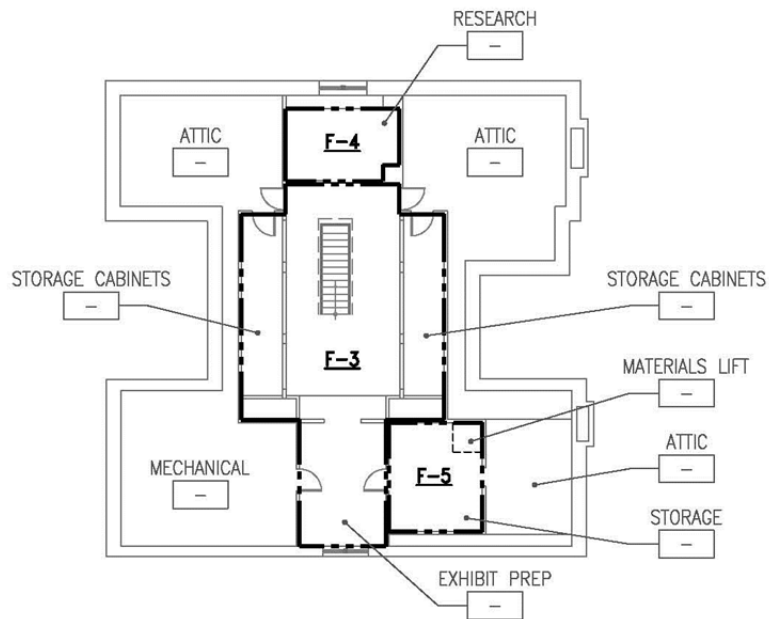
In order to comply with the 2006 Uniform Mechanical Code provisions will need to be made for mechanical ventilation and relief in all spaces. This will be accomplished using louvers and exhaust fans. The louvers will be located in the gabled portion of the roof and inline exhaust fans will be utilized to minimize the changes in appearance to the building. The inline fans will also be utilized for bathroom exhaust.



PROPOSED BASEMENT FLOOR ZONING PLAN



PROPOSED GROUND FLOOR ZONING PLAN



PROPOSED SECOND FLOOR ZONING PLAN

## Plumbing

Currently there are three restrooms each with one tank type toilet and one wall hung lavatory. The toilet and the lavatory in the Unisex bathroom will be removed completely and a mop sink will be added for janitorial purposes. A stainless steel single bowl ADA sink will be installed in the kitchen area, and a stainless steel single bowl sink will be added in the Research room on the second floor. The remaining plumbing fixtures will require inspection and repairs as necessary to obtain proper operation, and protective covers will need to be installed on the traps and supplies of the wall hung lavatories.

The existing Bradford White model MII30R6DS13 4500 watt electric water heater will remain. The domestic cold water and hot water systems will need to be modified to accommodate the new fixtures and re-routed to avoid crossing the basement corridor. A recirculation loop and pump will be added to comply with the 2006 UPC.

All ABS waste and vent piping above the basement finished floor line will need to be removed and replaced with proper material in order to comply with Section 7.4.2 of the January 2009 edition of the Nevada State Public Works Board Adopted Standards. The routing of the waste and vent piping will also need to be modified to avoid crossing the basement corridor.

## Fire Protection

Provide a full coverage, fire sprinkler system throughout the facility in accordance with NFPA 13 and the Nevada State Fire Marshal. The fire sprinkler system will need to be compatible with the function of a museum.

## Electrical Codes and Applicable Standards

- National Electric Code (NEC) 2005
- International Fire Code (IFC) 2006
- National Fire Codes (NFPA Standards) as referenced in the 2006 International Fire Code
- ASHRAE/IESNA Standards 90.1, 2004
- International Building Code (IBC) 2006
- National Electric Safety Code
- IEEE Recommended Practice Color Book Series published by the Institute of Electrical and Electronics Engineers
- Nevada State Fire Marshal's Regulations
- Americans with Disabilities Act
- The Secretary of the Interiors Standard for Rehabilitation
- Local Codes and Ordinances as applicable

## Site Electrical

Electrical Service to the Stewart Indian Cultural Center will be provided by the existing Stewart Indian Campus electrical distribution system. The proposed underground Capital Improvements Project at Stewart to replace the overhead distribution to an underground distribution system has been cancelled due to funding restraints. It is assumed that the existing customer metering equipment will be installed as part of this project and the metering equipment at the NV Energies utility transformer location will remain unchanged, as this arrangement is typical of all other buildings on this campus.

The existing overhead service located to the west of the building is 120/ 240 volts, single phase. The existing 200 amp electrical service panel also located on the center west wall of the building will be upgraded to a NEMA 3R, Top & Bottom Feed, 400 amp distribution panel with customer sub-metering, bottom feed bus, main disconnect and

distribution breakers to feed an existing 100 amp subpanel located in the basement room #005, a 100 amp subpanel located in the attic and new a 200 amp subpanel also located in Rm. #005 to accommodate the additional lighting and mechanical load required for the museum. Existing and new electrical loads will be distributed among the three panels to reduce the load on the existing basement subpanel to less than 80% of the rated feeder and provide a cost effective use of existing branch circuits.

The short circuit rating of the switchboard and all components shall be evaluated based on the available fault current values of the existing distribution system at the point of service to this project.

The preliminary load calculations for the project yields an NEC demand load (including 25% spare) of 74.9 kW. See the Preliminary Load Calculations. Based on this calculation the Main Distribution/Panel Board will be 400 amp, 120/240 volt, 1 phase, 3 wire.

