



November 10, 2005

A modern way to fortify an old building

The century-old Port Townsend City Hall is getting earthquake protection from a new administration annex next door.

By DAVE RUTHERFORD
ARC Architects

[Index](#)

[Surveys](#)

[DJC.COM](#)

The historic town of Port Townsend sprang to life in the late 1800s with high hopes of becoming a major trading port. Part of that growth included the town's 1892 City Hall, which can be found at the north end of the waterfront.



Images courtesy ARC Architects

The annex will fortify the historic Port Townsend City Hall against earthquakes and provide space for city employees.

The brick City Hall was originally built with a fire hall, jail, court and city council chambers. Years of deterioration and deferred maintenance have taken their toll, and the building's steeply pitched third floor with detailed corner towers was removed in the 1940s in favor of a flat roof. The reason? A lack of funding for roof repairs.

In the early 1990s, the Jefferson County Historical Society began working on plans to renovate City Hall, where it operates a museum.

An analysis revealed the scope and cost were significantly beyond the society's reach. After much discussion, the city agreed to cover the costs of the shell and core elements, including seismic upgrades, brick repointing, window restoration and a new flat roof.

Two projects become one

ARC Architects was initially hired to design a city administration building with a civic presence adjacent to City Hall. ARC was later asked to include the rehabilitation of City Hall as part of the project and involve Kate Johnson, a local preservation architect.

In 2002, the design team found itself working on both projects separately. There was much deliberation to find the best solutions within the

constraints of two complicated projects with inadequate budgets.

In addition to the extensive exterior renovation, City Hall required seismic strengthening by adding new lateral elements to brace the south and west walls, and by attaching its wood floors to unreinforced masonry walls. The project scope included ADA upgrades and a second means of egress to meet building code.

The design team also agreed that the long-term goal should include a reproduction of the ornate third floor that was removed over 50 years ago. That idea is on hold, pending fund-raising of about \$3 million.

While plans for City Hall were being put together, the design team was struggling to meet the new administration building's tight budget and need for more program space. As the team wrestled with minimizing the impact to City Hall and creating more program space for city administration, the

advantages of combining the two buildings became obvious. The new administration building could provide the required accessibility, new rest rooms and a second means of egress without taking up valuable space in City Hall; City Hall could provide needed program space that the addition could not afford. All of this could be done for less money than if the two projects were executed separately.

Beefing up City Hall

The need to strengthen City Hall's south and west unreinforced masonry walls was a significant challenge. The numerous openings in these ornate facades significantly weaken their ability to resist the lateral forces of an earthquake.

Many options were explored. One involved core drilling the brick pilasters between the windows and placing post-tensioned steel rods to strengthen the masonry piers. This would have been expensive, and drilling would have been difficult and risky.

Another solution was to strengthen the walls with steel frames. While a steel-braced frame resolved the lateral forces economically, the city was

The project team

Owner:
City of Port Townsend

Project architect:
ARC Architects

Historic preservation architect:
Kate Johnson

Landscape architect:
McLeod Reckord

Structural engineer:
Swenson Say Fagèt

Civil engineer:
Telegraph Engineering

Mechanical engineer:
Keen Engineering

Electrical engineer:
Travis Fitzmaurice

General contractor:
Dawson Construction

not in favor of the diagonal bracing that would be visible inside the historic facade. This would also significantly disrupt the interior spaces of City Hall and require considerable restoration work to conceal the steel frame.

The team then explored using the administration building as a buttress to support City Hall during a seismic event. A large steel brace frame was designed for the administration building that connects to continuous steel drag struts at the second floor and roof of City Hall, and to a large concrete footing under the new building. By structurally tying the two buildings together, flexible seismic joints were eliminated,



Images courtesy ARC Architects

A third story with a steeply pitched roof would be built over City Hall's flat roof, if about \$3 million in financing is secured. A similar roof was removed in the 1940s from the original building.

allowing simple direct connections between the buildings at all levels.

This innovative solution is an example of how a new adjacent structure can be used to alleviate the visible impact of required seismic bracing on a historic structure and maintain the seismic integrity of the system.

There was still the issue of support for the south facade. Again, the installation of a steel frame was not the preferred solution inside City Hall. It was decided that a wood partition wall near the south face could be replaced with a concrete shear wall. A large concrete footing and helical anchors in the basement of City Hall support this shear wall.

Construction is expected to be completed in January 2006. The exploration process and refined solutions are an excellent example of design integration and team collaboration.

Dave Rutherford is a principal at ARC Architects in Seattle.

Other Stories:

- [How to get more floor space in high-rise condos](#)
- [Are you ready for a \\$30B quake?](#)
- [New waterfront mandate: OK isn't good enough](#)

- [Is Seattle ready to slim down its residential towers?](#)
- [Add an archaeologist to the design team](#)
- [Can the Northwest be energy independent again?](#)
- [Artists, architects find a sense of place](#)
- [Design dialogues cultivate Seattle's Chinese garden](#)
- [Designing a feast for the eyes](#)
- [Fitting feng shui into Western architecture](#)
- [Listen closely on how to find leaky pipes](#)
- [Try integrated 3-D design for better buildings](#)

Search Stories

Find:

With:

In:

Depth:

Sort by:

[Top](#) | [Back](#) | [2005 A&E Perspectives](#) | [DJC.COM](#)

Copyright ©2005 Seattle Daily Journal and DJC.COM.
Comments? Questions? [Contact us.](#)