



St Andrew's-Wesley United Church Vancouver, British Columbia

Completion December 2021

Project Type Civic

Client St Andrew's-Wesley United Church

Main Contractor Heatherbrae Builders Co Ltd

Value \$29m / £17m

Area 1,500sqm

A seismic upgrade and heritage renewal of a historic landmark church in Vancouver, British Columbia. Originally constructed in 1927, the church boasts a Gothic revival style built using locally sourced materials such as Nelson Island granite and Haddington Island stone.

The historic structure had suffered from years of natural decline. This caused the fabric to gradually deteriorate as well as a leaking roof requiring frequent repair.

The renewal celebrates the church's historic features while increasing the longevity of the structure through improvements to envelope performance, seismic resiliency, occupant safety and accessibility.

Retrofit Strategy

The seismic upgrade involved the insertion of concrete frames and buttresses, roof replacement, architectural metalwork and flashing repair and replacement.

Retrofit Type

Seismic

Heritage





“Ryder successfully delivered the project on time while supporting the project vision. Adam and Jose came up with creative and innovative ideas, making informed decisions to solve our unique problems”.



Diane Mitchell, Executive Director, St Andrew's Wesley United Church



The floors and pews were also replaced, as well as an upgrade to the plaster interior.

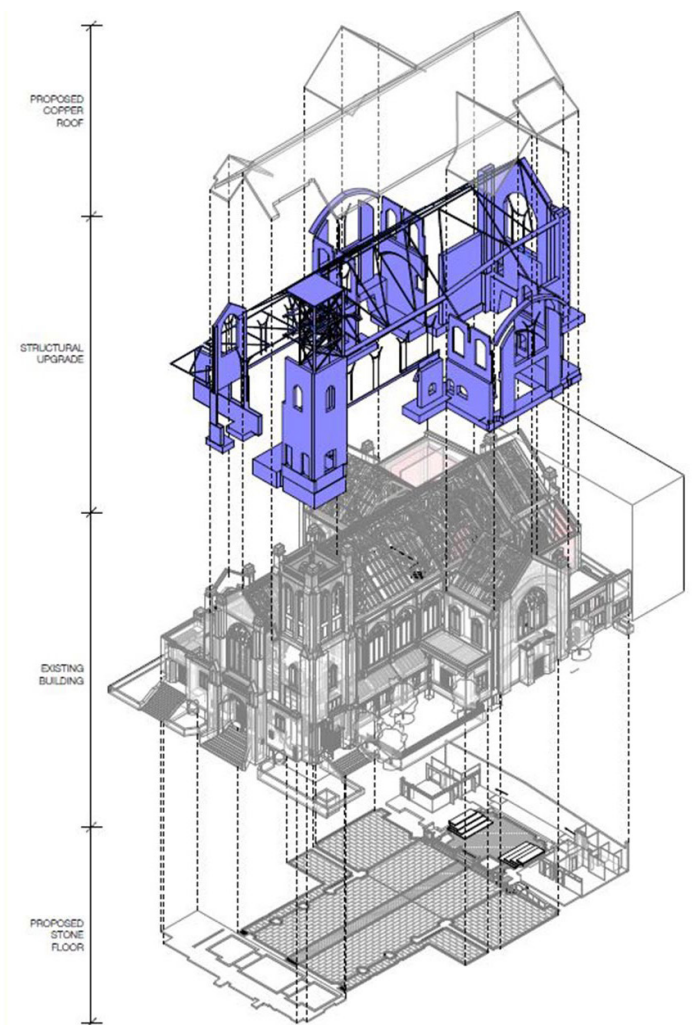
Much of the structural seismic upgrades needed to be concealed as a seamless intervention. This required careful coordination and insertion of the new structural components throughout the building to preserve the original character.

Ryder's BIM expertise was leveraged to facilitate an integrated design and construction process. A 3D model was built using a combination of the existing 1930s drawings and a point cloud survey of the church.

Being a designated heritage building, a deep carbon, 'fabric first' approach did not align with the requirement to maintain the historic interior.

A detailed hygrothermal analysis using WUFI software was therefore undertaken. This enabled targeting of specific areas in which envelope upgrades could be applied, as well as identifying potential instances of thermal bridging.

The analysis also highlighted that the installation of the seismic roof diaphragm would allow for the addition of external insulation without impacting the heritage facade.



Lessons Learnt

The digital model was invaluable in establishing the optimum structural design response and reinstatement of the historic church interiors after the completion of the seismic upgrade.

The design team and structural engineers shared models and the project specification developed in conjunction with BIM. As a unique heritage seismic upgrade, consistent coordination with each consultant was key to delivering a seamless intervention.