### Receptacles

Additional receptacles required in each space will be installed flush with the finished wall surface where traditional stud construction exists. Receptacles installed along the perimeter of the granite walls will require the installation of in-grade receptacles with finish that matches the historical period of significance of the building space.

Receptacles required in display areas will require placement to provide maximum flexibility for the rotation of the museum collection.

Existing receptacles that do not meet The Secretary of the Interiors Standard for Rehabilitation or current code requirements will be removed and installed as described above.

### Grounding

The grounding system will be designed in compliance with NEC 250. The grounding electrode system for the newly installed Main Distribution Panel Boards will consist of an Under Ground, structural steel, and cold-water electrodes. All electrodes will be joined together at the building main electrical service. All feeders and branch circuits will contain insulated, copper, equipment ground conductors.

### Lighting

Interior lighting will be designed to meet requirements for Controllability and Minimum Energy Performance of ASHRAE 90.1, 2004. A high performance, energy saving 32 watt; T8, 80 CRI minimum, 4100 degree Kelvin lamps with energy efficient electronic ballasts, or T5/T5HO, 82 CRI minimum, 4100 degree Kelvin lamps, with energy efficient electronic ballasts lamping will be used as general lighting in most areas. Track lighting with movable lamp heads utilizing halogen PAR lamps with various beam widths will be used for all display lighting to allow for maximum flexibility for the rotation of the museum collection.

IESNA recommended footcandle levels will be used as the baseline design standard along with The Secretary of the Interiors Standard for Rehabilitation.

### Lighting Criteria for Rooms

Entry, Lobby, Public Circulation Spaces (Rm#001, 002, 006, 101, 102, 103, 112, 116, 210):

Lighting will need to be able to accommodate displays, circulation, and casual seating. Lighting in these spaces will reflect a level of higher finish and design. It is anticipated that a combination of downlights, suspended

decorative and linear type fixtures will be used in these spaces along with accent lighting (track and downlights) to create a comfortable and dramatic environment.

Occupancy sensors may be considered to prevent the fixtures from being left on for an extended period of time.

Design Footcandle Levels:

- Lobby: 10- 30 Fc horizontal maintained; 3 - 5 FC vertical maintained; general.
- Circulation: 5 - 10 Fc horizontal maintained.
- Retail: 40 - 50 Fc

Computer Lab and Research (Rm#104,201):

Linear indirect type of fixtures will be used in areas of high computer usage and other similar areas where veiling reflections are most disruptive.

Design Footcandle Levels: 35 - 50 Fc

Kitchenette (Rm#105):

Fluorescent surface mount wrapped lenses fixtures or compact fluorescent ceiling mount fixtures with lenses and finishes to match the period of significance will be used.

Design Footcandle Levels: 40 - 50 Fc

Exhibit Spaces (Rm#106,108,117):

Each exhibit space is unique and requiring various types of lighting. Incandescent will be utilized within these spaces to provide contrast of surrounding areas in conjunction with fluorescent lighting. Each space will be reviewed independently and will vary in lighting styles, illumination levels, and types of lighting utilized.

Design Footcandle Levels: Depending on particular task.

Storage Spaces and Vaults (Rm#003,107,109, 113,203,204,206,207,208,209):

Fluorescent surface mount wrapped lenses fixtures or compact fluorescent ceiling mount fixtures with glass lenses will be used.

Design Footcandle Levels: 10 - 20 Fc horizontal maintained, depending on particular task.

Men's & Women's Restroom (Rm#110,111):

Fluorescent lighting will be used for general illumination. Depending upon the ceiling configuration supplemental lighting at the mirrors/counters may be supplied.

Design Footcandle Levels: 15 - 25 Fc horizontal maintained.

Custodial, Mechanical/ Electrical Rooms and Attic Spaces with Mechanical Equipment (Rm#005,114,202):

Fluorescent strip light fixtures will be used, surface mounted or chain hung, depending upon the presence of a ceiling.

Design Footcandle Levels: 20 - 30 Fc horizontal maintained, depending on particular task.

Exhibit Prep (Rm#205):

Fluorescent strip light fixtures will be used, surface mounted or chain hung, depending upon the presence of a ceiling

Design Footcandle Levels: 30 - 40 Fc horizontal or vertical maintained, depending on task.

## Exterior Lighting

### Front Porch:

The front porch will be extended the length of the north face of the building to match the original patio area and will be illuminated utilizing ceiling mount outdoor lighting fixtures arranged along the center of the patio.

Design Footcandle Levels: 2 - 5 Fc horizontal maintained.

### Basement Entry:

The basement entry will be illuminated with a glass lens wall mount sconce.

Design Footcandle Levels: 2 - 5 Fc horizontal maintained.

### Parking Lot Walkway:

The walkway to the main park lot located to the east of Building 1 will be illuminated with full cut-off, dark sky compliant bollard fixtures.

Design Footcandle Levels: 2 - 5 Fc horizontal maintained.

## Lighting Controls

Lighting controls for the Gathering/ Storytelling, Reading Alcove, Rotating Exhibit/Demonstration, and exhibit/ Arts areas will consist of local and remote dimming switches. Additional lighting controls will utilize wall mounted or ceiling mounted occupancy sensor control to prevent the fixtures from being left on for an extended period of time.

All other spaces will utilize manual on/off controls. A lighting control panel with all lighting circuits routed through for energy management and dimming shall be considered.

## Museum Exhibit Lighting

Exhibit lighting will be carefully chosen to provide flexibility, minimize ultraviolet (UV) radiation and accommodate UV filtering to reduce damage to historical museum pieces.

## Egress Lighting, Exit Signage and Night Lighting

Egress lighting levels will be designed in accordance with International Fire Code to provide 1 foot-candle average along the path of egress in an emergency. Emergency battery packs will be installed in fluorescent fixtures where required. Twin head type battery packs will be utilized if/as requested by owner. Currently there is no need/code violations noted that require additional emergency lighting. If requested the following specifications will apply:

- Exit signs will be LED type for long-life and low maintenance.
- Egress lighting will be provided by integral emergency battery packs in selected fluorescent fixtures and by twin head battery packs in utility areas.
- Both egress lighting and exit sign lighting will be automatically transferred to the emergency source in the event of a utility power outage, then re-transferred back to normal power when the utility power is restored.
- Night light circuiting will be considered to provide additional security lighting and egress lighting.

## Fire Alarm

The Stewart Indian Cultural Center will have a Class B, supervised, 24-volt DC-powered, addressable fire alarm system. All fire alarm wiring shall be in conduit and installed with minimum impact to the historical finishes throughout the building. A wireless sensor system shall be considered to minimize additional cable installation.

The system will consist of a flush mounted main FAAP (Fire Alarm Annunciator Panel) near the front entrance. It mirrors the functions of the FACP (Fire Alarm Control Panel) located within the building.

The building will have area smoke detection, duct smoke detectors, smoke detectors, heat detectors, flow and tamper switches for fire sprinklers, audio/visual (Horn/Strobe) notification appliances will be located throughout the building based on Code requirements.

The fire alarm system will have a 60 hour standby and 15 minute alarm capability, and will be connected to the building generator system which exceeds NFPA 72.

## Security System

The security system shall consist of an Access Control System, motion detection and in areas with points of entry and paths of egress Motion detection shall be installed at minimum in Room# 001, 103, 104, 106, 108, 112, 116, 201 and 205. In addition door tamper switches will be installed at the front, rear and basement entryways. Detection specific to museum displays will not be considered for this project unless requested by the owner.

All wiring shall be contained in conduit and installed with minimum impact to the historical finishes throughout the building.

## Telephone System/Communications

Codes and Standards:

- ANSI/NFPA-70, 2002 -- National Electrical Code (NEC)
- Underwriter's Laboratories, Inc. (UL)
- Federal Communications Commission (FCC)
- Americans with Disabilities Act (ADA)
- ANSI/TIA/EIA-526 – Standard Test Procedures for Fiber Optic Systems (Including Addendum 7 and 14A for Optical Power Loss Measurements of Multi-Mode and Single-Mode Fiber Cable).
- ANSI/TIA/EIA-568-B.1 -- Commercial Building Telecommunications Cabling Standard. Part 1: General Requirements.
- ANSI/TIA/EIA-568-B.2 -- Commercial Building Telecommunications Cabling Standard. Part 2: Balanced Twisted-Pair Cabling Components.
- ANSI/TIA/EIA-568-B.2-1 -- Commercial Building Telecommunications Cabling Standard. Part 2: Balanced Twisted-Pair Cabling Components. Addendum 1 – Transmission Performance Specifications for 4-pair 100 Ohm Category Cabling.
- TIA/EIA-658-B.2-10 – Draft Standard - Transmission Performance Specifications for 4-pair 100 Ohm Category 6 Augmented Cabling.
- ANSI/TIA/EIA-568-B.3 – Optical Fiber Cabling Components Standard.
- ANSI/TIA/EIA-568-B.3-1 – Optical Fiber Cabling Components Standard. Addendum 1 – Additional Transmission Performance Specifications for 50/125 µm Optical Fiber Cables.
- ANSI/TIA/EIA-569-A -- Commercial Building Standard for Telecommunications Pathways and Spaces (Including Addendums 1 – 6).

- ANSI/TIA/EIA-606-A -- The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- ANSI/TIA/EIA-607 -- Commercial Building Grounding and Bonding Requirements for Telecommunications.
- ANSI/TIA/EIA-758 -- Customer-Owned Outside Plant Telecommunications Cabling Standard (Including Addendum 1).

### Telecommunications Overview

An underground raceway system consisting of conduit and pull boxes will connect Building 1 to the existing site telecommunication system at Building 89. Data services will be provided to the new building via copper cabling. Telephone services will be provided via copper from Building 89.

### Premise Telecommunications Infrastructure

Data and voice services will be distributed throughout the building via an infrastructure consisting of a telecommunications rack, located in Mech/Elec Rm#202, and a structured cabling system. The telecommunications rack will be the central distribution point for telecommunications cabling throughout the building. A structured Category 6 cabling system will be installed from the telecommunications rack to the work areas (computer lab, research, etc.).

### Type and Number of Communication Outlets

Typical telecommunication outlets will consist of a 4 port faceplate with plastic label holders. A minimum of two (2) Category 6 data drops and one (1) Category 6 voice drops will be provided at each outlet. Blanks will be installed in the unused spaces. An additional voice drop or coaxial cable input may be optional at owner determined locations.

Outlets installed along the perimeter of the granite walls will require the installation of ingrade receptacles with finish that matches the historical period of significance of the building space. Due to the limited number of locations requiring telecommunications cabling, the system design will include the installation of all cabling in conduit back to the telecommunications rack in place of cable tray. A 1" conduit will be run from each wall outlet box to the telecommunications rack located in room #202.

### CODE SUMMARY

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

- 2006 International Building Code
- 2006 International Existing Building Code
- 2005 National Electrical 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. For example, the International Existing Building Code will provide relief from the requirements of the International Building Code. However, only one code may be used for precedence, not both. Ultimately, the scope of work will help determine the appropriate codes to use. A Schematic Design code analysis will be completed during that phase.

Upgrades necessary to meet current codes encompass the following areas; life safety, ADA accessibility, and building systems.

ADA accessibility needs to be provided at the building entrance with the use of appropriate hardware. Also, restrooms need to be fully upgraded to meet ADA accessibility codes. The restrooms were 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. ADA accessibility is not anticipated on the interior of the building from the ground floor to the second floor or to the basement. An accessible exterior ramp may be required to access the public spaces in the basement.

Exiting distances, widths and configurations appear to be adequate on all floors based on anticipated occupant loads. There may be a problem with exiting from the basement if occupant load requirements exceed the existing door and proposed stair plans.

Fire sprinklers will likely be required throughout the building. This will be evaluated in Schematic Design. Should fire sprinklers be required they will be designed in the least intrusive manner possible. The design of the fire sprinkler system will be reviewed in detail with the stakeholders.

It has not been determined if SPWB will require conformance with the model energy code. This will be discussed with SPWB during Design Development.

## **COST STATEMENT**

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The Architectural Program Cost Statement has a total cost of \$1,632,172. The detailed cost statement is included in the Appendix.

The Cost Statement is intended to include all building construction. Fixtures, furniture, exhibits, and equipment are not included. The stakeholders need to discuss funding of FF&E items, as this may have an impact on exhibits.

## **BUDGET AND FUNDING**

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The stakeholders need to discuss the relation of the Cost Statement to future project funding and phasing.

## **APPENDIX**

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The Appendix includes the detailed Cost Statements and the Enhanced Schematic Design Structural Engineering cost statement. Also found in the appendix is a resource list issued by the Department of Cultural Affairs.

## **DIVISION 1 – GENERAL REQUIREMENTS**

### **01100 Summary**

### **01230 Alternates**

1. Project may include alternates.

### **01351 Special Procedures for Historic Treatment**

2. Storage, temporary protection and procedures.

### **01731 Cutting and Patching**

### **01732 Selective Demolition**

1. Demolition and removal of selected portions of buildings and site elements.

## **DIVISION 2 – SITEWORK**

### **02010 Subsurface Conditions**

1. Project team will determine the need for a geotechnical report for possible site improvements.

### **02220 Excavating, Filling & Grading**

1. Trenching and backfilling for underground utilities and surface structures.
2. Prepare subgrades for walks, pavements, etc.
3. Dust control.
4. Fill Material - shall meet Class E backfill per Standard Specifications for Public Works Construction – “ORANGE” book.
5. Back Fill - shall meet Class A backfill per “ORANGE” book.
6. Aggregate Base - shall meet Type 2 - Class B per “ORANGE” book.

### **02300 Earthwork**

1. Excavating, filling, and backfilling, compaction and grading.

### **02510 Water Distribution**

1. Utility service, domestic and fire-protection water piping, specialties and valves.

### **02530 Sanitary Sewerage**

1. Sanitary sewerage and underground structures outside the building.

### **02650 Portland Cement Concrete Paving**

1. Final subgrade prep, soil sterilization and site concrete.
2. Concrete shall be a minimum 4,000 psi strength, with fiber mesh added.

## **DIVISION 3 – CONCRETE**

### **03330 Cast-in-Place Concrete**

1. Cast-in-place concrete, including formwork and reinforcement.

## **DIVISION 4 – MASONRY**

### **04900 Masonry Restoration and Cleaning**

**04902 Stone Restoration and Cleaning**

1. Historic and non-historic applications for stone.
2. Consider repointing of historic mortar.

**DIVISION 5 – METALS**

**05100 Structural Steel**

1. Structural steel framing including columns and beams.

**05500 Metal Fabrications**

1. Miscellaneous fabrications including railings, etc.

**05910 Historic Treatment of Ornamental Metals**

1. Preservation treatment of historic ornamental metal.
2. Specific historic ornamental metals have not been determined. This section may not be required.

**DIVISION 6 – WOOD AND PLASTICS**

**06100 Rough Carpentry**

1. Wood framing, furring, nailers, blocking and backing.

**06160 Sheathing**

1. Roof and wall sheathing (including gypsum sheathing); subflooring, underlayment, and weather-resistive barriers.

**06201 Exterior Finish Carpentry**

1. Exposed and nonstructural.
2. Possibly includes custom wood windows.

**06202 Interior Finish Carpentry**

1. Exposed and nonstructural.

**06401 Exterior Architectural Woodwork**

1. Trim, door frames and ornamental items.

**06402 Interior Architectural Woodwork**

1. Trim, cabinets, tops, paneling, stairs, railings, benches, shelving and ornamental items.

**DIVISION 7 – THERMAL AND MOISTURE PROTECTION**

**07141 Cold Fluid-Applied Waterproofing**

1. Polyurethane, polyester and latex-rubber waterproofing.

**07190 Water Repellants**

1. Water repellant at all exterior stone and concrete surfaces.

**07210 Building Insulation**

1. Sound Attenuation: Unlaced sound attenuation batts, 3 1/2" thick.
4. Roof: Fiberglass batts, minimum R-30.

5. Walls: Insulation locations to be determined. Some historic locations may remain uninsulated.

**07900 Joint Sealants**

1. Interior sealant: Latex Sealant.
1. Exterior sealant: Silicone sealant.

**DIVISION 8 – DOORS AND WINDOWS**

**08212 Stile and Rail Wood Doors**

1. Wood doors to match historic components.

**08311 Access Doors and Frames**

1. Stainless steel flush panel at all valves.

**08550 Wood Windows**

1. Stock wood windows.

**08592 Historic Treatment of Wood Windows**

1. Cleaning, repair, patching and replacement of members and window units.

**08710 Door Hardware**

1. Door hardware groups to be developed in future phases.

**08800 Glazing**

1. Interior Float Glass: 1/4 inch fully tempered.
2. Exterior Insulating Glass: 5/8 inch insulating glass units

**DIVISION 9 – FINISHES**

**09220 Portland Cement Plaster**

1. Plaster patching where necessary.

**09250 Gypsum Board**

1. Interior gypsum board surfaces: 5/8" thick Type X unless noted otherwise.
1. Water resistant Gypsum Board at walls with plumbing fixtures: 5/8" thick Type X with water-resistant core.
2. It is assumed most new construction will be gypsum board with smooth texture to match existing plaster walls.

**09310 Ceramic Tile**

1. Floor tile and wall tile

**09640 Wood Flooring**

1. Wood flooring on second floor.

**09651 Resilient Floor Tile**

2. Resilient tile flooring in service areas.

**09652 Resilient Sheet Flooring**

1. Resilient sheet flooring to match color and pattern of historic sheet flooring identified on Ground Floor. Specific material and locations to be determined in future phases.

**09653 Resilient Wall Base and Accessories**

1. Resilient base may be installed in some service areas. Specific material and locations to be determined in future phases.

**09681 Carpet Tile**

1. Carpet may be installed in some areas. Specific material and locations to be determined in future phases.

**09911 Exterior Painting**

1. Paint: Ferrous Metal: Industrial Enamel, semi-gloss.

**09912 Interior Painting**

1. Gypsum board: Latex, Semi-Gloss.
2. Gypsum board in Restrooms: Water based Epoxy.

**09931 Wood Stains and Transparent Finishes**

1. Exterior and interior. May include stain and finish of exterior windows and trim.

**DIVISION 10 – SPECIALTIES****10431 Signage**

1. Interior sign system including room identification and accessibility signage.

**10522 Fire Extinguisher Cabinets**

1. Semi-recessed or fully recessed steel cabinets.

**10523 Fire Extinguishers**

1. Fire Extinguishers of required size and type.

**10800 Toilet and Bath Accessories**

1. Accessories for restrooms and kitchenette.

**DIVISION 11 – EQUIPMENT****11451 Residential Appliances**

1. Appliances in Kitchenette. These appliances may be included in a separate FF & E budget.

**DIVISION 12 – FURNISHINGS****12494 Roller Shades**

1. Possible use of manual operation roller shades for solar control.

**12497 Draperies and Tracks**

1. Possible use of manual operation draperies for solar control.

**DIVISION 13 – SPECIAL CONSTRUCTION**

**13720 Intrusion Detection**

1. Detection devices, controls and alarms.

**13845 Lighting Controls**

1. Wired, programmable and manual lighting controls.

**13851 Fire Alarm**

1. Fire alarm system to be determined in future phases in collaboration with State Fire Marshal and State Public Works Board.
2. Systems are anticipated to include heat and smoke-detection systems.

**13930 Wet-Pipe Fire-Suppression Sprinklers**

1. Piping, specialties, valves and sprinklers for wet-pipe sprinkler systems.
2. Systems will need to take into account the sensitive nature of the collection.

**DIVISION 14 – CONVEYING SYSTEMS**

**14100 Dumbwaiters**

1. Electric dumbwaiter to move materials through each floor.
2. Type, size and final location to be determined during future phases.

**DIVISION 15 – MECHANICAL**

**15010 Basic Mechanical Requirements**

1. Basic requirements, governing codes, and submittal criteria.

**15050 Seismic Restraints**

1. Seismic restraint requirements for suspended vibration and non-vibration isolated items, systems and/or related suspended equipment.

**15140 Supports and Anchors**

1. Supports, hangers, anchors, sleeves and the sealing of work to adjacent construction, applicable to fire protection, plumbing, hydronic, steam, and refrigerant systems.

**15170 Motors**

1. Electric motors and their accessories that are normally supplied as part of mechanical equipment assemblies.
2. For specific motor types for each application refer to those equipment sections.

**15250 Insulation**

1. Pipe and duct insulation.

**15310 Fire Protection Piping**

1. Requirements for the pipe, fittings, valves, and connections for fire sprinkler systems.

**15330 Wet Pipe Sprinkler Systems**

1. Requirements for the design and installation of wet-pipe sprinkler systems.

**15410 Plumbing Piping**

1. Domestic water, waste, vent, and fuel gas piping systems.
- 15430 Plumbing Specialties**
  1. Plumbing specialty items and components associated with domestic water and drainage piping systems.
- 15440 Plumbing Fixtures**
  1. Sinks, faucets, service sinks and miscellaneous accessories.
- 15485 Plumbing Equipment**
  1. Instantaneous water heater may be considered.
  2. Type of water heater and service source will be determined during future phases.
  3. Circulating pumps.
- 15530 Furnaces**
  1. Forced air furnaces with refrigerant cooling coils and condensing units.
- 15575 Breeching, Chimneys, and Stacks**
  1. Breeching, chimneys, and stacks used for venting flue gases from fuel fired heat generating appliances.
- 15750 Humidity Control Equipment**
  1. Type of humidification system will be determined during future phases.
- 15800 HVAC Air Distribution**
  1. Ductwork, ductwork accessories, air outlets, filters, and louvers.
- 15830 HVAC Fans**
  1. Centrifugal square inline fans.
- 15950 Controls**
  1. Level of controls to be determined during future phases.

## **DIVISION 16 – ELECTRICAL**

- 16050 Electrical General Provisions**
- 16100 Basic Materials and Methods**
- 16120 Conductors and Cables**
  1. Building wire, branch circuiting, connectors, and modular wiring systems.
- 16130 Raceways and Boxes**
  1. Conduit systems, flex connections, EMT, fittings, straps and outlet boxes.
- 16140 Wiring Devices**
  1. Switches, receptacles, wall plates, and other devices.
- 16145 Lighting Control Devices**
  1. Time switches, photoelectric relays, occupancy sensors and other lighting controls.

**16200 Service Entrance and Distribution Equipment**

1. Service equipment and service entrance configuration.

**16400 Panelboards**

1. Branch circuit panel boards and distribution panel boards.

**16500 Light Fixtures**

1. Exterior and interior luminaires, ballast, lamps, and accessories.

**16530 Emergency Lighting**

1. Emergency lighting units and exit signs.

**16700 Communications**

1. Telecommunications equipment, cables, connecting hardware and cable identification systems.



## Schematic Design Cost Statement

Stewart Indian Cultural Center

Project No. 11-A003

8/12/11

	Quantity	Unit	Cost/Unit	Line Total	Subtotals
<b>Civil/Site Development</b>					
Possible ramp to Basement	1	Allowance	\$8,000	\$8,000	
Utilities	1	Allowance	\$30,000	\$30,000	
Site Concrete	1	Allowance	\$10,000	\$10,000	
				Subtotal Civil	\$48,000
<b>Architectural</b>					
Selective demolition	1	Allowance	\$20,000	\$20,000	
Front porch	1	Allowance	\$15,000	\$15,000	
Wood stair framing - 2 stairs	38	Tread	\$200	\$7,600	
Rehabilitate wood flooring	300	SF	\$30	\$9,000	
Wood base - hardwood	650	LF	\$10	\$6,500	
Wood base - painted	650	LF	\$5	\$3,250	
Wood door trim	41	EA	\$300	\$12,300	
Exterior wood window trim	19	EA	\$400	\$7,600	
Wood stair finish	38	Tread	\$300	\$11,400	
Wood stair railings	160	LF	\$80	\$12,800	
Wood stair guardrail	30	LF	\$350	\$10,500	
Casework/Countertops	50	LF	\$200	\$10,000	
Insulation	3,200	SF	\$2	\$6,400	
Wood shingle repair	1	Allowance	\$2,000	\$2,000	
Roof flashing	1	Allowance	\$500	\$500	
Joint sealants	1	LS	\$2,500	\$2,500	
Interior wood doors	38	EA	\$800	\$30,400	
Exterior wood doors	5	EA	\$1,500	\$7,500	
Exterior transoms	2	EA	\$1,500	\$3,000	
Interior wood windows	96	SF	\$50	\$4,800	
Exterior wood windows	19	EA	\$4,000	\$76,000	
Access doors	8	EA	\$250	\$2,000	
Aluminum "storm" windows in Exhibits areas	240	SF	\$50	\$12,000	
Door hardware	41	EA	\$500	\$20,500	
Gypsum board framing	1,200	SF	\$2	\$2,400	
Gypsum board	5,600	SF	\$2	\$8,400	
Gypsum board ceilings	1,500	SF	\$2	\$3,000	
Plaster repair	1	Allowance	\$5,000	\$5,000	
Floor tile	240	SF	\$10	\$2,400	
Wall tile	600	SF	\$12	\$7,200	
Resilient flooring	3,000	SF	\$8	\$24,000	
Carpet tile	2,100	SY	\$30	\$63,000	
Wall paint	10,000	SF	\$1	\$10,000	
Ceiling paint	6,000	SF	\$1	\$7,500	
Toilet accessories	1	Allowance	\$1,500	\$1,500	
Signage	1	Allowance	\$1,200	\$1,200	
Fire extinguisher/cabinets	3	EA	\$150	\$450	
Residential appliances	1	Allowance	\$3,000	\$3,000	
Roller shades	1	Allowance	\$6,000	\$6,000	
Material lift	1	EA	\$15,000	\$15,000	
				Subtotal Architectural	\$453,600



## Schematic Design Cost Statement

Stewart Indian Cultural Center  
Project No. 11-A003

8/12/11

	Quantity	Unit	Cost/Unit	Line Total	Subtotals
<b>Structural</b> (see Hyytinen Engineering Cost Statement)					
				\$210,050	
				Subtotal Structural	\$210,050
<b>Mechanical/Plumbing</b> (see Petty & Associates Cost Statement)					
				\$156,910	
				Subtotal Mechanical/Plumbing	\$156,910
<b>Electrical</b> (See PK Electrical Cost Statement)					
				\$79,000	
				Subtotal Electrical	\$79,000
<b>Subtotal</b>					<b>\$947,560</b>
<b>General Requirements</b>					
General Conditions	20.00%	of Subtotal		\$189,512	
				Subtotal Division 1	\$189,512
Subtotal					\$1,137,072
OH&P	10.0%	of Subtotal		\$94,756	\$94,756
Subtotal					\$1,231,828
Insurance and Bonds	2.50%	of Subtotal		\$23,689	\$23,689
Subtotal					\$1,255,517
<b>Design Contingency</b>	30.0%	of Subtotal		\$376,655	\$376,655
<b>Total</b>					<b>\$1,632,172</b>
Building Area	6,000	GSF			
Cost per Square Foot					\$272

Note:

This cost statement does not include exhibits or furniture, fixtures, and equipment (FF&E).

Hyytinen Engineering  
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 Reno, NV 89511  
 Phone: (775) 826-3019  
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Opinion of Probable Structural Cost  
 Enhanced Schematic Design  
 Stewart Facility Cultural Center

7/14/2011

**DEMOLITION**

Demo 1st Floor Underlayment	3050	sf	at	\$0.50	=	\$1,525
Demo (E) Porch	L.S.				=	\$200
Demo (E) Fireplace Brick	L.S.				=	\$100
Materials Lift Demo	L.S.				=	\$800
Demo (E) Framing	1400	bf	at	\$0.50	=	\$700
Demo (E) Stair	L.S.				=	\$500
Sawcut and Demo (E) Interior Slab	150	sf	at	\$5.00	=	\$750
Misc.	L.S.				=	\$500
<b>Total Demolition:</b>						<b>\$5,075</b>

**EARTHWORK**

Interior Excavation	18	cy	at	\$60.00	=	\$1,080
Exterior Excavation	3	cy	at	\$30.00	=	\$90
Aggregate Base	7	cy	at	\$30.00	=	\$210
Misc.	L.S.				=	\$300
<b>Total Earthwork:</b>						<b>\$1,680</b>

**ROUGH CARPENTRY**

Framing	8700	bf	at	\$5.00	=	\$43,500
Materials Lift Framing	200	bf	at	\$5.00	=	\$1,000
Reconfigure Stair	L.S.				=	\$2,000
5/8" 2nd Floor Sheathing	650	sf	at	\$2.25	=	\$1,463
5/8" Porch Roof Sheathing	600	sf	at	\$2.25	=	\$1,350
Materials Lift Sheathing	350	sf	at	\$2.25	=	\$788
Straps	1500	lf	at	\$2.25	=	\$3,375
Framing Clips	L.S.				=	\$7,500
Misc.	L.S.				=	\$2,000
<b>Total Carpentry:</b>						<b>\$62,975</b>

**MASONRY**

Epoxy Anchors	500	ea	at	\$30.00	=	\$15,000
Porch Epoxy Anchors	34	ea	at	\$30.00	=	\$1,020
Repoint Portions of Existing Walls	L.S.				=	\$10,000
Misc.	L.S.				=	\$2,000
<b>Total Masonry</b>						<b>\$28,020</b>

**STRUCTURAL STEEL**

Reinforce (E) Lintels	40	ea	at	\$500.00	=	\$20,000
Porch Columns	4	ea	at	\$400.00	=	\$1,600
Materials Lift Steel	L.S.				=	\$1,000
Shearwall Reinforcing	L.S.				=	\$20,000
Misc.	L.S.				=	\$500
<b>Total Steel:</b>						<b>\$43,100</b>

**CONCRETE**

Interior Footings	6	cy	at	\$600.00	=	\$3,600
Porch Footings	6	cy	at	\$450.00	=	\$3,600
Shotcrete	3000	sf	at	\$20.00	=	\$60,000
Misc.	L.S.				=	\$2,000
<b>Total Concrete</b>						<b>\$69,200</b>

**TOTAL STRUCTURAL:**

**\$210,050**

**PETTY & ASSOCIATES, INC.****Date:** 06/01/11**Mechanical Cost Analysis****Cost Estimate****Project:** Stewart Building #1**Job No:** 292810**Location:** Reno, Nevada**Square Feet:** 3,530 gross

<b>HVAC</b>	Quantity	Unit	Unit Cost	Total Cost
New horizontal split systems	7	Ea Unit	8125.00	\$56,875
Humidifiers	2	Ea Unit	6740.00	\$13,480
Demo and Replace Flexible Ductwork	7000	\$/Sq Ft	6.60	\$46,200
Exhaust Fans	2	Ea Unit	2110.00	\$4,220
Louvers	4	Ea Unit	525.00	\$2,100
<b>Total HVAC</b>				<b>\$122,875</b>

<b>Plumbing</b>	Quantity	Unit	Unit Cost	Total Cost
Plumbing Fixtures & Trap Covers	2	LS	150.00	\$300
Stainless steel sink	2	LS	715.00	\$1,430
Mop sink	1	LS	1725.00	\$1,725
Repair of existing plumbing fixtures	1	LS	500.00	\$500
Water Distribution Piping	1	LS	1000.00	\$1,000
Waste and Vent Piping	1	LS	7000.00	\$7,000
Circulation Pump	1	LS	500.00	\$500
Gas Piping	1	LS	400.00	\$400
<b>Total Plumbing</b>				<b>\$12,855</b>

<b>Fire Protection</b>	Quantity	Unit	Unit Cost	Total Cost
	3530	LS	4.50	\$15,885
<b>Total Fire Protection</b>				<b>\$15,885</b>

<b>Miscellaneous</b>	Quantity	Unit	Unit Cost	Total Cost
Testing and Balancing	3530	\$/sq ft	1.50	\$5,295
<b>Total Miscellaneous</b>				<b>\$5,295</b>

<b>Cost Summary</b>	Cost/SF	Total Cost
HVAC	34.81	\$122,875
Plumbing	3.64	\$12,855
Fire Protection	4.50	\$15,885
Miscellaneous	1.50	\$5,295
<b>Total Mechanical</b>	<b>44.45</b>	<b>\$156,910</b>



**PK Electrical, Inc.**

681 Sierra Rose Dr., Ste. B | Reno, Nevada 89511  
p. 775.826.9010 | f. 775.826.9030 | pkelectrical.com

6/1/2011

OPINION OF PROBABLE CONSTRUCTION COST			JOB NO. 11040	PG.1	
Stewart Indian Cultural Center			SHEET 1	OF 1	
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
1	400 Amp Service Entrance with Meter Main	\$7,350	EA	1	\$7,350
2	100 Amp Subpanel	\$1,200	EA	1	\$1,200
3	Interior/ Exterior Lighting (General, Museum, Life Safety and Security)	\$30,000	EA	1	\$30,000
4	Receptacles (Including Museum display requirements)	\$12,000	EA	1	\$12,000
5	Fire Alarm (full detection)	\$8,000	EA	1	\$8,000
6	Telecom (Data, Telephone)	\$4,800	EA	1	\$4,800
7	Underground Telecomm Service (To Building 89)	\$9,150	EA	1	\$9,150
8	Security (Door Tamperers, Motion Sensors, Panel)	\$3,000	EA	1	\$6,500
	SUBTOTAL				\$79,000
	CONTINGENCY (20%)				\$15,800
	TOTAL				\$94,800

†: UTILITY FEES NOT INCLUDED

## APPENDIX A

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Appendix A includes a Mission Statement, Functional Considerations and Resource List for the operation of the cultural center.

### MISSION STATEMENT

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The below mission statement was developed by the Stewart Advisory Committee and now incorporated into the schematic design submittal to aid in future design considerations.

To preserve the history of the Stewart Indian School by educating the community about the American Indian people, the school, and the boarding school era, and to honor and memorialize the thousands of American Indian children that attended the school.

### FUNCTIONAL CONSIDERATIONS

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With the Stewart Indian School architectural schematic design phase nearing completion, planning for other aspects of the museum outside this scope of work might be appropriate. Exhibit Display cases, office furniture, along with tools and equipment will be needed for the museum to operate and function on a daily basis. Federal, state, and private funding sources will need to be explored not only for startup capital but also for long term support. There are various models including Native American museums of similar size and focus that may be of help. Using the museums mission statement as the guide, a comprehensive list of necessary materials can be formulated. Funding for these recourses will take time and should begin before the overall project is completed.



JIM GIBBONS  
Governor

MICHAEL E. FISCHER  
Department Director

STATE OF NEVADA  
DEPARTMENT OF CULTURAL AFFAIRS  
State Historic Preservation Office  
100 N. Stewart Street  
Carson City, Nevada 89701  
(775) 684-3448 • Fax (775) 684-3442  
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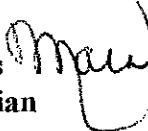
RONALD M. JAMES  
State Historic Preservation Officer

October 22, 2009

**TO: Sherry Rupert and Chris Gibbons, NIC**

**RE: Stewart Indian School, Building #1, Administration Building**

Here is the expanded list of resources for this project as discussed previously. Some items only NIC has. SHPO has copied all or a portion of documents that we have (as noted below). They are attached.

Thank you,  
Mara Thiessen Jones   
Architectural Historian  
775-684-3439  
[mara.jones@nevadaculture.org](mailto:mara.jones@nevadaculture.org)

**Stewart Indian School, Building #1, Administration Building**

Identified Resources for the Project:

- A. June 1963 Drawings
- B. June, 1969 Drawings
- ✓ C. 1930's Blue Prints – Pat McInnis (Mara/SHPO called and left message re getting these to NIC – 9.19.09 – NIC to follow up)
- ✓ D. Floor Plan for 2008 Buildings and Grounds Roofing Project – from Robbie Oxoby
  - a. “Specifications, Stewart Complex, Structural Repairs and Roofing, Building Assessment, Phase 1” written by Oxoby Architecture, May 3, 2009 SHPO has provided NIC with first pages of the document. SHPO has full document.
  - b. “Specifications, Stewart Complex, Structural repairs and roofing Building Assessment, SPWB Project No. 05-M46,” March 28, 2007 by Oxoby Architecture First pages copies and submitted to NIC by SHPO. SHPO has complete document.
  - c. “Stewart Complex, Structural Repairs and Roofing, Building Assessment, SPWB Project No. 05-M46” by Oxoby Architecture (Architectural Analysis with report

from Hyytinen Engineering on Structural Recommendations) Cover, contents and pertinent pages were copied by SHPO for the NIC –complete document at SHPO

- E. 2004 Engineering Report from Mel Greene (SHPO made copy for NIC records 10.19.09-large binder including the entire Indian School complex)
- ✓ F. Preliminary Estimate by Hyytinen Engineering (includes seismic budget items) see Robbie Oxoby for this
- G. E-mail from Dennis Nolan to the State Fire Marshall (including photos)
- H. Short Narrative by Mel Greene on the 2004 Project (also worked on in 1991 and 1992) (SHPO has provided copies of the narrative of these two reports-further info, see Mel Green)
- I. Savage and Sons Preliminary Assessment of HVAC with Recommendations (SHPO provided copy to NIC 10.23.09)
- J. Photos of Interior Spaces (2 Yearbook Photos) with NIC
- ✓ K. NRS 341 State Public Works Board
- L. September 2000 Save America's Treasures Grant Application (SHPO sent to NIC 9.2009)
- M. Fire Marshall Comments Pending (Jason Crosby was contacted by SHPO 10.19.09 regarding the calculations and measurements needed to complete the determination of whether this building is 2 or 3 stories high at the rear—NIC to follow-up) This determination informs requirements for fire safety compliance.
- N. Museum Consultant – Technical Assistance and Exhibit Design (info sent directly to NIC from Rachel Malloy and Museums)
- ✓ O. Landscape Project, 2009 by Patrick Wyss (NIC has)